

**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF HEALTH SCIENCES**  
**DEPARTMENT OF EMERGENCY MEDICINE**



**AIRWAY AND BREATHING MANAGEMENT KNOWLEDGE AND  
PRACTICE OF NURSES WORKING IN EMERGENCY DEPARTMENT  
OF SELECTED GOVERNMENTAL HOSPITALS UNDER HEALTH  
BUREAU OF ADDIS ABABA, ETHIOPIA 2021**

**Principal Investigator- Mulachew Nigatu-(Bsc)**

**A RESEARCH THESIS TO BE SUBMITTED TO THE SCHOOL OF  
EMERGENCY MEDICINE COLLEGE OF HEALTH SCIENCES, ADDIS  
ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF EMERGENCY  
AND CRITICAL CARE NURSING.**

**June 2021**

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## APPROVAL SHEET

The board of reviewers approved this thesis by Mulachew Nigatu in its present form to meet the proposed prerequisite for a master's degree in emergency medicine and critical care nursing.

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## **ACRONYMS AND ABBREVIATIONS**

AA-Addis Ababa

AAFEPPRA-Addis Ababa Fire and Emergency Prevention and Response Authority

AMBU-Artificial Manual Breathing Unit

AOR- Adjusted Odds Ratio

CO<sub>2</sub>-Carbon Dioxide

COR-Crude Odds Ratio

ED-Emergency Department

HIV/AIDS-Human Immune Virus/Acquired Immune Deficiency Syndrome

LMIC-Low and Middle-Income Countries

NPPV-Noninvasive Positive Pressure Ventilation

O<sub>2</sub>-Oxygen

PaO<sub>2</sub>-Partial Arterial Oxygen

RTA-Road Traffic Accident

SaO<sub>2</sub>-Arterial Oxygen Saturation

SPSS-Statistical Package for Social Science

WHO-World Health Organization

## ABSTRACT

**Background:** Management of airway and breathing is one of the most important initial interventions to save the lives of patients and is a cornerstone of excellent emergency care. The first few minutes after an emergency condition are vital to providing these lifesaving interventions.

**Objective:** This study aimed to assess the knowledge, and practice of nurses regarding airway and breathing management who were working in selected hospitals under Addis Ababa health bureau, Addis Ababa, Ethiopia from March to April 30, 2021.

**Methods:** The study used an institutional-based cross-sectional descriptive study with a complete enumeration of all respondents by using the census method during the study period from March to April 30, 2021. A self-administered and structured questionnaire was used for collecting data from the respondents. Data quality was controlled by pre-testing the tools and providing training to the data collectors. The SPSS version 26 software was used for analyzing the data. Mean, frequency, binary, and multiple logistic regression analyses were used. Only P-value less than 0.05 was considered statistically significant.

**Result:** About 102 respondents were included in this study with a response rate of 98%. Among those, 54(52.9%) were females. Findings from this study showed that 71.57% and 64.71% of the respondents had good knowledge and practice respectively. Being trained in training related to airway and breathing management before was statistically associated with knowledge and practice on both binary and multiple logistic regression at  $p < 0.05$ .

**Conclusion and recommendation:** This study showed relatively good knowledge and practice of nurses on airway and breathing management. Even though the finding is good, a significant number of participants had poor knowledge and practice. Therefore, it is very crucial to provide training since it was significantly associated with good practice and knowledge.

**Keywords:** knowledge, practice, nurse, airway management, breathing management

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

The airway is a pathway for airflow through the nose and mouth downwards to the alveoli in the lungs, where the exchange of oxygen (O<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) takes place spontaneously. The open airway is "mandatory" for life. Airway management is an activity that uses a different technique, maneuver, or device to keep its patency, by doing so; its normal physiological functions can be achieved; providing an exchange of gases. (1)

These basic interventions remain as the "cornerstones" of good emergency care as airway problems or respiratory failure is the main cause of death in the first hours of injury. Therefore taking immediate action and applying the appropriate techniques for critical patients can save many lives. (2)

Management of airway and breathing needs prompt intervention as patients may die from the lack of these actions. Airway maintenance without "endotracheal intubation" is one of the most crucial emergency airway management techniques to keep patients alive. (3)

Indications for Airway management include when: the patient is unconscious, the patient has an obstructed airway and rescue breathing is required. (4)

A person suffering from inadequate O<sub>2</sub> and CO<sub>2</sub> exchange may require manual ventilation; however, often simple airway maneuvers to open the airway are sufficient to manage or improve spontaneous air movement. (5)

Basic airway management includes; opening the airway by using manual maneuvers such as head tilt and chin lift and jaw thrust), positioning, keeping the airway open by devices like oropharyngeal and nasopharyngeal airways, oxygen therapy, suctioning, and ventilation. There are also different techniques to manage the basic airway in case of foreign body obstruction such as abdominal thrusts (Heimlich maneuver), chest thrusts, and back blows (slaps). The most

certain indications for supplemental O<sub>2</sub> are the presence of arterial hypoxemia and tissue hypoxia. To deliver oxygen we can use different oxygen delivery devices such as high-flow delivery systems (venture mask), low-flow delivery devices (nasal prong/cannula), Simple masks, partial rebreathing masks, and Bag-Mask Ventilation(6). The possibility of cervical spine injury should be considered in trauma patients during airway management. (7)

Suctioning can improve emergent airway management with large-bore suction catheters (e.g., the new Suction Assisted Laryngoscopy Airway Decontamination [SALAD] technique) in patients at risk. AMBU bag takes the first place in the revolution of airway management for significant advances in anesthesiology and resuscitation and was pioneered by anesthesiologists in the 1950s and 1960s and has saved many lives. (8)

Well organized Emergency Medical Service (EMS) systems in developed countries have been shown to save lives that previously had a high risk of dying at the scene or while transporting to the hospital, however, there is still high suffering from preventable morbidity and mortality in developing metropolitan cities such as Addis Ababa, Ethiopia. The factors are the lack of a coordinated EMS system, designated well-developed emergency center (EC), human and material resources to care for injury or acutely ill patients, medical training on principles of triage and emergency management, and sustainable funding for emergency services. (9)

There are limited sources/no study done particularly assessing the airway and breathing management of nurses in Ethiopia in these very crucial interventions to my knowledge. Therefore, this study aimed to assess nurses' knowledge and skills towards airway and breathing management.

## **1.2. Statement of the problem**

The overall emergency care, either in a hospital or outside the hospital, is to calm the patient and recognize life-threatening conditions so that the secondary injuries are reduced and start supportive treatment as well as to facilitate the definitive treatment. The priority for managing an acutely unstable patient is securing the airway. (10)

A study from Nepal found that 33% of health professionals know the correct way of opening the airway of an unresponsive injured victim. Similarly, a study from Egypt shows that greater than 85% of the respondents could not identify the first step to confirm the suspected airway obstruction. (11) (12)

Despite its clinical and research importance in the care of critically ill and injured patients, previous studies have documented suboptimal basic airway performance with a wide variation across the Emergency Departments. (13–15)

As to the author's knowledge, there is little/ no study conducted particularly on emergency airway and breathing management knowledge and practice among nurses in my study areas, which is most significant in planning training for its use, differentiating, and preventing the factors associated with poor patient's outcome.

Thus, this study is intended to assess the knowledge and practice of airway and breathing management among nurses of selected public hospitals under the Addis Ababa health bureau, Addis Ababa, Ethiopia.

### **1.3. Significance of the study**

The study tried to identify the gap of knowledge and practice of emergency airway and breathing management among nurses working in the three selected hospitals.

As to the author's knowledge, there is limited/no published study related to nurses' knowledge and practice on airway and breathing management in Ethiopia. Thus, this study tried to show gaps in nurses' knowledge and practice on airway and breathing management.

Therefore, the outcome of this study would hopefully provide input for policymakers, hospitals, and health professionals to contribute to a quality of care. Moreover, it would help as reference material for future researchers interested in this issue.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Knowledge of airway and breathing management

The human body requires both oxygenation and ventilation in-separately not be suffered from hypoxia and hypercarbia. Oxygenation is the addition of oxygen to the human body whereas ventilation is the movement of air between the atmosphere and lung to provide oxygen. Devices used to manage either oxygenation or ventilation are airway devices that can be classified as basic and alternative where each of them is designed to their functions. (16)

A cross-sectional survey related to airway and breathing management conducted in India showed that among the study participants 63% of nurses had good knowledge whereas around 37% were poorly knowledgeable. Among those participants, more than 49.7% did not know how to insert an oral airway. (17)

Different works of the literature revealed different findings on airway obstruction, signs of airway obstruction, and recovery position to manage airway and breathing. The study done at Tabuk University, Saudi Arabia revealed that the Majority of the participants (89.4%) failed to identify confirming the severity of airway obstruction as the course of action to be taken with a suspected foreign body obstruction victim, 42.6% failed to know the correct technique for removal of a foreign body from an infant and 87.2% of the participants were unable to determine the importance of the recovery position in a spontaneously breathing, unconscious victim. (18) About 30% of medical students knew that there is no airway obstruction if the patient is breathing even though unconscious whereas 12.7% of them thought to put the patient in the recovery position if the patient is unconscious and not breathing. Regarding the importance of recovery position 30.9% of the respondents thought that "it is a good stable position which can easily monitor a casualty." For the question on choking management, about 67.2% of the respondents answered the correct technique to manage the choking problem. The study also confirmed that around 62.1% of study participants had awareness of what should be

done first if the victim is unconscious as it's reported from the study done in Taibah University, Saudi Arabia. (19)

A study from Turkey reported that the mean score knowledge of nurses on study-related with airway and breathing management was 43 %, which was poor knowledge level. (20)

The study conducted in Saudi Arabia revealed that for the scenario about choking attack in adult-only 23% of the total participants were able to identify the first step in managing such a case. (21)

A study report from Jazan University revealed that more than half of the respondents had better knowledge of managing respiratory arrest. But only 10% of female and 33.3% of male respondents were able to know the correct method of airway opening in trauma patients. The mean knowledge score of nurses on overall response was poor(22).

From the study report from Sri Lanka, about 69% of nurses had good knowledge of airway management and oxygen therapy/administration. (23)

The study that was done on nurses working in the accident and emergency department of Kenyatta national hospital in Kenya shown that from the total study participants about 64(94.1%) respondents answered correctly as a priority should be given for airway and breathing management while treating severe acute poisoning whereas 4(5.9%) answered incorrectly. (24)

Different types of equipment and maneuvers are used to manage the impaired airway and to immobilize the cervical spine(1). The study done in Rwanda on nurses showed that among respondents, all of the respondents reported correctly that a bag valve mask is used to assist breathing by giving a high concentration of oxygen and 44 (86.3%) respondents said that oral airway device is used to avoid tongue from blocking airways in unconscious patient whereas 2(3.9%) said to avoid toothache and 5(9.8%) did not know (10).

A study related to airway and breathing management was done on health professionals working in health centers in Addis Ababa revealed that from the total respondents nearly half of them (47.5%) had good knowledge scores (14).

Another study that was done at Tikur Anbessa Specialized hospital to assess knowledge, attitude, and practice of residents on CPR showed that from the total respondents' considerable number of respondents (34%) responded wrongly for maneuver to be used while managing the airway of a patient with no trauma whereas 66.0% of them responded that Head tilt chin lift is a maneuver to open the airway for no trauma patient(25).

A majority 68.8% of the study participants from the study done in Addis Ababa on taxi drivers to assess knowledge, attitude, and practice of first aid were able to know all signs of airway problems. In the same study, the correct response for airway opening procedure for a patient with traumatic injury was Jaw thrust by 67 (16.8%) respondents. Only a few numbers 4 (1%) of respondents knew safe position for a patient after a traumatic event. (26)

## **2.2. Practice on airway and breathing management**

Even if it is important to improve a patient's oxygenation with supplemental oxygen, airway devices play a great role in oxygenation by keeping the airway patency during airway and breathing management(27). In the case of airway management devices, all of the study participants used oral airway whereas only 4 (7.7%) inserted a nasal airway to manage airway and breathing according to the report from a study in Turkey and it was observed from the study in Kenya that nursing teams commonly failed to assist with inserting pharyngeal airways and performing regular suctioning and from the total of 15 observed patients Oxygen therapy was not given for the patients who need it. (18, 24)

A study that was done among trained and untrained medical students at the Lithuanian university of health sciences revealed that the majority 96.7% of trained and 61.7 % of untrained respondents had awareness on identifying severe airway obstruction and they knew to manage it. (28)

Regarding the Practice pattern of airway and breathing management among EMS students in a study done in India showed that the majority 91% of them knew to manage airways and breathing and apply cervical collars to prevent further damage. (7)

In the study done in Rwanda majority(62.7%) of respondents stated that while attending the unconscious victim, with no neck injury, allowing the air entry by chin lift and head tilt is what

was stated correctly while remove victim's clothes to allow free air(33.3%) and quickly rush to the hospital was reported by (3.9%) of the participants wrongly. (10)

A large number of participants have no awareness on management of the obstructed airway in choking according to the study done on nurses who were working in pre-hospital ambulance care of AAFEPR, Addis Ababa, Ethiopia, showed that greater than half of the respondents 51.9% do not know how to manage choking in responsive infant, whereas the study reported that below half (45.7%) of them do not know in adults. On the other hand, only 43(33.3%) of the study participants gave a correct response to the method on how to open the airway of an infant. (29)

A study done on health professionals working in health centers which were found in Addis Ababa to assess knowledge and practice towards acute trauma care revealed that, from a total of 118 respondents Majority, 82(69.5%) of respondents scored poorly in the practical assessment. (14)

### **2.3. Factors affecting knowledge and practice of airway and breathing management**

According to Franco-German and American model approaches on airway management, education and high quality of training play a great role in being well equipped with the practice of airway and breathing management(30). There was significant knowledge and practice variation between trained and untrained study participants from the study report done in Lithuanian university where knowledge and practice status of the trained study respondents was satisfactory. (31) Gender and the length of exposure for emergency management like breathing management techniques in infants were some of the factors affecting the knowledge and practice of the nursing student in the study report from Saudi Arabia where females had a greater mean score of 64.5% and prolonged exposure had a mean score of 67% whereas the length of academic stay best has no relationship with the students score on an emergency case like choking management practice and knowledge mean score where academic year stay four had better 65% mean score than six 59.5% mean score. According to the study, therefore increase in exposure increased the awareness of students on breathing management. (32)

A study conducted on emergency management of nurses in Rwanda reported that there was no association between the knowledge level and socio-demographic data with a p-value greater than 0.05( $P>0.05$ ). However being trained on emergency management was statistically significant to practice level with ( $\text{Chi}^2=12.632, P=0.006$ )(10)

A related study from Gonder comprehensive hospital, Ethiopia, found that taking training was significantly associated with having good knowledge where [AOR: 2.76, 95%CI (1.40 to 5.42)](33).

A cross-sectional study done in Addis Ababa on health professionals to assess KAP of acute trauma care revealed that; gender, total work experience, emergency experience, and training related to emergency management has an association with knowledge of nurses in bivariate analysis whereas only work experience greater than four years is statistically significant with knowledge of nurses towards emergency care from multivariate analysis (AOR: .155, 95% CI: (.037, 0.653),  $p=.011$ ). (14)

## **CHAPTER THREE**

### **OBJECTIVES**

#### **3.1. General Objective**

To assess the emergency airway and breathing management knowledge and practices of nurses working in the emergency department of selected hospitals under the health bureau of Addis Ababa, Addis Ababa, Ethiopia 2021.

#### **3.2. Specific objectives**

To assess knowledge of emergency airway and breathing management among nurses working in emergency departments of the three selected hospitals under the Addis Ababa health bureau

To assess the practice of emergency airway and breathing management among nurses working in emergency departments of the three selected hospitals under the Addis Ababa health bureau

To identify factors associated with the knowledge and practice of nurses working in the emergency department of the three selected hospitals under the Addis Ababa health bureau.

## **CHAPTER FOUR**

### **METHODOLOGY**

#### **4.1. Study area and study period**

##### **4.1.1. Study area**

Addis Ababa (AA), the capital of Ethiopia and one of the nine regional states, has an estimated population of 3.5 million and harbors the highest concentration of industry, commerce, and social services in Ethiopia. The city is almost at the geographic center of the nation, covering an area of 530.14 square kilometers. It has the highest concentration of health care facilities and trained healthcare practitioners in the country. High population density, urbanization, and limited emergency medical service (EMS) infrastructure impose an enormous burden on health care delivery systems in AA. (9) There were more than 53 hospitals among which 13 were public and more than 40 private hospitals(34). Six governmental hospitals were governed by the Addis Ababa health bureau. This study was carried out in three selected hospitals namely Yekatit 12, Zewditu, and Tirunesh Bejing. Yekatit 12 hospital –located in the ARADA sub-city had a total of 470 nurses. Among them, 44 nurses were working in the emergency department. Zewditu memorial hospital- was located in the Kirkos sub-city which had 280 nurses among them 45 nurses were working in an emergency. Tirunesh Bejing hospital –was located in Akaki Kaliti sub-city. It had a total of 353 nurses of which 17 nurses were working in the emergency department (source-from the hospitals' responsible bodies).

##### **4.1.2. Study period**

The study period was from April 1 to 30 2021

#### **4.2. Study design**

An Institutional based Cross-sectional quantitative study was conducted.

### **4.3. Population**

#### **4.3.1 Source population**

All nurses who were working in emergency departments of governmental hospitals of Addis Ababa health bureau.

#### **4.3.2 Study population**

All nurses who were working in emergency departments of three randomly selected governmental hospitals of Addis Ababa health bureau.

### **4.4. Inclusion and exclusion criteria**

#### **4.4.1. Inclusive criteria**

All nurses working in Emergency who were available during the study period

#### **4.4.2. Exclusive criteria**

Not volunteer to participate

Service time less than six months

### **4.5. Sampling method/technique**

Since the total number of nurses working in the emergency department of the three randomly selected hospitals was small which in number 106 were. Therefore, no sampling method is required. All nurses were included in the study by the census.

### **4.6. Study variables**

**4.6.1. Independent variable:** -socio-demographic variables: age, sex, education, emergency service year, and related training.

**4.6.2. Dependent variable:** - Knowledge and Practice

#### **4.7. Data collection tools and procedures**

Data was collected from the study population using a structured self-administered questionnaire adapted from different works of literature (10,14,24,29,34) based on elements intended for the study. Eighteen (18) and twelve (12) multiple-choice questions were used to assess the knowledge and practice of the respondents respectively.

#### **4.8. Data quality control**

In addition to the training given to the data collectors, the questionnaire was pre-tested on 5% of nurses in Minilik II hospital and, 5 days before data collection. Based on the result of the pretest necessary corrections were made to some of the questions. Moreover, during data collection the two BSc nurse supervisors including the investigator were checking how the data collectors were doing their tasks. The principal investigator was also closely supervising the activity daily. At the end of each data collection day, the principal investigator was also checking the completeness of questionnaires and whether recorded information makes sense to ensure the quality of data.

#### **4.9. Data analysis plan**

Data were checked for appropriateness manually before entered into computer soft wares and it was entered to Epi Data version 4.6 and then transformed to SPSS version 26 for further analysis. The results of the study were organized and presented using tables, graphs and the statistical analysis was considered Such as Frequency, percentage, standard deviation, and mean were employed. Binary and multiple logistic regression analyses were used to show the relationship between dependent and independent variables. Variables with a p-value less than  $<0.25$  in the bivariable analysis were fitted into the multivariable logistic regression analysis.  $P < 0.05$  was considered as significant.

#### **4.10. Ethical considerations**

Ethical clearance was obtained from both the department of emergency medicine and the Addis Ababa health bureau IRB. The purpose and data collection procedure of the study were communicated with the concerned body of the institutions. Permission was obtained from the

relevant personnel in charge of the hospitals. Formal permission was secured from each hospital before distribution of the questionnaires and respondents were asked their willingness to respond to the questionnaires and finally, verbal consent was obtained.

#### **4.11. Dissemination of findings**

The result of this study will be submitted to the Addis Ababa University College of health sciences department of emergency medicine. A copy of this study will also be submitted to the Addis Ababa health bureau, and the respective hospitals. The findings of the study will be presented at different conferences and attempts will be made to publish the work in different journals.

#### **4.12. Operational definition**

**Knowledge:** The level of understanding of the different subjects regarding airway and breathing management(10). Good knowledge was score on knowledge questions at least 50% and above and poor knowledge was less than 50%. (28)

**Practice:** The necessary actions to be taken to help patients (10). Good practice was score on practice questions at least 50% and above and poor knowledge was less than 50%. (28)

**Nurse:** A nurse is a health care professional who gained scientific knowledge and skills through education and training and has a certificate or diploma, or masters in nursing to be able to fulfill the assigned responsibility. In another word, a nurse is a health care provider who is allowed to provide health care to clients with a certificate certifying her/his ability to work as a nurse. (10)

**Airway and breathing management:** basic airway management technique/skills that include opening the airway, O<sub>2</sub> therapy, bag-mask ventilation, using devices to keep the airway open, and so on (6).

## CHAPTER FIVE

### 5. Results

#### 5.1. Socio-demographic characteristics of nurses working in emergency departments of selected hospitals

One hundred two nurses take part in the study with a response rate of 98%. Two study participants were excluded due to incomplete data. From the total study participants, females accounted for a greater number (n= 54, 52.9%). The mean  $\pm$  SD age of the participants was  $29.47 \pm SD= 4.975$ . About fifty-eight percent were in the age group 28–35 years and 33.3% were in the age group 20-27 years. Most of the study participants 92(90.2%) were BSc degree holders and the majority of them 74 (72.5%) had emergency working experience between one to five years.

**Table 1** the socio-demographic characteristics of nurses working in emergency departments of the three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021(N=102)

Variables	Number	Percentage (%)	
Age	20-27	34	33.3
	28-35	58	56.9
	36 and above	10	9.8
Sex	Male	48	47.1
	Female	54	52.9
Training	Trained related training	53	52.0
	BLS	30	56.6
	ATLS	7	13.2
	ACLS	11	20.75
	All	6	11.32
	Other	6	11.32
	Not trained related training	49	48.0
ER working experience	Less than one year	20	19.6
	One to five years	74	72.5
	Greater than five	8	7.8

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	years		
Educational level	Diploma	2	1.96
	BSc degree	92	90.2
	Masters	8	7.84

## 5.2. Knowledge of Nurses on Airway and Breathing Management

About 75(73.5%) and 61(59.8%) of the respondents correctly identified the maneuver used to open the airway with trauma suspicion and without respectively. Eighty-seven, (85.3%) participants responded correctly about signs and symptoms of complete airway obstruction, and 98(96.1%) of the respondents replied correctly about positioning a patient as a basic maneuver for airway and breathing management. Only 39(38.2%) respondents identified the purpose of the oral airway device. Of the total respondents, 37(36.3%) of them were able to identify “not basic airway device” and 37(36.3%) of the respondents correctly detected a manual ventilation device that delivers high oxygen concentration and provides artificial ventilation. About 54(52.9%) of the respondents responded correctly detected the steps for choking management in a responsive infant. Of the total respondents about 81(79.4%) of them identified the indications for oxygen therapy, 46(45.1 %) of them identified the normal range of oxygen saturation and 60(58.8 %) of them gave the right answer about the movement of air in and out of the lung.

**Table 2** Distribution of responses on knowledge assessment of airway and breathing management of nurses working in emergency departments of three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021(N=102)

Variable		Frequency (N)	Percentage (%)
a maneuver used to open the airway if no trauma suspected	Insert the finger into the mouth and pull the tongue forward	10	9.8
	Jaw thrust	8	7.8
	Head tilt	7	6.9
	<b>Head tilt chin lift</b>	<b>75</b>	<b>73.5</b>
	I don't know	2	2.0
a maneuver used to open the airway with suspected trauma	Insert the finger into the mouth and pull the tongue forward	16	15.7
	<b>Jaw thrust</b>	<b>61</b>	<b>59.8</b>
	Head tilt	3	2.9
	Head tilt chin lift	17	16.7
	I don't know	5	4.9
A patient has a complete airway	Speak	3	2.9

obstruction when he/she can't	Breath	8	7.8
	Cough	2	2.0
	<b>All the above</b>	<b>87</b>	<b>85.3</b>
	I don't know	2	2.0
correct step of choking management in responsive infants	<b>Give 5 back blows then give 5 chest thrusts</b>	<b>54</b>	<b>52.9</b>
	Give 5 back blows then give 5 abdominal thrusts	38	37.3
	I don't know	10	9.8
the correct method of choking management in responsive adults	<b>Give 5 back blows then give 5 chest thrusts</b>	<b>60</b>	<b>58.8</b>
	Give 5 back blows then give 5 abdominal thrusts	35	34.3
	I don't know	7	6.9
positioning is a basic maneuver for airway and breathing management	<b>True</b>	<b>98</b>	<b>96.1</b>
	False	4	3.9
the correct position for adults during airway and breathing management	Sniffing	32	31.4
	Neutral	9	8.8
	<b>supine</b>	<b>41</b>	<b>40.2</b>
	placing pad under the shoulder	16	15.7
	I don't know	4	3.9
the correct position for an infant in airway and breathing management	<b>Sniffing</b>	<b>33</b>	<b>32.4</b>
	Neutral	14	13.7
	supine	43	42.2
	I don't know	12	11.8
the next step after opening the unconscious patient's airway	maintaining the airway with a nasal airway device	22	21.6
	<b>maintaining the airway with an oral airway device</b>	<b>73</b>	<b>71.6</b>
	I don't know	7	6.9
not the purpose of oral airway device	Pulling tongue forward	25	24.5
	<b>Cause the patient to gag</b>	<b>39</b>	<b>38.2</b>
	Help when suctioning pharynx	25	24.5
	I don't know	13	12.7
movement of air into and out of the lung	<b>Ventilation</b>	<b>60</b>	<b>58.8</b>
	Exhalation	15	14.7

	Inspiration	15	14.7
	Expiration	11	10.8
	I don't know	1	1.0
indication for oxygen therapy	Treat hypoxia	14	13.7
	Prevent hypoxia	3	2.9
	Acute myocardial infarction	4	3.9
	<b>All of the above</b>	<b>81</b>	<b>79.4</b>
normal oxygen saturation at rest for adults <70 years	88-92%	29	28.4
	<b>96-98%</b>	<b>46</b>	<b>45.1</b>
	86-88	8	7.8
	<90	19	18.6
	I don't know	0	0
normal breathing rate in adults ranges between	<b>12 - 20 breath/ min</b>	<b>86</b>	<b>84.3</b>
	15-30breath/min	13	12.7
	25-50breath/min	3	2.9
	All of the above	0	0
not basic airway device	Nasal Cannula	32	31.4
	Nasal airway device	13	12.7
	Bag-Mask Ventilation	8	7.8
	<b>Endotracheal tube</b>	<b>37</b>	<b>36.3</b>
	I don't know	12	11.8
not supra-glottic airway	Laryngeal tube	20	19.6
	Easy tube	10	9.8
	Comb tube	3	2.9
	<b>Bag valve mask</b>	<b>31</b>	<b>30.4</b>
	I don't know	38	37.3
nasal cannula	Are suitable for patients with nasal polyps and nasal edema	4	3.9
	May cause headaches or dry mucous membranes if the flow exceeds	6	5.9
	Should not be used for those needing over 40% (> 4L/min)	7	6.9
	A and B	35	34.3
	<b>B and C</b>	<b>50</b>	<b>49.0</b>
a manual ventilation device that delivers high oxygen concentration and artificial ventilation	<b>AMBU bag</b>	<b>37</b>	<b>36.3</b>
	Nasal cannula	3	2.9
	Face mask	61	59.8
	Mechanical ventilator	1	1.0

	I don't know		
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### 5.3. Practice of Nurses on Airway and Breathing Management

As indicated in the table below, about 88(86.3%) of the respondents selected correct action while opening the airway for a patient with a suspected neck injury. About 25(24.5%), 49(48.0%), and 74(72.5%) of the respondents responded correctly for the actions to be taken to a responsive patient expressing choking symptoms, before suctioning and comatose injured patient as a first action respectively. For special monitoring of a patient who is on oxygen, only 5(4.9%) of the study participants were managed to provide a correct response. For practice questions on medical equipment to manage the airway and breathing, only 30(29.4%) of respondents answered regarding face mask's use for the patient with airway and breathing problems, and the majority 73(71.6%) of them responded correctly to question on AMBU bag usage.

**Table 3** Distribution of responses on the practice assessment of airway and breathing management of nurses working in emergency departments of three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021(N=102)

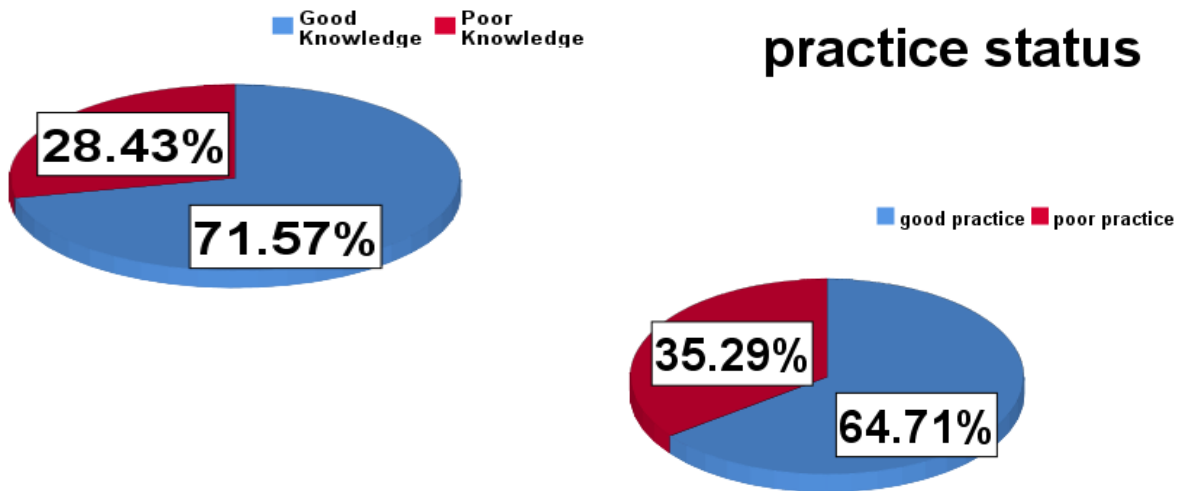
Variable		Frequency (N)	Percentage (%)
action while opening the airway for a patient with a suspected neck injury	<b>Immobilization of c-spine</b>	<b>88</b>	<b>86.3</b>
	Head elevation	5	4.9
	Dress the wound	1	1.0
	Head tilt chin lift	8	7.8
The first action for your friend having food and suddenly expresses choking symptoms but responsive	Give abdominal thrusts	45	44.1
	Give chest compression	10	9.8
	<b>Confirm foreign body aspiration by talking to him</b>	<b>25</b>	<b>24.5</b>
	Give back blows	22	21.6
action for choking management in a responsive infant	<b>Give Back blow</b>	<b>45</b>	<b>44.1</b>
	Give abdominal thrusts	12	11.8
	Give chest thrusts	21	20.6
	Placing the infant sideways	24	23.5
action while attending unconscious victim with no neck injury	<b>Allow air entry by chin lift and head tilt</b>	<b>79</b>	<b>77.5</b>
	Remove victim cloth to allow free air	14	13.7
	A quick rush to the hospital	9	8.8

what will be your action before oxygen administration	Assessed patients by using the signs and symptoms and the vital sign	3	2.9
	Check the O2 saturation of the patient using a pulse oximeter	12	11.8
	Observe and think that he is in distress and needs	2	2.0
	<b>All of the above</b>	<b>85</b>	<b>83.3</b>
immediate action before suctioning for the patient on the case scenario	<b>Putting the patient in a recovery position with c-spine protection</b>	<b>49</b>	<b>48.0</b>
	Putting the patient in a supine position	17	16.7
	Give chest compression	3	2.9
	immediate action not required before suctioning	33	32.4
maneuver to be applied for airway opening for the described patient on the case scenario	<b>Jaw thrust</b>	<b>34</b>	<b>33.3</b>
	Head tilt	10	9.8
	Head tilt chin lift	56	54.9
	I don't know	2	2.0
how do you provide oxygen for the patient	With Nasal prong	55	53.9
	<b>With Face mask</b>	<b>30</b>	<b>29.4</b>
	With AMBU bag	15	14.7
	With Oxygen tent	2	2.0
Action if the patient deteriorates and breathing becomes gasping	Put the patient on nasal prong	7	6.9
	Put the patient on a face mask	14	13.7
	<b>Use AMBU bag for ventilation and preparation for further action</b>	<b>73</b>	<b>71.6</b>
	Chest compression	8	7.8
appropriate nursing care during oxygen therapy	<b>Mouth care</b>	<b>33</b>	<b>32.4</b>
	Encourage adequate fluid intake	10	9.8
	Apply water-based cream if lips or nose become dry	19	18.6
	Apply petroleum jelly to minimize inflammation of lips and nose	16	15.7
	None	24	23.5
nurses' special monitoring for a patient on oxygen	Do routine hourly monitoring of the vital signs	2	2.0

	<b>Follow the protocol of oxygen administration</b>	<b>5</b>	<b>4.9</b>
	Follow doctor's prescription	4	3.9
	Check the O2 saturation of the patient using a pulse oximeter	7	6.9
	All of the above	84	82.4
if you get an injured comatose patient what do you do first	<b>Open the mouth and remove any secretion or foreign body that obstructs the airway first</b>	<b>74</b>	<b>72.5</b>
	Stop bleeding first	20	19.6
	Immobilized the fractured bone first	7	6.9
	I don't know	1	1.0

#### 5.4. Overall practice and knowledge of nurses towards airway and breathing management

The score of respondents on practice and knowledge assessment questions was scored out of hundred and respondents who scored 50% and above were considered as having good practice and knowledge while those who scored less than 50% were taken as having poor practice and knowledge. From the study participants, a majority of 73(71.6%) and 66(64.7%) had good knowledge and practice respectively.



#### Knowledge Status

**Figure 1** Airway and breathing management knowledge and practice status of nurses working in three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021

## **5.6. Relationship between socio-demographic characteristics and knowledge and practice of nurses**

The socio-demographic characteristics of nurses with Knowledge and practice were assessed to see the relationship between them by binary logistic regression firstly. From the binary logistic regression analysis, variables that were fit for multivariate at p-value less than 0.25 were analyzed by multivariate binary logistic regression, and Variables that showed p-value <0.05 were considered as they were statistically significant.

### **5.6.1 Factors affecting the knowledge of nurses towards airway and breathing management**

Socio-demographic characteristics like age, sex, being trained in related training, emergency working experience, and educational level was analyzed by binary logistic regression to find crude odd ratio with airway and breathing management knowledge first. But only being trained in related training was significantly associated with airway and breathing management knowledge in binary logistic regression with  $p=0.029$ . Therefore, nurses who were trained were 2.723 times more likely to be knowledgeable than those who were not trained with [COR=2.723, 95%CI (1.111-6.675)].

Then three variables such as being trained in related training, emergency working experience, and education level were taken for multivariate binary logistic regression with a p-value less than 0.25. Those only trained in related training were also significantly associated with knowledge of airway and breathing management at a p-value less than 0.05 in multivariate logistic regression.

From the table below those nurses who had taken related training were 2.783 times more likely to be knowledgeable as compared to those who were not trained in related training [AOR=2.783, 95%CI(1.013-7.645)]

**Table 4** Bivariate and multivariate analysis of factors affecting the knowledge towards airway and breathing management of nurses working in emergency departments of three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021(N=102)

Variable	Category	Knowledge status		COR (CI=95%)	p- value	AOR (CI=95%)	P- value
		Good	Poor				
Sex	Male	33(68.8%)	15(31.3%)	1			
	Female	33(61.1%)	21(38.9%)	1.682(.698- 4.052)	0.247		
Age	20 – 27	19(52.8%)	17(47.2%)	1.143(.279- 4.683)	0.853		
	28- 35	42(76.4%)	13(23.6%)	1.846(.466- 7.316)	0.383		
	>=36	5(45.5%)	6(54.5%)	1			
Related training	Yes	40(75.5%)	13(24.5%)	2.723(1.111- 6.675)*	<b>0</b> <b>.029*</b>	2.783(1.013- 7.645)**	<b>0.047**</b>
	No	26(53.1%)	23(46.9%)	1		1	
Working experience in emergency	<1 year	9(45.0%)	11(55.0%)	1		1	
	1 -5	54(73.0%)	20(27.0%)	2.545(.910- 7.120)*	0.075*	2.104(.692- 6.398)	0.190
	>=5	3(37.5%)	5(62.5%)	2.455(.395- 15.252)	0.335	1.545(.188- 12.728)	0.686
Educational level	Diploma	0(0.0%)	2(100.0%)	1.000(.045- 22.175)	1.000	1.827(.060- 55.361)	0.729

	BSc degree	60(65.2%)	32(34.8%)	2.833(.657- 12.224)*	0.163*	4.689(.972- 22.613)	0.054
	Masters	6(75.0%)	2(25.0%)	1		1	

**Note: AOR\*\*-** Indicates Adjusted Odds Ratio significance at p-value less than 0.05,

**COR\*-**Indicates Crude Odds Ratio significant at p-value less than 0.25, **1-** Indicates reference, **CI-** Indicates Confidence Interval

### 5.6.2. Factors affecting the practice of nurses towards airway and breathing management

The finding from this study showed as indicated below in the table that there is no significant association between socio-demographic characteristics such as sex, educational level, and working experience in an emergency and practice in binary logistic regression. Both age and being trained in related training were significantly associated with the practice of nurses in binary logistic regression  $p=0.021$  [COR=2.891, 95%CI (1.172-7.130)] and  $p=0.020$  [COR=2.722, 95%CI (1.175-6.308)] respectively. Therefore in bivariate analysis, nurses who were in age category 20-27 were 2.891 times more likely to perform airway and breathing management practice when compared to those in age category 36 and above and those nurses who were trained in related training were 2.722 times more likely to perform the practice of airway and breathing management as compared to those who were not trained.

From binary logistic regression, three variables were fit for multivariate logistic regression having a p-value of less than 0.25 but only being trained in related training was statistically associated with the practice of airway and breathing management.

This study showed that nurses who had taken related training were 2.813 times more likely to perform airway and breathing management practice as compared to those who had not taken related training in airway and breathing management [AOR=2.813, 95% CI(1.074-7.369)].

**Table 5** Bivariate and multivariate analysis of factors affecting the practice towards airway and breathing management of nurses working in the emergency department of three selected hospitals under Addis Ababa health bureau Addis Ababa, Ethiopia, June 2021(N=102)

Variable	Category	Practice status		COR (CI=95%)	p- value	AOR (CI=95%)	P- value
		Good	Poor				
Sex	Male	33(68.8%)	15(31.3%)	1			
	Female	33(61.1%)	21(38.9%)	1.400(.617- 3.178)	0.421		

<b>Age</b>	20 – 27	19(52.8%)	17(47.2%)	2.891(1.172-7.130)	<b>0.021*</b>	1.026(.167-6.285)	0.978
	28- 35	42(76.4%)	13(23.6%)	.746(.192-2.891)	0.671	2.115(.379-11.809)	0.393
	>=36	5(45.5%)	6(54.5%)	1		1	
<b>Related training</b>	Yes	40(75.5%)	13(24.5%)	2.722(1.175-6.308)*	<b>0.020*</b>	2.813(1.074-7.369)*	<b>0.035**</b>
	No	26(53.1%)	23(46.9%)	1		1	
<b>Working experience in emergency</b>	<1 year	9(45.0%)	11(55.0%)	1.364(.254-7.322)	0.718	2.878(.317-26.158)	0.348
	1 -5	54(73.0%)	20(27.0%)	4.500(.984-20.586)*	0.053*	5.153(.725-36.643)	0.101
	>5	3(37.5%)	5(62.5%)	1		1	
<b>Educational level</b>	Diploma	0(0.0%)	2(100.0%)	.000(.000)	0.999		
	BSc degree	60(65.2%)	32(34.8%)	.625(.119-3.277)	0.578		
	Masters	6(75.0%)	2(25.0%)	1			

**Note: AOR\*\*-** Indicates Adjusted Odds Ratio significance at p-value less than 0.05,

**COR\*-**Indicates Crude Odds Ratio significant at p-value less than 0.25, 1- Indicates reference, CI- Indicates Confidence Interval

## CHAPTER SIX

### DISCUSSION

#### 6.1. Socio-demographic characteristics of participants

In this study, the majority of nurses who were working in an emergency were females 54(52.9%). The participants which were under the age category 28 to 35 years accounted for 58(56.9). The study done in Addis Ababa Ethiopia showed that the majority of nurses who were working in emergency departments were females 72(61.0) and a majority 61(51.7) of them were under the age category between 28 and 35 years(14) which is in line with our findings. The study conducted in Rwanda shows a slightly different result from our study in which a majority (70.8% ) of participants age group found between 30-39 years age category The possible reason for the variation might be due to the way of categorizing ages (32).

Greater than half of the participants 53(52.0%) had related training on airway and breathing management. Among this 30(56.6%) took training on BLS. This was supported by a study by Tamirat. A where 89(69%) of the study participants were trained on BLS(29).

#### 6.2. Knowledge of nurses towards airway and breathing management

This study found that about 71.6% of the respondents had overall good knowledge of airway and breathing management with a score of  $\geq 50\%$  on the knowledge question. This finding is nearly similar to the study result revealed by another related study in Ethiopia where 67% of the respondents had good knowledge (14). Another related study done in India and Jazan University, Saudi Arabia reported that about 63% and more than half of respondents respectively had good knowledge. The discrepancy might be due to the study participants wherein both studies the respondents were medicals students but in this study, they were nurse professionals (17,22).

The current study finding showed that a large majority 87(85.3%) of the participants had awareness of symptoms of complete airway obstruction. Our study finding is better than studies done in Ethiopia by Legese Mebrahtu where 58.9% and by Tiruneh Tafere where only 22.65% of the study subjects were able to know symptoms of complete airway obstruction. (35, 37) The

discrepancy could be because of the profession of the study subjects, study period. Also, a study done in Gonder, Ethiopia, was different from this study in which 79.6% of the study participants knew the sign of airway obstruction(33). The possible reason for the variation might be due to the variety of health professionals used by the study, study setting, and period. But the current study finding is nearly similar to the study report by Gangadevi Nandasena in which 84.3% of the study subjects had obstructed airway management knowledge(23). About 30% of respondents had awareness about complete airway obstruction signs according to the study finding from Taibah University, Saudi Arabia. The large inconsistency might be due to study respondents as they were students at Taibah University (19).

A quiet majority 75(73.5%) of the respondents in this study were able to know the maneuver used to open the airway for a patient who has no fear of neck injury. Our finding is approximately similar to the study report from Gonder comprehensive hospital, Ethiopia, and by Ali M. Alabdali where 71.7% and 69.4% of respondents respectively had awareness towards airway opening maneuver (33,38)). The current result is better than a study result reported by Mathias Negussie which showed that 66.0% of the respondents responded correctly (25).

There is a concept in the case when a patient cannot protect his/her airway, an airway and breathing management device need to be used. (35) The current study revealed that only 37(36.3%) of the respondents identified the use of AMBU bag. This was not supported by the study done in Rwanda which revealed that the majority (92.2%) of the study subjects answered correctly on the usage of the device. This study found that only 39(38.2%) of the study participants were able to respond with the correct answer for the question on the purpose to use oral airway device and 13(12.7%) of them responded that they did not know the purpose of oral airway device use. This was inconsistent with a study done in Rwanda where a large majority (86.3%) of the study participants knew the purpose to use an oral airway device and 9.8% did not know(10). In my point of view, the reason might be due to less value given to such very important emergency medical equipment. A study report from Turkey showed that only 7.7% of the respondents were able to know how to insert nasal airway devices while managing airway and breathing. (20)

### **6.3. Practice of nurses towards airway and breathing management**

The current study found that about 64.7% of respondents had a good practice on airway and breathing management with a score of  $\geq 50\%$  on practice questions. From the present study, only 34(33.3%) of the study participants replied right response to the question, what action should be taken while opening the airway for a patient with a suspected neck injury. A study done by Tamirat Alate reported that about 63(48.8%) of the respondents used correct airway opening maneuvers while managing injured victims. The current study's finding is lower than Tamrat's study (28). The possible reason for the variation might be due to the study subjects used by the studies. The current study finding 88 (86.3%) is nearly similar to the findings from the studies done in Ethiopia and Rwanda that revealed a large majority 88.3% and 96.1% of the respondents respectively gave the right response as immobilizing a c spine by using different maneuvers during the management of airway and breathing(10,37). Another study done in Nepal showed that only 33% of the study participants were able to open the airway of the injured patient. (20) The reason for the variation might be due to study participants used in Nepal's study in which they were not in the same profession.

The findings from the present study showed that about 45(44.1%) of the respondents answered correctly for choking management in responsive infant questions. This finding had a bit different from the study finding done in Ethiopia which revealed that 67(51.9%) of the study participants gave a correct answer. The first action that should be done for a victim who suddenly expressed a sign of choking while having food was reported by this study as only 25(24.5%) of study subjects knew it. This study result is lower by around half than the result (45.7%) that was reported from the same study done in Ethiopia(29). The discrepancy might be due to the area where the study subjects were working, the compared study used nurses working in pre-hospital medical service.

The majority 73(71.6%) of the respondents of this study were able to use an AMBU bag to provide ventilation. This is a finding which showed a great variation from the study finding done in Botswana where 48.2% of respondents were not able to provide ventilation by using an AMBU bag (36). The reason might be due to the difference in study subjects working place in which Botswana's study subjects were nurses from district hospitals.

During the management of any emergency cases, attention should be given to breathing before taking time for any system interventions. Oxygen therapy is one of the most important and basic skills in the management of breathing, therefore nurses should know indications, safe delivery methods and the amount of oxygen to be delivered during oxygen therapy. If a decision is made for oxygen therapy, the correct delivery device should be used. (27)

The current study revealed that majority 85(83.3%) of the participants knew what activities to be taken before oxygen administration and only 5(4.9%) of them knew nurses' special monitoring for a patient on oxygen therapy which showed a great variation when compared to the study done by Uwineza Didi and Victoire in which only 19 (29.2%) of the respondents were able to know what activities should be done before oxygen administration but it's finding was better than this study in which 8(12.3%) of the respondents answered correctly on nurses' special monitoring for a patient on oxygen therapy (36). The reason might be because of the lack of training on oxygen therapy in this study as the study found no respondent who had training on oxygen therapy. Another study in Kenya showed that all nurses who were observed during the study period to assess the practice of their oxygen therapy were failed to administer oxygen for those who need it. (24) The reason for the variation with this study might be due to the data obtaining method where Kenya's study used the observational data collection method. A report from another study by Gangadevi Nandasena revealed that 37.1% of respondents were able to administer oxygen correctly(23).

#### **6.4. Relationship between demographic characteristics and Knowledge and Practice**

The socio-demographic information being trained on related training on airway and breathing management was statistically associated with the knowledge and practice of the respondents at p-value less than 0.05 in multivariate logistic regression where  $p=0.047$  and  $p=0.035$  with [AOR=2.783, 95%CI(1.013-7.645)] and [AOR=2.813, 95% CI (1.074-7.369)] respectively. The finding of this study goes in line with the study findings where training enhanced the knowledge of the respondents towards emergency care as it was revealed from a study done in Gonder, Ethiopia and Rwanda with [AOR: 2.76, 95%CI (1.40 to 5.42)] and (Chi<sup>2</sup>=12.632, P=0.006) respectively (33) (10).

## **7. Conclusion and Recommendations**

### **7.1. Conclusion**

In conclusion, this study was aimed to assess knowledge and practice on airway and breathing management of nurses working in emergency departments of three selected hospitals. The specific objectives were to determine the knowledge and practice of nurses on airway and breathing management as well as to establish the relationship between demographic characteristics and knowledge as well as the practice of nurses. The institutional-based cross-sectional study design was conducted on 102 nurses working in the emergency department from the hospitals. According to this study result, nurses working in emergency departments had an overall good knowledge and practice on airway and breathing management. Being trained in related training was significantly associated with both the knowledge and practice of nurses.

### **7.2. Recommendations**

Even though overall knowledge and practice were good, it is very crucial to provide repetitive training about airway and breathing management as it is a very important and simple procedure to save many lives since there was a relationship between being trained and knowledge as well as practice.

**For the ministry of health:** ministry health should give more attention to strength emergency services practice and knowledge through provision of training.

**For hospitals:** the hospitals should provide in-service training on airway and breathing management, in addition to training creating opportunities for in-service educational developments especially on emergency and critical care.

**For Nurses:-**nurses should update themselves according to protocols on airway and breathing management and also they should engage in patients' resuscitation and enhance their practical knowledge and put their knowledge into practice.

**For researchers:** The researcher included only three selected hospitals due to limited time, resources, funds, and personnel therefore further studies should be done in this field using a

larger sample size from both governmental and private hospitals. For future studies, it is better to include observational data collection method to obtain more reliable data.

## **8. Strength and Limitations of this study**

### **8.1. Strength**

This study tried to find the gap in the airway and breathing management knowledge and practice towards nurses which will serve as a source of information for further study.

### **8.2. Limitations**

This study was done only on three selected governmental hospitals without including private hospitals.

The attitude aspect of respondents towards airway and breathing management was not included in this study even though it is very important for exercise.

The study used a cross-sectional study design which does not show the cause and effect association.

The study didn't use observation for practical assessment questions rather it used theoretical information.

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## Questionnaire

**Greetings:** My name is..... I am working with Mulachew Nigatu who is currently a postgraduate student in Addis Ababa University, Department of Emergency Medicine & Critical care nursing. The purpose of this study is to assess the knowledge and practice of airway and breathing management of nurses working in the emergency department of selected governmental hospitals under the Addis Ababa health bureau. This will help to improve emergency care based on your answers to our questions. Your co-operation is very helpful. Your name will not be written on the questionnaire and all the information you will provide will be kept strictly confidential. You will be facing no harm by participating and you are also not obliged to answer any question you don't wish to answer. To fill the questionnaire 20-30 minutes will be required. Please contact the principal investigator for any further explanation through the address below: -

**Mulachew Nigatu -0969138883**

### Consent

Considering the information, you get from the general information; we would be Thankful if you spend some time with us in answering the questions

Are you willing to participate in the study? Yes  No

If “yes”, would you put your signature? \_\_\_\_\_

Name of data collector \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Checked by: Supervisor-----Sign-----date.....

Date of interview .....

## **SECTION A: SOCIO-DEMOGRAPHIC INFORMATION**

### **1. Sex**

A. Male

B. Female

### **2. Age in years \_\_\_\_\_**

### **3. Educational status**

A. Diploma

C. Masters

B. BSc

D. Other specify \_\_\_\_\_

### **4. Working experience in the emergency \_\_\_\_\_**

### **5. Have you ever been trained in the emergency airway and breathing management-related training while working in this unit?**

A. Yes

B. No

### **6. If YES for question no.5, what was it?**

A. BLS

C. ACLS

B. ATLS

D. Other (specify) \_\_\_\_\_

## SECTION B: KNOWLEDGE

**1. What is the maneuver used to open the airway if not trauma suspected from the following?**

- A. Insert the finger into the mouth and pull the tongue forward
- B. Jaw thrust
- C. Head tilt
- D. Head tilt chin lift
- E. I don't know

**2. What is the maneuver used to open the airway if trauma suspected?**

- A. Insert the finger into the mouth and pull the tongue forward
- B. Jaw thrust
- C. Head tilt
- D. Head tilt and chin lift
- E. I don't know

**3. A patient has a complete airway obstruction when he/she cannot:**

- A. Speak
- B. Breathe
- C. Cough
- D. All the above
- E. I don't know

**4. Which one is the Correct steps of management of choking in the infant but responsive?**

- A. Give 5 back blows then give 5 chest thrusts
- B. Give 5 back blows then give 5 abdominal thrusts

C. I don't know

**5. Which one is the correct method in the management of choking in adults and responsive?**

A. Give abdominal thrust

B. Give chest thrust and give cardiopulmonary resuscitation

C. I don't know

**6. Positioning a patient is a basic maneuver for airway and breathing management?**

A. true

B. false

**7. In airway and breathing management which position is correct for an adult?**

A. sniffing

D. placing pad under the shoulder

B. neutral

E. I don't know

C. supine

**8. In airway and breathing management which position is correct for an infant?**

A. sniffing

C. supine

B. neutral

D. I don't know

**9. After opening the airway, the next step for the UNCONSCIOUS patient is**

A. maintaining the airway with a nasal airway device

B. maintaining the airway with an oral airway device

C. I don't know

**10. Which of the following is not the purpose of the oral airway device?**

A. Pulling tongue forward

B. Cause the patient to gag

C. Help when suctioning pharynx

D. I don't know

**11. Movement of air into and out of the lungs is**

A. Ventilation

D. Expiration

B. Exhalation

E. I don't know

C. Inspiration

**12. Which of the following is an indication for oxygen?**

A. Treat hypoxia

C. Acute myocardial infarction

B. Prevent hypoxia

D. All of the above

**13. The normal oxygen saturation at rest for adults < 70 years is**

A. 88-92%

D. <90

B. 96-98%

E. I don't know

C. 86-88

**14. The normal breathing rates in the adult ranges between**

A. 12 - 20 breath/ min

C. 25-50breath/min

B. 15-30breath/min

D. All of the above

**15. Which of the following is not a basic airway device?**

A. Nasal Cannula

D. Endotracheal tube

B. Nasal airway device

E. I don't know

C. Bag-Mask Ventilation

**16. Which of the following is not a supra-glottic airway device?**

- A. Laryngeal tube
- B. Easy tube
- C. Comb tube
- D. Bag valve mask
- E. I don't know

**17. Nasal cannula**

- A. Are suitable for patients with nasal polyps and nasal edema
- B. May cause headaches or dry mucous membranes if the flow exceeds
- C. Should not be used for those needing over 40% ( $> 4L/min$ )
- D. A and B
- E. B and C

**18. A manual ventilation device that can be used to deliver high concentrations of oxygen and provide artificial ventilation for the patient with no spontaneous respirations or to assist ventilation is:**

- A. AMBU bag
- B. Nasal cannula
- C. Face mask
- D. Mechanical ventilator
- E. I don't know

## SECTION C: PRACTICE

**1. What do you do while opening the airway for a patient with a suspected neck injury?**

- A. Immobilization of c-spine
- B. Head elevation
- C. Dress the wound
- D. Head tilt chin lift

**2. If you and your friend are having food in a canteen and suddenly your friend starts expressing symptoms of choking but responsive, what will be your first action?**

- A. Give abdominal thrusts
- B. Give chest compression
- C. Confirm foreign body aspiration by talking to him
- D. Give back blows

**3. If you observe an infant choking but responsive, what will be your action?**

- A. Give Back blow
- B. Give abdominal thrusts
- C. Give chest thrusts
- D. Placing the infant sideways

**4. On attending to the unconscious victim, with no neck injury, what are you going to do?**

- A. Allow air entry by chin lift and head tilt
- B. Remove victim cloth to allow free air
- C. A quick rush to the hospital

**5. Before oxygen administration what do you do?**

- A. Assessed patients by using the signs and symptoms and the vital sign
- B. Check the O<sub>2</sub> saturation of the patient using a pulse oximeter
- C. Observe and think that he is in distress and needs
- D. All of the above

Case scenario: A 25 years old male patient with a loss of consciousness is brought to you whose mouth is full of secretion, cyanotic, respiratory rate 36br/min, pulse rate 123bt/min and oxygen saturation is 88%. No enough evidence of injury. Questions from 6 to 9 are based on the case scenario and answer the questions accordingly.

**6. What will be your immediate action before suctioning for the patient in the case scenario?**

- A. Putting the patient in a recovery position with c-spine protection
- B. Putting the patient in a supine position
- C. Give chest compression
- D. immediate action required not required before suctioning

**7. Which maneuver do you apply to open the airway for the patient described above in the scenario?**

- A. Jaw thrust
- B. Head tilt
- C. Head tilt chin lift
- D. I don't know

**8. How do you provide oxygen for the patient described above in the scenario?**

- A. With Nasal prong
- B. With Face mask
- C. With AMBU bag
- D. With Oxygen tent

**9. If the patient deteriorates and his breathing becomes gasping, what will be your action?**

- A. Put the patient on nasal prong
- B. Put the patient on a face mask
- C. Use AMBU bag for ventilation and preparation for further action
- D. Chest compression

**10. Which nursing care is appropriate during oxygen therapy?**

- A. Mouth care
- B. Encourage adequate fluid intake
- C. Apply water-based cream if lips or nose become dry
- D. Apply petroleum jelly to minimize inflammation of lips and nose
- E. None

**11. Nurse should do special monitoring for the patient on oxygen?**

- A. Do routine hourly monitoring of the vital signs
- B. Follow the protocol of oxygen administration
- C. Follow doctor's prescription
- D. Check the O<sub>2</sub> saturation of the patient using a pulse oximeter
- E. All of the above

**12. If you get an injured comatose person what do you do first?**

- A. Open the mouth and remove any secretion or foreign body that obstructs the airway first
- B. Stop bleeding first
- C. Immobilized the fractured bone first
- D. I don't know