



SHENDI UNIVERSITY



Faculty of graduate study & scientific research

**Assessment The performance of nursing staff regarding
cardiopulmonary resuscitation (CPR) in critical care unit in
military hospital from (May to September) 2017**

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الآية

قال تعالى:

(رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ) .

صدق الله العظيم

(سورة النمل 19)

Dedication

To my mother

To my father

I dedicate this thesis with much love and appreciation

To my father who has always been a brick wall that I can lean and depend on forever.

To my mother, always give me hope and love

To my brothers and sisters, to my best friends, colleagues and teachers

To all workers in mine action in the world.

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First of all my deep thanks and gratitude to Allah
For helping me to allow the study to come to light

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To my supervisor Dr. Mohammed jebereldar Abuanja

For his closed supervisor, assistance and continuous support
during this work. With-out his work could not accomplish.

Furthermore my thanks are extended to faculty of nursing in krary
university department of medical and surgical nursing by give me the
Menken to assessment the staff performance.

I am also indebted to everyone who taught mean to all those who
behind me gave me kind, personal and distant support.

Albashir Ahmad albashir

Abstract

Background Cardiopulmonary resuscitation (CPR) is an important medical procedure which is needed for individuals who face sudden cardiac arrest⁽¹⁴⁾. There are multiple reasons for concern regarding the quality of CPR. Survival benefit of well-performed cardiopulmonary resuscitation (CPR) is well-documented, but little objective data exist regarding actual CPR quality during cardiac arrest. Recent studies have challenged the notion that CPR is uniformly performed according to established international guidelines⁽²²⁾.

Study conducted to assess the performance of nurses regarding cardiopulmonary resuscitation in critical care unit in military hospital period from May to September 2017. in this study 37 nurse were included. **Objective** to assess knowledge and practice of nurses in critical care in military hospital .

Methodology descriptive cross-sectional hospital based study was they were selected as total converge for experience more than 1years. Data collected by two tools (self administration questionnaire, observational checklist).

Result the present study reveal that most of study group (94.6) % age ranged between (20-30) years , and their sex above half (56.8)% female , the level of education of study group mostly (89.2)% bachelor degree respectively most of them (70.3)% had certificated course on cardiopulmonary resuscitation and above half 54% the time of course with in years. The result showed less than tow third 40.5% good knowledge about adhesive pads of automated external defibrillation. The practice of cardiopulmonary resuscitation less than third 22% had good practice , above than half 51% had fair practice and lees than half 27% had poor practice on cardiopulmonary resuscitation .

Discussion The result reflect the p. value (0.01) significant between the practice and receiving course on cardiopulmonary resuscitation and this means affected on performance practice . in addition in the present study that the majority 73.0% of study group our opinion family present during cardiopulmonary resuscitation .

On this study in related to practice found that not enough to performance higher quality cardiopulmonary resuscitation according to American and European guide line because only less than third 22% good practice cardiopulmonary resuscitation if compare to area with critical patient and higher possibility of cardiac arrest . **Recommendation** the study recommend the important annually refreshment course on cardiopulmonary resuscitation and concentrate on psychomotor training on practice chest compression rate between (100-120) push/min, Therefore important effort should be made using refreshment course and compulsory training on automated external defibrillation (AED), in addition to put written policy to family present on cardiopulmonary resuscitation .

مستخلص البحث

الإنعاش القلبي الرئوي إجراء طبي مهم . ويحتاج له كل الأفراد الذين يعانون من توقف القلب المفاجي . وهناك عدة أسباب معتبرة تجاه جودة عملية الإنعاش القلبي الرئوي . وفوائد متعددة من الأداء أمتغن للإنعاش القلبي الرئوي ولكن بعض المعلومات الهادفة تجاه الأداء الفعلي للإنعاش القلبي الرئوي أثناء توقف القلب . توجد دراسات حديثة عن صعوبة ملاحظة أداء الإنعاش القلبي الرئوي علي حسب الموجهات العالمية.

أجريت هذه الدراسة الوصفية لتقييم مدي أداء اسطاف التمريض لعملية الإنعاش القلبي الرئوي بقسم الحالات الحرجة بالمستشفى العسكري العام بالسلاح الطبي في الفترة من مايو إلي سبتمبر 2017م. شملت هذه الدراسة (37) من اختصاصي وتقني التمريض الذين يعملون بأقسام الحالات الحرجة ولهم خبرة عملية لأكثر من عام . ولقد تم اختيار جميع اختصاصي وتقني التمريض المتوفرين في الفترة من مايو- سبتمبر. وجمعت العينات بواسطة أداتين الاستبيان للمعرفة و قائمة الملاحظة المباشرة (باستخدام دمية طبية لقياس الأداء العملي للإنعاش القلبي الرئوي)

أظهرت الدراسة أن معظم(94.6%) الأفراد تحت الدراسة تتراوح في الفئة العمرية م (من20- الي30)سنة وان أكثر من النصف (56.8%) من الإناث وان معظمهم (89.2%) قد نالوا درجة البكالوريوس في التمريض . و أكثر من ثلثهم (70.3%) من مجموعة الدراسة لديهم شهادة في كورسات الإنعاش القلبي الرئوي وان أكثر من نصفهم (54%) كان تاريخ آخر كورس لايتجاوز العام . كما أوضحت الدراسة أن اقل من ثلثي مجموعة الدراسة (40.5%) كانت لديهم معلومات جيدة عن كيفية توصيل الأيدي اللاصقة لجهاز الصدمة الكهربائية الآلي مما يلزم بذل مجهودا لعمل كورسات إجبارية لتجدي المعلومات عن جهاز الصدمة الكهربائية الآلي .كما بينت الدراسة الأداء العملي لضغط الصدر أثناء الإنعاش القلبي الرئوي فكان أكثر من ثلثي(35.4%) مجموعة الدراسة لديهم مهارة جيدة في عدد ضغطات القلب في الدقيقة أثناء الإنعاش القلبي الرئوي وأيضا كان معدل الأداء الكلي لرجال متوسط الانحراف المعياري (512352), أكثر من متوسط الانحراف المعياري للإناث (46291), بالرغم من أن إناث كنا أفضل من الذكور في الملاحظات العملية (وضع اليد في الصدر, وعمق الضغطة , واسترخاء الصدر) كما موضح في النتائج .

ملخص الدراسة اقترح بان يتم إلزام جميع اسطاف التمريض بقسم الحالات الحرجة بالمستشفى العسكري بالسلاح الطبي لعمل الكورسات التدريبية في عملية الإنعاش القلبي الرئوي مع التركيز علي التدريب العملي لإجادة عدد ضغطات الصدر في الدقيقة وأيضا عمل سياسة مكتوبة بأقسام الحالات الحرجة بالمستشفى العسكري العام بالسلاح الطبي لحضور أسرة المريض أثناء عملية الإنعاش القلبي الرئوي .

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List of Abbreviations

No	APRE	Abbreviation title
1	ALS	Advance life support
2	ACLS	Advance cardiac life support
3	ACS	Acute coronary syndrome
4	AHA	American Heart Association
5	BMJ	British medical journal
6	BLS	Basic life support
7	BCLS	Basic cardiac life support
8	COSTR	Consensus on science and treatment recommendation
9	CHD	Coronary heart disease
10	CPR	Cardiopulmonary resuscitation
11	CA	Cardiac arrest
12	EMS	Emergency medical teams
13	ERC	European resuscitation council
14	EWS	Early warning score
15	ECG	Electrocardiography
16	PVT	Paroxysmal ventricular tachycardia
17	ROSC	Return of spontaneous circulation
18	SCA	Sudden cardiac arrest
19	SGA	Supra glottis air way
20	VF	Ventricular fibrillation
21	VT	Ventricular tachycardia
22	WHO	World health organization

1.1 Introduction

The World Health Organization (WHO) estimates that 17 million people died in 2010 from cardiopulmonary diseases, which are consequently classified as the leading causes of death among all non-communicable diseases. Cardiopulmonary resuscitation (CPR) reduces in-hospital cardiac arrests and related deaths, when patients receive CPR promptly from adequately trained and specialized health care professionals⁽¹⁸⁾.

Cardiopulmonary resuscitation (CPR) is an important medical procedure which is needed for individuals who face sudden cardiac arrest. It is a combination of rescue breathing and chest compressions which is delivered to the victims who are thought to be in cardiac arrest⁽¹⁴⁾.

Over a relatively short period of about 45 years in the evolution of hospital practice, cardiopulmonary resuscitation (CPR) has been elevated from its original historical position as a new experimental technique to its contemporary status as a clinically universal procedure. As a result of this, all hospital-based health care professionals are expected to be proficient and competent in the performance of this life saving procedure CPR is also referred to as “basic life support” (BLS). This procedure expects nurses and other skilled practitioners such as medical doctors, paramedics and first aiders to perform it as a response to either cardiac or respiratory arrest⁽¹²⁾.

A number of studies have confirmed that CPR can be life-saving when provided by a well-trained person. In several large investigations, the prompt delivery of CPR has served as an important predictor of survival. CPR might almost double the chance of survival. Young and King have shown that the

probability of survival from cardiac arrest falls by 10–15% per minute without treatment, and well performed CPR likely shifts this curve towards a higher probability of survival. Furthermore, recent investigations have suggested that CPR maintains the heart in a state favorable for defibrillation⁽¹⁰⁾. International consensus exists since 2010 Sponsored by the International Liaison Committee on Resuscitation (ILCOR),

Which has representatives from the highest scientific societies on CPR throughout the world? These organisms are currently in charge of reviewing the clinical guides and protocols established globally. Its last update took place in 2015, when important modifications were added in the sequence and quality of the maneuvers to be performed. Training and updating of health personnel working in emergency services is established every two years by AHA and ERC, the two most important organizations in North America and Europe⁽⁸⁾.

1.2. Rational

When CPR is not performed correctly, i.e. when the CPR quality is poor, survival is negatively affected. Pauses in chest compression are common; at worst, patients receive chest compressions only half of the time. Interruptions in chest compressions decrease coronary perfusion and worsen the outcome. Deeper chest compressions have been shown to correlate with better perfusion and to 3 increase survival to hospital admission⁽¹³⁾.

Despite the proven importance of CPR survival rates remain low, mostly due to its ineffective administration good –quality CPR is highlighted in resuscitation guidelines. The survival benefit for cardiac arrest victims receiving high quality CPR has been documented. So cardiopulmonary resuscitation training is

mandatory for nursing staff and is important as nurses often discover the victims of in-hospital cardiac arrest ⁽²⁰⁾.The process of professionalism and license of permanent register nurse in Sudan certificate and training of basic life support is not mandatory.

In military hospital not all critical unit nursing staff are bring certificate on BLS course but all supervisor we have (matron of ICU).

in this study assess the performance of nursing staff in critical care area in military hospital .

1.3 Objectives

General objective:

To assess nursing staff performance of cardiopulmonary resuscitation in critical care unit of military hospital

Specific objective:

1. To assess nurse knowledge about Cardiopulmonary resuscitation.
2. To assess nurse practice about Cardiopulmonary resuscitation.
3. Opinion of nurses about family present during cardiopulmonary resuscitation.

2. cardiopulmonary resuscitation (CPR)

It is important to provide effective cardiopulmonary resuscitation care to arrested patients to improve mortality and morbidity rates ⁽¹⁾. Cardiopulmonary resuscitation (CPR) is an important medical procedure which is needed for individuals who face sudden cardiac arrest. It is a combination of rescue breathing and chest compressions which is delivered to the victims who are thought to be in cardiac arrest. Sudden cardiac arrest (SCA) is life threatening condition and a leading cause of death among adults over the age of 40 years in the United States and other countries. In addition, cardiopulmonary resuscitation is a critical component of basic life support and the established first line of response to a cardiac arrest in the interim before defibrillation and advanced life support are available, it is an important life-saving first-aid skill and an effective method of keeping someone who is experiencing a cardiac arrest alive long enough for definitive treatment to be delivered. CPR cannot usually restart the heart, but it makes sure that blood and oxygen continue to circulate through the body, keeping the patient active until help arrives. The aim of CPR is to ensure that body functions are maintained so that the brain and other vital organs receive a sufficient supply of oxygen and nutrients to maintain their functions and that the waste products of metabolism are removed ⁽¹⁴⁾. For the purpose of optimal performance, it is ideal to provide standardized equipment and regular trainings based on international guidelines ⁽¹¹⁾. Resuscitation from death is not an everyday event but is no longer a rarity. The goal of resuscitation is restoration of normal or near-normal cardiopulmonary function, without deterioration of other organ systems ⁽⁶⁾. Because of the nature of their profession, nurses spend significant time alongside patients and are often the first to attend at in-hospital cardiovascular arrests; they

are thus the ones who respond by providing CPR the nurse plays a vital role in the efforts to resuscitate a patient ⁽¹⁹⁾. The ABCDs of basic cardiopulmonary resuscitation (CPR) are airway, breathing, circulation, and defibrillation. ⁽¹⁾

2.1. Definition:

2.1.1 Cardiopulmonary resuscitation (CPR): the manual application of chest compressions and ventilations to patients in cardiac arrest, done in an effort to maintain viability until advanced help arrives. This procedure is an essential component of basic life support (BLS), basic cardiac life support (BCLS), and advanced cardiac life support (ACLS) ⁽³⁾.

2.1.2 Also known by the acronym CPR is an emergency procedure performed in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in cardiac arrest. It is a basic, but proven first aid skill, practiced throughout the world. It is an effective method of keeping a victim of cardiac arrest alive long enough for definitive treatment to be delivered ⁽²⁾.

2.1.3. Cardiopulmonary resuscitation (CPR) is the foundational technique for the emergency treatment of cardiac arrest (CA) ⁽⁷⁾

2.2.Sudden cardiac death is defined as an unexpected death due to cardiac causes that occurs within 1 hour of symptom onset. The person may or may not have known of preexisting heart disease. Cardiac arrest, usually due to cardiac arrhythmias, is the term used to describe the sudden collapse, loss of consciousness, and loss of effective circulation that precedes biologic death ⁽¹⁵⁾.

2.3. **Cardiac arrest** occurs when the heart ceases to produce an effective pulse and blood circulation. ⁽¹⁾.

2. HISTORY OF CARDIOPULMONARY RESUSCITATION :

In the 1700s, drowning, particularly in the large European port cities, was the leading cause of sudden death. In response, Amsterdam founded the first organized resuscitation effort—there were as many as 400 deaths per year in that city. The establishment of the Amsterdam Rescue Society in 1767 represents humanity’s collective desire to attempt resuscitation of the suddenly dead. No longer was religion invoked as the sole life-saving force, instead humankind empowered itself to deal with matters of life and death. Within 4 years of its founding, the Amsterdam Rescue claimed to have saved 150 persons from watery deaths. The Royal Humane Society in London began a few years later in 1774 .The Society’s emblem shows an angel blowing on an ember with a Latin inscription that translates “A little spark may yet lie hid.” This emblem is a wonderful metaphor of the prevailing belief that as long as there was warmth in the body, life could be reignited. The will to resuscitate began with the Enlightenment. It would take approx 200 years for the way to be found

2.1. The search for the way of resuscitation

Rescue societies were formed in many European and American cities after the Enlightenment, and all of these societies recommended techniques to deal with drowning victims. For example, one technique advocated placing the victim over a barrel and rolling him or her back and forth while holding the legs. This technique allowed the abdomen to be alternatively squeezed and to perhaps allow a small

amount of air to reach the lungs. Another recommended procedure was to use bellows to directly blow air into the victim's mouth. Clearly, most of the air would go into the stomach or out the nose. There were even recommendations to use tobacco smoke inserted rectally in the drowning victim. Tobacco was a stimulant, and there were animal experiments suggesting that smoke in the rectum could revive unconscious individuals. These techniques relied on commonsense. It seemed logical to stimulate the body to restart breathing. With these and many other fanciful methods it is tempting to ridicule the science of the 18th century. What is important, however, is not the success of these early methods, but rather their very existence as emblematic of the quest to reverse sudden death.

From 1767 to 1949, there were literally hundreds of techniques and procedures recommended for artificial ventilation. Most relied on direct pressure to the

Abdomen, chest, or back. The inventors of these techniques thought, wrongly, that passive entrainment of air into the lungs was sufficient to maintain adequate oxygenation. Hundreds of thousands of individuals in Europe and the United States learned these techniques, although none of the methods were very effective. Perhaps it is surprising that no scientist recommended direct mouth-to-mouth respiration, but it must be remembered that for many years it was considered loathsome for a rescuer to place his or her lips on another person's mouth. And then there was the belief, strongly held for many decades, that expired air did not contain enough oxygen to sustain life.

2.3.1 The way is found

It wasn't until James Elam, an anesthesiologist, entered the scene that mouth-to-mouth resuscitation was rediscovered. I say "rediscovered" because it had been known for many centuries that it could be useful in newborn resuscitation. Elam's discovery occurred in the middle of a polio outbreak in 1949 in Minneapolis. Here

is how Elam describes the event: (I was browsing around to get acquainted with the ward when along the corridor came a gurney racing—a nurse pulling it and two orderlies pushing it, and the kid on it was blue. I went into total reflex behavior. I stepped out in the middle of the corridor, stopped the gurney, grabbed the sheet, wiped the copious mucous off his mouth and face . . . sealed my lips around his nose and inflated his lungs. In four breaths he was pink) the evening before this rediscovery, Elam read a chapter on the history of resuscitation in which mouth-to-mouth ventilation for newborns was described. He credits this chapter for his “reflex behavior.” It is comforting to think that historians played a crucial role in scientific discoveries. Elam’s passion led to his proselytizing about the merits of mouth-to-nose ventilation. He set out to prove that exhaled air was adequate to oxygenate non-breathing persons. To accomplish this he obtained permission from his chief of surgery to do studies on

Post operative patients before the ether anesthesia wore off. He demonstrated that expired air blown into the endo- tracheal tube maintained normal oxygen Saturation several years later, Elam met Peter Safar, and Safar joined the effort to convince the world that mouth-to-mouth ventilation was effective. Safar set out on a series of experiments using paralyzed individuals to show that the technique could maintain adequate oxygenation.

safar describes the experiments study:(thirty-one physicians and medical students, and one nurse volunteered. . . . Consent was very informed. All volunteers had to observe me ventilate anesthetized and curried patients without a tracheal tube. i sedated the volunteers and paralyzed them for several hours each. Blood o₂ and co₂ were analyzed. i demonstrated the method to over 100 lay persons who were then asked to perform the method on the curried volunteers)

Within a year of these experiments, Safar and Elam convinced the world to switch from manual to mouth-to-mouth ventilation. The US military accepted and endorsed the method in 1957 and the American Medical Association (AMA) followed suit in 1958. The Journal of the American Medical Association(JAMA) stated the following endorsement, “Information about expired air breathing should be disseminated as widely as possible”

Unlike cessation of respiration, an obvious sign of sudden death, the cessation of circulation, and particularly the rhythm of the heart, was invisible to an observer. Perhaps as a result, the appreciation of artificial circulation lagged considerably behind the obvious need for artificial respirations. Plus, even if scientists in the post-Enlightenment period appreciated the need to circulate blood there was simply no effective means to do so. Even though closed chest massage was described in 1904, its benefit was not appreciated and anecdotal case reports did little to promote the benefit of closed chest massage. The prevailing belief was described in a physician’s quote from 1890, “We are powerless against paralysis of the circulation.”

Here’s where serendipity plays a role. It would be nice to believe that all scientific discoveries are the result of the painstaking accumulation of small facts leading to a grand synthesis, yet, the role of accident cannot be discounted. Chest compression was really an accidental discovery made by William Kouwenhoven, Guy Knickerbockers, and James Jude. They were studying defibrillation in dogs and they noticed that by forcefully applying the paddles to the chest of the dog with a fair amount of force, they could achieve a pulse in the femoral artery. This was the key observation that led them eventually to try it on humans. The first person saved with this technique was recalled by Jude as “. . . rather an obese female who . . . went into cardiac arrest as a result of flurothane anesthetic. . . .

This woman had no blood pressure, no pulse, and ordinarily we would have opened up her chest... Instead, since we weren't in the operating room, we applied external cardiac massage... Her blood pressure and pulse came back at once. We didn't have to open her chest. They went ahead and did the operation on her, and she recovered completely". They published their findings on 20 cases on in-hospital cardiac arrest (CA) in a 1960 JAMA article. Of the 20 patients, 14 (70%) were discharged from the hospital. Chest compression ranged from 1 to 65 minutes in the patients. The authors write in their landmark article, "Now anyone, anytime, can institute life saving measures." Later that year, mouth-to-mouth ventilation was combined with chest compression and cardiopulmonary resuscitation (CPR), as we practice it today, was developed. The American Heart Association (AHA) formally endorsed CPR in 1963

2.4.2 The search for defibrillation :

the discovery of electricity was another product of the Enlightenment. In the late 1700s, many scientists began experimenting with this "newly discovered" force called electricity. There were early descriptions of possible defibrillation. For example, in this account from 1780 there is a report of "Sophia Greenhill who fell from a window and was taken up, by all appearances, dead." The report goes on to say that "Mr. Squires tried the effects of electricity, and upon transmitting a few shocks to the thorax, perceived a small pulsation". Proto defibrillators had two electrodes and glass rods to protect the operator. They even had a capacitor and a means to dial in a variable amount of current. Ventricular fibrillation (VF) was first appreciated in animals 150 years ago when two German scientists noticed that strong electric currents applied directly to the ventricles of a dog's heart caused

VF. It was considered a medical curiosity with no relevance for humans. John McWilliam made the first detailed descriptions of VF in animals and he was the first to postulate an importance for humans in a series of articles from 1887 to 1889 published in the British Medical Journal (BMJ).

In McWilliam's day it was assumed that sudden cardiac collapse took the form of a sudden standstill—in other words, no electrical activity. Experiments performed by McWilliam on dogs disproved this idea. McWilliam's descriptions of VF, written more than 100 years ago, are classic: The normal beat is at once abolished, and the ventricles are thrown into a tumultuous state of quick, irregular, twitching action. . . . The cardiac pump is thrown out of gear, and the last of its vital energy is dissipated in a violent and prolonged turmoil of fruitless activity in the ventricular walls. . . . It seems to me in the highest degree probable that a similar phenomenon occurs in the human heart, and is the direct and immediate cause of death in many cases of sudden dissolution.

In addition to studying dogs, McWilliam performed experiments on young and adult cats, rabbits, rats, mice, hedgehogs, eels, and chickens. He noted that the lower and smaller mammals, and the fetal hearts of larger animals, could not sustain VF. The hearts were simply too small to sustain the rhythm. His delineation of heart size and its ability to maintain VF were major factors in his speculation that Fibrillation is an important cause of sudden death in humans. At the time McWilliam was writing, VF had never been observed directly in humans, as the electrocardiogram (ECG) wasn't invented until 1930. Although McWilliam used an electric current to induce the fibrillation, he never tried electricity to stop the fibrillations of a heart muscle. One would not intuitively assume that the electrical stimulation that caused the fibrillation could not also defibrillate the heart. Nevertheless, McWilliam deserves recognition for his landmark studies in fibrillation and for being the first scientist to defibrillate animals. With DC

defibrillation proved, all the elements were in place for widespread dissemination of the procedure. Defibrillation spread quickly into hospital coronary care units, emergency departments, and, then, in the late 1960s and early 1970s the first paramedic programs began. Now the defibrillator traveled directly to a patient in VF. The first programs began almost simultaneously in Seattle, Portland, Columbus, Ohio, Miami, and Los Angeles. By the 1980s, studies to demonstrate successful defibrillation by EMTs were conducted in King County, Washington. The first study demonstrated an improvement in VF survival from 7 to 26%. Slowly, other communities began EMT defibrillation programs.

2.4.3. Present currents:

The idea for an automatic defibrillator was first conceived by Dr. Arch Diack, a surgeon in Portland. Diack's prototype, literally assembled in a basement, utilized a unique defibrillation pathway—tongue to chest. There was a breath detector that was a safeguard to prevent shocking breathing persons. The electrode was essentially a rate counter, far more crude than today's sophisticated VF detectors. The production model weighed 35 pounds and gave verbal instructions. It was an idea ahead of its time. Most people viewed it as a curiosity. By the late 1980s, however, other manufacturers entered the field leading to the crop of automated external defibrillators (AEDs) we have today. AEDs, with ease of training and use, allowed EMT defibrillation programs to expand rapidly. The first program to demonstrate the safety and effectiveness of EMT defibrillation with AEDs was also conducted in King County (by Richard Cummins). From EMT defibrillation with AEDs, there was a natural and logical progression to the early First Responder defibrillation and finally the current situation of widespread public

access defibrillation. Perhaps the future will witness AEDs in homes, and they will be thought of as personal safety devices⁽²⁾.

2.5. Incidence and etiology of cardiac arrest:

the prevalence of CHD varies worldwide, thus estimates of the incidence of SCA are difficult to obtain. In Australia, CHD is the leading cause of disease burden (9%) and accounts for 16.5% of all deaths. There are many factors that contribute to cardiac arrest. In adults, the most common cause of cardiac arrest is a primary cardiac event, with coronary artery disease accounting for up to 90% of all victims. CHD is the most likely cause of death in those over 35 years of age, compared to non-cardiac causes such as drowning, acute airway obstruction or trauma for people less than 35 years of age. While causes of cardiac arrest are numerous, most often it is associated with ventricular fibrillation triggered by an acutely ischemic or infarcted myocardium or primary electrical disturbance. Causes of cardiac arrest may be separated into two categories, primary and secondary .

2.5.1. Primary causes:

Congenital heart disease	Electrical shock (low- and high-voltage)	
Acute myocardial infarction	Cardiomyopathy	Drugs

2.5.2. Secondary causes:

Cessation of breathing	Trauma	Electrical disturbance	Severe bleeding
Airway obstruction	Hypothermia	Neuromuscular disease	Metabolic disturbance

2.5.3. Common Causes of Sudden No traumatic Cardiac Arrest

1. Primary cardiac event a. CAD b. Dysrhythmias due to <ul style="list-style-type: none"> ▪ Hyperkalemia ▪ Severe acidemia ▪ Other electrolyte disturbances c. Myocarditis d. Tamponade	2. Secondary to respiratory arrest (e.g., children) 3. Secondary to acute respiratory failure <ul style="list-style-type: none"> a. Hypoxemia b. Hypercapnia 	4. Extreme alterations in body temperature 5. Drug effects <ul style="list-style-type: none"> a. Digitalis b. Guanidine c. Tricyclic antidepressants d. Cocaine
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Most cardiac arrests of non-cardiac origin have respiratory causes, such as drowning (among them many children) and asphyxia. Rescue breaths as well as chest compressions are Critical for successful resuscitation of these victims ⁽⁵⁾.

2.6. Causes of deterioration and cardiopulmonary arrest:

Deterioration and cardiopulmonary arrest can be caused by airway and/or breathing and/or circulation.

3.6.1. Air way obstruction:

Air way obstruction can be partial or complete Causes of air way obstruction

Central nervous system depression	blood	vomit us
Direct trauma to face or throat	Laryngeal swelling	Epiglottis's
Blocked tracheotomy	Bronchial secretion	Bronchospasm

- Bronchospasm – causes narrowing of the small air way in the lung

2.6.2. Breathing problems:

Respiratory arrest often arises from a combination of factor Respiratory drive – central nervous system can decrease or abolish respiratory drive Respiratory effort – the main respiratory muscles are the diaphragm and intercostals muscles .the latter are innervated at the level of their respective ribs and may be paralyzed by diaphragm is at the level of spinal cord. Spontaneous breathing cannot occur with sever cervical cord damage above this level

2.6.3. Circulation problem:

May be caused by primary heart disease or by heart abnormalities secondary to other problem

2.6.3.1. Primary heart disease

Acute coronary syndrome	Drug e.g. digoxin	Acidosis	Abnormal electrolyte concentration
Hypertensive heart disease	Inherited cardiac disease	Hypothermia	electrocution

2.6.3.2. Secondary heart problems: the heart is affected by changes elsewhere in the body. For example, primary respiratory arrest, severe anemia, hypothermia; severe septic shock⁽¹⁶⁾.

2.7. Path physiology :

In sudden cardiac arrest with cardiac origin, it is believed that myocardial ischemia leads to ventricular irritability and the progression from ventricular tachycardia to ventricular fibrillation (VF) and ultimately a systole. After the onset of VF (in animal studies), carotid arterial blood flow continues for approximately 4 minutes even in the absence of cardiac compressions, as coronary perfusion pressure (the pressure gradient between the aorta and the right atrium) falls over this period. This initial phase is characterized by minimal ischemic injury, and it is during this time that defibrillation is most likely to result in the restoration of a perfusing rhythm, while initiation of effective cardiac compressions will increase the coronary perfusion pressure. Progression of the cardiac arrest beyond 4 minutes results in accumulation of toxic metabolites, depletion of high-energy phosphate stores, and the initiation of ischemic cascades.¹⁷ A high probability of irreversible cellular injury exists where a cardiac

arrest extends for longer than 10 minutes, and the return of a spontaneous circulation During this period may initiate a reperfusion injury⁽⁴⁾.

5. Recognition the deteriorating patient:

To help early detection of deteriorating patient, many hospital use early warning scores (EWS).Early warning scores are dynamic and change over time and the frequency of observation should be increased to track improvement or deterioration in a patient condition.

2.8. COLLAPSE

Any sudden prostration or loss of consciousness is loosely termed collapse.

The Reason may be obvious when it happens in the surgery but on other Occasions, an assessment of all the clues will be needed. Collapse is more likely to have a cardiac cause in adults than in children. The action to be taken will depend on the cause of the collapse and the age of the patient. Any of the following scenarios could apply. Consult the Resuscitation Guidelines for adults and children of all ages.

The Resuscitation Council UK guidelines are updated regularly in line with medical evidence. Copies of their most recent guidelines can be obtained via the internet or by post.

2.8.1. Collapsed but conscious patient :

- Check it is safe to approach. Look for any signs of danger near the patient.
- Attempt to rouse the patient. Does he/she respond to calling or a gentle Shake of

the shoulders? Avoid shaking infants because of the risk of brain Damage. Shaking of any patient should be avoided if a neck injury is a Possibility.

- If the patient is conscious then obtain information about his/her condition, treat as appropriate and summon help if needed. Continue regular reassessments.

- Do not move the patient unless in danger.

2.8.2. Collapsed unconscious patient

Check as above (for collapsed but conscious patient). If there is no response, Shout for help then follow the ABC⁽¹⁷⁾.

9. The ABCDE Approach

9.1. Air way (A):

Airway obstruction is an emergency .get expert help immediately

1. Look for the signs of air way obstruction

- Paradoxical chest and abdominal movement (see-saw respirations) and the use of accessory muscles of respiration. central cyanosis is late sign of air way obstruction
- In complete airway obstruction there are no breath sounds at the mouth or nose.

2. Treatment of air way obstruction as emergency

In most cases, only simple methods of air way clearance are required (e.g. air way opening maneuvers, suction, insertion of nasopharyngeal or oropharyngeal air way)

Tracheal intubation by expert may be required when these fail

3. give high-concentration oxygen using a mask with an oxygen reservoir

2.9.2. Breathing (B):

1. Look ,listen and feel for general signs of respiratory distress
2. Count the respiratory rate the normal rate is 12-20 breath min
3. Assess the depth of each breath
4. Note any chest deformity
5. Record the inspired oxygen concentration
6. Listen patient breath sound
7. Per cuss the chest
8. Auscultation the chest with stethoscope
9. Check the position of the trachea
10. Feel the chest wall to detect surgical emphysema
11. The specific treatment depend on the cause

2.9.3. Circulation (C):

1. Look at the colure of the hands fingers : are they blue ,pink, pale
2. Hold the patient hand : is it cool or warm
3. Measure the capillary refill time
4. Count the patient pulse rate
5. Palpate the peripheral and central pulses
6. Measure the patient blood pressure
7. Look for external bleeding from wound
8. Treatment depend on the cause
9. Insert one or more large (14or16) intravenous canula
10. Take blood from the canula for routine investigation
11. Give rapid fluid challenge
12. Reassess the heart rate and BP regularly

13.If the patient dose not improve repeat the challenge

14.If the patient primary chest pain and a suspected ACS, record a 12lead ECG early ,and treat initially with anti ischemic

2.9.4. Disability (D):

1. Review and treat the ABC
2. Check the patient drug chart for reversible drug –induced causes of depressed consciousness.
3. Make rapid initial assessment of patient conscious level using the AVPU method
4. Measure the blood glucose to exclude hypoglycemia using a rapid finger –prick bedside testing method
5. Nurse unconscious patient in the lateral position if their airway is not protected.

2.9.5. Exposure (E):

To examine the patient properly full exposure of the body may be necessary .respect the patient's dignity and minimize heat loss ⁽¹⁶⁾

2.10. Resuscitation consists of the following steps :

1. Airway →maintaining an open airway
2. Breathing →providing artificial ventilation by rescues breathing
3. Circulation →promoting artificial circulation by external cardiac compression
4. Defibrillation →restoring the heartbeat ⁽¹⁾.

2.11. Basic life support :

When a patient is identified as in potential or actual arrest, a primary and secondary survey should be conducted in the DRSABCD sequence:

- **Danger?** Check for danger (hazards or risks or safety)
- **Responsive?** Check for response (if responsive/unconscious)
- **Send?** Send for help
- **Airway?** Open the airway. Airway assessment is undertaken to establish a patent airway while maintaining cervical spine support (if injury is suspected)
- **Breathing?** Check breathing. Breathing includes the assessment and establishment of breathing, noting rate, pattern, chest movement and tissue oxygenation
- **CPR?** Start CPR. Give 30 chest compressions (almost two compressions/second) followed by two breaths.
- **Defibrillation?** Attach an automated external defibrillator as soon as available and follow its prompts⁽⁴⁾.

2.12. Immediate life support :

The immediate life support (ILS) course provides health care staff with the essential knowledge and skill needed to treat adult patient in cardiopulmonary arrest for the short experienced assistance. It also prepares healthcare staff to be member of resuscitation team⁽¹⁶⁾.

2.13. Advanced life support:

Basic life support can provide around 20–30% of normal cardiac output and a fraction of inspired oxygen (FiO₂) of 0.1–0.16. Consequently, a significant number of patients rely on the provision of advanced life support (ALS) for survival. ALS extends BLS to provide the knowledge and skills essential for the initiation of early Treatment and stabilization of people post-cardiac arrest. Advanced skills traditionally include defibrillation, advanced airway management and the administration of resuscitation drugs. While BLS is generally initiated prior to ALS, where a defibrillator and a person trained in its use are available, defibrillation takes precedence over BLS and ALS. The ARC and NZRC algorithm for management of cardiopulmonary arrest outlines the two decision paths of therapy in ALS:

- Defibrillation and CPR for pulse less VT/VF (shakable)
- Identifying and treating the underlying cause for non-VT/VF (non shakable).⁽⁴⁾

2.15. European Resuscitation Council Guidelines for Resuscitation 2015:

Adult basic life support and automated external defibrillation The guidelines are based on the ILCOR 2015 Consensus on Science and Treatment Recommendations (COSTR) for BLS/AED.¹⁸The ILCOR review focused on 23 key topics leading to 32 Treatment Recommendations in the domains of early access and cardiac arrest prevention, early, high-quality CPR, and early defibrillation.

2.15.1. The chain of survival: The Chain of Survival summaries the vital links needed for successful resuscitation Most of these links apply to victims of both primary cardiac and asphyxia arrest.

1. Early recognition and call for help Recognizing:

The cardiac origin of chest pain, and calling the emergency services before a victim Collapses, enables the emergency medical service to arrive sooner, hopefully before Cardiac arrest has occurred, thus leading to better survival. 24–26 once cardiac Arrest has occurred, early recognitions critical to enable rapid activation of the EMS and prompt initiation of bystander CPR .The key observations are Unresponsiveness and not breathing normally.

2. Early bystander CPR :

The immediate initiation of CPR can double or quadruple survival after cardiac arrest. If able, bystanders with CPR training should give chest compressions together with ventilations. When a bystander has not been trained in CPR, The emergency medical dispatcher should instruct him or her to give chest-compression-only CPR while awaiting The arrival of professional help.

3. Early defibrillation :

Within 3–5 min of collapse can produce survival rates as high as 50–70%. This can be achieved by public access and onsite Automated External Defibrillation (AED).

4. Early advanced life support and standardized post-resuscitation care Advanced life support with airway management, drugs and correcting causal factors may be needed if initial attempts at resuscitation n are un-successful.

11.2. Recognition of cardiac arrest:

Recognizing cardiac arrest can be challenging. Both bystanders and emergency call handlers (emergency medical dispatchers) have to diagnose cardiac arrest promptly in order to activate the chain of survival. Checking the carotid

Pulse (or any other pulse) has proved to be an inaccurate method for confirming the presence or absence of circulation. Agonal breathing may be present in up to 40% of victims in the first minutes after cardiac arrest, and if responded to as a sign of cardiac arrest, is associated with higher survival rates.⁴³ The significance of agonal breathing should be emphasized during basic life support training.

Bystanders should suspect cardiac arrest and start CPR if the victim is

Unresponsive and not breathing normally. Bystanders should be suspicious of cardiac arrest in any patient presenting with seizures.

2.15.3. Adult BLS sequence :

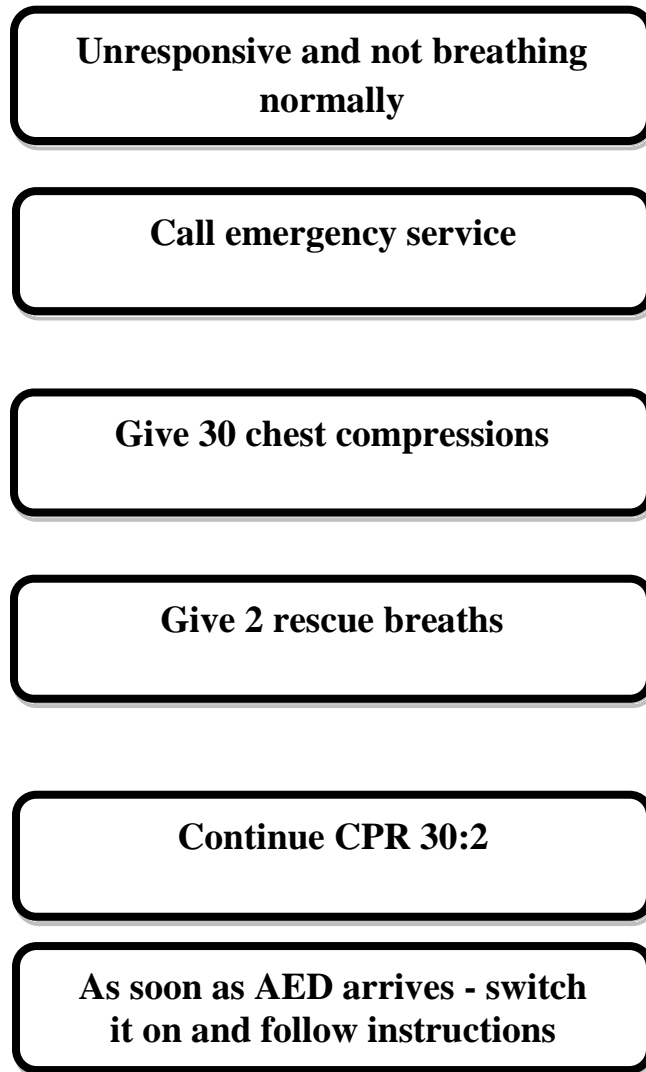
Presents the step by step sequence for the trained provider, It continues to highlight the importance of ensuring rescuer, victim and bystander safety. Calling for additional help (if required) is incorporated in the alerting emergency services step below. For clarity the algorithm is presented as a linear sequence of steps. It is recognized that the early steps of checking response, opening the airway, checking for breathing and calling the emergency medical dispatcher may be accomplished simultaneously or in rapid succession.

2.15.3.1. Opening the airway and checking for breathing :

the trained provider should assess the collapsed victim rapidly to determine if they are responsive and breathing normally. Open the airway using the head tilt and chin lift technique whilst assessing whether the person is breathing normally.

2.15.3.2. Alerting emergency services :

112 is the European emergency phone number, available everywhere in the EU, free of charge. It is possible to call 112 from fixed and mobile phones to contact any emergency service: an ambulance, the fire brigade or the police. Early contact with the emergency services will facilitate dispatcher assistance in the recognition of cardiac arrest, telephone instruction on how to perform CPR, emergency medical service/first responder dispatch, and on locating and dispatching of an AED



- The basic life support/automated external defibrillation (BLS/AED) algorithm figure (1)

2.15.3.3. Starting chest compression :

In adults needing CPR, there is a high probability of a primary cardiac cause. When blood flow stops after cardiac arrest, the blood in the lungs and arterial system remains oxygenated for some minutes. To emphasize the priority Of chest compressions, it is recommended that CPR should start with chest compressions rather than initial ventilations.

When providing manual chest compressions:

- Deliver compressions ‘in the centre of the chest’

- Compress to a depth of at least 5 cm but not more than 6 cm
- Compress the chest at a rate of 100–120 min⁻¹ with as few interruptions as possible
- Allow the chest to recoil completely after each compression; do not lean on the chest

Hand position Experimental studies show better hemodynamic responses when chest compressions are performed on the lower half of the sternum. 70–72 it is recommended that this location be taught in a simplified way, such as, “place the heel of your hand in the centre of the chest with the other hand on top”. This instruction should be accompanied by a demonstration of placing the hands on the lower half of the sternum.

Chest Compressions are most easily delivered by a single CPR provider kneeling by the side of the victim, as this facilitates movement between compressions and ventilations with minimal interruptions. Over-the-head CPR for single CPR providers and straddle-CPR for two CPR providers may be considered when it is not possible to perform compressions from the side, for example when the victim is in a confined space.

2.11.4.3.2. Compression depth:

Data from four recent observational studies suggest that a compression depth range of 4.5–5.5cm in adults leads to better outcomes than all other compression depths during manual CPR. 77–80 One of these studies found that a compression depth of 46 mm was associated with the highest survival rate. The ERC, therefore, endorses the ILCOR recommendation that it is reasonable to aim for a chest compression

Depth of approximately 5cm but not more than 6cm in the average sized adult. In line with the ILCOR recommendation, the ERC decided to retain the 2010 guidance to compress the chest at least 5cm but not more than 6 cm.

11.3.3.3. Compression rate :

two studies found higher survival among patients who received chest compressions at a rate of 100–120 min⁻¹. Very high chest compression rates were associated with declining chest compression depths. The ERC recommends, therefore, that chest compressions should be performed at a rate of 100–120 min⁻¹. Minimizing pauses in chest compressions Pre- and post-shock pauses of less than 10s, and chest compression fractions >60% are associated with improved outcome.

Pauses in chest compressions should be minimized.

2.15.4.3.3. Firm surface

CPR should be performed on a firm surface whenever possible. Air filled mattresses should be routinely deflated during CPR. The evidence for the use of backboards is equivocal. If a back-board is used, take care to avoid interrupting CPR and dislodging intravenous lines or other tubes during board placement .

11.3.3.5. Chest wall recoil:

Allowing complete recoil of the chest after each compression results in better venous return to the chest and may improve the effectiveness of CPR providers should, therefore, take care to avoid leaning after each chest compression

2.15.4.3.4.Duty cycle:

there is very little evidence to recommend any specific duty cycle and, therefore, insufficient new evidence to prompt a change from the currently recommended ratio of 50% Feedback on compression technique None of the studies on feedback or prompt devices has demonstrated improved Survival to discharge with feedback. The use of CPR feedback or prompt devices during CPR should only be Considered as part of a broader system of care that should include comprehensive CPR quality improvement initiatives, rather than as an isolated intervention .

2.15.4.4.Rescue breaths :

We suggest that during adult CPR tidal volumes of approximately ml (6–7 ml kg – 1) are delivered. Practically, this is the volume required to cause the chest to rise visibly. CPR providers should aim for an inflation duration of about 1s, with enough volume to make the victim’s chest rise, but avoid rapid or forceful breaths. The maximum interruption in chest compression to give two breaths should not exceed 10

2.15.3.5.1Compression ventilation ratio :

A ratio of 30:2 was recommended in ERC Guidelines 2010 for the single CPR provider attempting resuscitation of an adult. Several observational studies have

Reported slightly improved outcomes after implementation of the guideline changes, which included switching from a compression ventilation ratio of 15:2 to 30:2. The ERC continues, therefore, to recommend a compression to ventilation ratio of 30:2.

2.15.4.4.2.Compression-only CPR :

Observational studies, classified mostly as very low-quality evidence, have suggested equivalence of chest-compression-only CPR and chest compressions combined with rescue breaths in adults with a suspected Cardiac cause for their cardiac arrest. Our confidence in the equivalence between chest-compression- and standard CPR is not sufficient to change current practice. The ERC, therefore, endorses the ILCOR recommendations that all CPR providers should perform chest compressions for all patients in cardiac arrest. CPR providers trained and able to perform res-cue breaths should perform chest compressions and rescue breaths as this may provide additional benefit for children and those who sustain an asphyxia cardiac arrest or where the EMS response interval is prolonged.

11.3.5. Use of an automated external defibrillator :

AEDS are safe and effective when used by laypeople with minimal or no training. AEDS make it possible to Defibrillate many minutes before professional help arrives. CPR providers should continue CPR with minimal Interruption of chest compressions while attaching an AED and during its use. CPR providers should concentrate on following the voice prompts immediately when they are

spoken, in particular resuming CPR as soon as instructed, and minimizing interruptions in chest compression. Standard AEDS are Suitable for use in children older than 8 years. For children between 1 and 8 years use pediatric pads, together With an attenuator or a pediatric mode if available .

11.3.5.1. CPR before defibrillation :

Continue CPR while a defibrillator or AED is being brought on- site and applied, but defibrillation should not be delayed any longer Interval between rhythm checks Pause chest compressions every 2 min to assess the cardiac rhythm

2.15.4.5 Voice prompts :

it is critically important that CPR providers pay attention to AED voice prompts

And follow them without any delay. Voice prompts are usually programmable, and it is recommended that they be set in accordance with the sequence of shocks and timings .

2.15.4.5.3.in-hospital use of AEDs :

There are no published randomized trials comparing in-hospital use of AEDs with manual defibrillators. Three observational studies showed no improvements in survival to hospital discharge for in- hospital adult cardiac arrest when using an AED compared with manual defibrillation. Another large observational study showed that in-hospital AED use was associated with a lower

survival-to-discharge rate compared with no AED use. This suggests that AEDs may cause harmful delays in starting CPR, or interruptions in chest compressions in patients with non-shockable rhythms. We recommend the use of AEDs in those areas of the hospital where there is a risk of delayed defibrillation, because it will take several minutes for a resuscitation team to arrive, and first responders do not have skills in manual defibrillation. The goal is to attempt defibrillation within 3 min of collapse. In hospital areas where there is rapid access to manual defibrillation, either from trained staff or a resuscitation team, manual defibrillation should be used in preference to an AED. Hospitals should monitor collapse-to-first shock intervals and audit resuscitation outcomes

2.16. In-hospital resuscitation :

After in-hospital cardiac arrest, the division between BLS and ALS is arbitrary; in practice, the resuscitation process is a continuum and is based on common sense. An algorithm for the initial management of in-hospital cardiac arrest is shown in figure below

- Ensure personal safety.
- When healthcare professionals see a patient collapse or find a patient apparently unconscious in a clinical area, they should first summon help (e.g. emergency bell, shout), then assess if the patient is responsive. Gently shake the shoulders and ask loudly: ‘Are you all right?’
- If other members of staff are nearby, it will be possible to undertake actions simultaneously
- The Responsive patient

Urgent medical assessment is required. Depending on the local protocols, this may take the form of a resuscitation team (e.g. Medical Emergency Team, Rapid Response Team). While waiting this team, give oxygen, attach monitoring and insert an intravenous canula.

- The unresponsive patient

The exact sequence will depend on the training of staff and experience in assessment of breathing and circulation. Trained healthcare staff cannot assess the breathing and pulse sufficiently reliably to confirm cardiac arrest. Agonal breathing (occasional gasps, slow, labored or noisy breathing) is common in the early stages of cardiac arrest and is a sign of cardiac arrest and should not be confused as a sign of life. Agonal breathing can also occur during chest compressions as cerebral perfusion improves, but is not indicative of ROSC. Cardiac arrest can cause an initial short seizure-like episode that can be confused with Epilepsy finally changes in skin colour, notably pallor and bluish changes associated with cyanosis are not diagnostic of cardiac arrest.

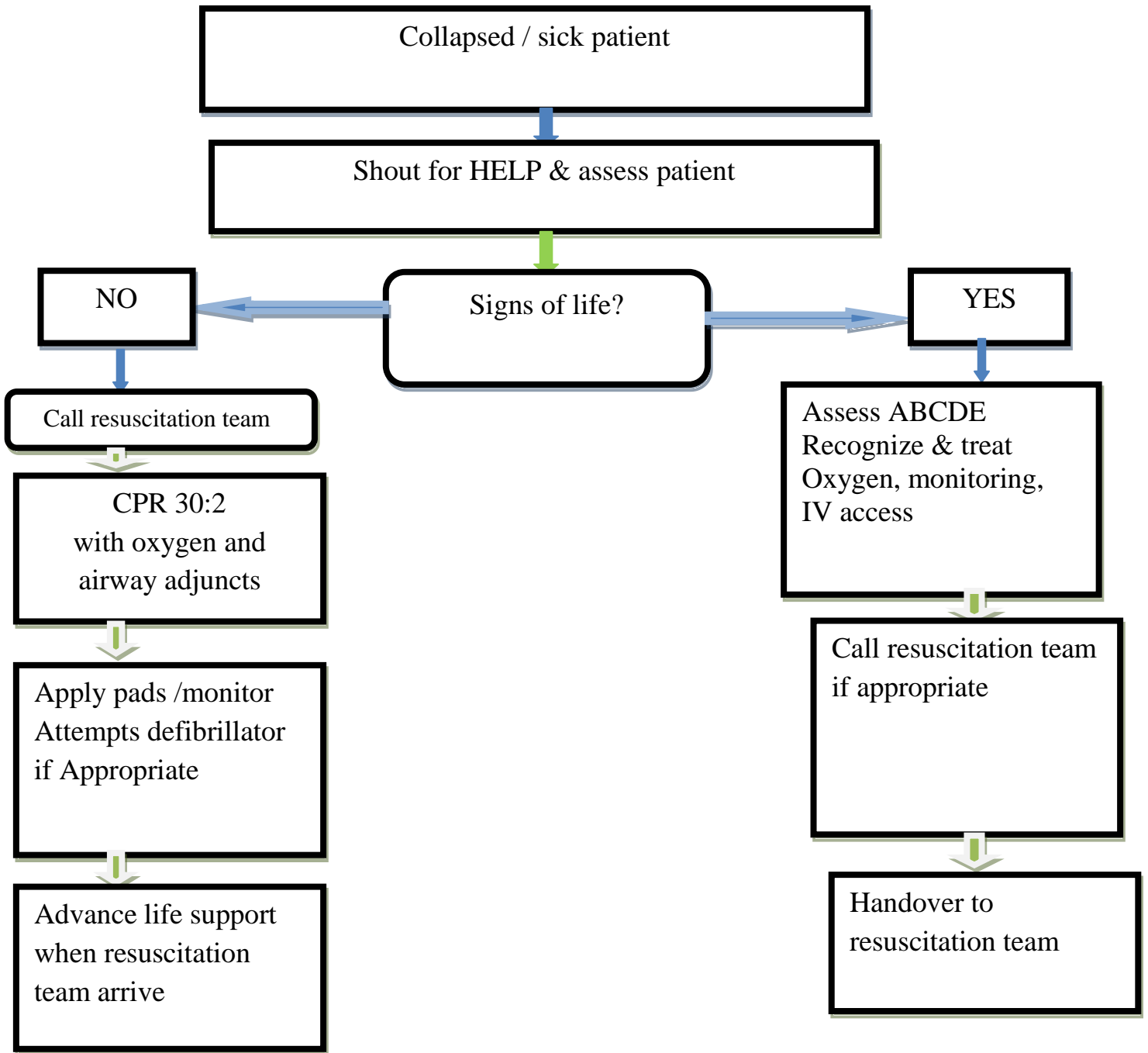
- Shout For help (if not already)

Turn the victim on to his back and then open the airway:

- Open airway and check breathing
- Open the airway using a head tilt chin lift
- Keeping the airway open, look, listen and feel for normal breathing (an occasional gasp, slow, labored or noisy breathing is not normal)
- Look for chest movement
- Listen at the victim's mouth for breath sounds
- Feel for air on your cheek

- look , listen and feel for no more than 10 seconds to determine if the victim is breathing normally
- check for sings of circulation
- It may be difficult to be certain that there is no pulse. If the patient has no signs of life (consciousness, purpose full movement, normal breathing, or coughing), or if there is doubt, start CPR immediately until more experienced
- help arrives or the patient show signs of life
- Delivering chest compressions to a patient with a beating heart is unlikely to cause harm. However, delays in diagnosing cardiac arrest and starting CPR will adversely affect survival and must be avoided.
- only those experienced in ALS should try to assess the carotid pulse whilst simultaneously looking for signs of life. This rapid assessment should take no more than 10 s. Start CPR if there is any doubt about the presence or absence of a pulse
- If there are signs of life, urgent medical assessment is required. Depending on the local protocols, this may take the form of a resuscitation team. While awaiting this team, give the patient oxygen, attach monitoring and insert an intravenous canula. When a reliable measurement of oxygen saturation of arterial blood (e.g. pulse Oximetry (SpO2)) can be achieved. Titrate the inspired oxygen concentration to achieve a SpO2 of 94–98%.
- If there is no breathing, but there is a pulse (respiratory arrest), ventilate the patient’s lungs and check for a circulation every 10 breaths. Start CPR if there is any doubt about the presence or absence of a pulse

In-hospital Resuscitation



- In hospital resuscitation algorithm figure (2)

Starting in-hospital CPR

- One person starts CPR as others call the resuscitation team and collect the resuscitation equipment and a defibrillator. If only one member of staff is present, this will mean leaving the patient.
- Give 30 chest compressions followed by 2 ventilations.
- Compress to a depth of at least 5 cm but no more than 6 cm
- Chest compressions should be performed at a rate of 100–120 min
- Allow the chest to recoil completely after each compression; do not lean on the chest
- Minimize interruptions and ensure high-quality compressions
- Undertaking high-quality chest compressions for a prolonged time is tiring; with minimal interruption,
Try to change the person doing chest compressions every 2 min
- Maintain the airway and ventilate the lungs with the most appropriate equipment immediately to hand.
- Pocket mask ventilation or two-rescuer bag-mask ventilation, which can be supplemented with an oral airway, should be started. Alternatively, use a supra-glottis airway device (SGA) and self-inflating bag.
- Tracheal intubation should be attempted only by those who are trained, competent and experienced in this skill maintain the airway and ventilate the lungs with the most appropriate Equipment immediately to hand. Pocket mask ventilation or two-rescuer bag-mask ventilation, which can be supplemented with an oral airway, should be started. Alternatively, use a supra glottis airway device (SGA) and self-inflating bag. Tracheal intubation should be attempted only by those who are trained, competent and experienced in this skill capnography can also be used with a bag-mask device and SGA. The further use of waveform capnography to monitor CPR

quality and potentially identify ROSC during CPR is discussed later in this section

- Use an inspiratory time of 1 s and give enough volume to produce a normal chest rise. Add supplemental oxygen to give the highest feasible inspired oxygen as soon as possible
- Once the patient's trachea has been intubated or a SGA has been inserted, continue uninterrupted chest compressions (except for defibrillation or pulse checks when indicated) at a rate of 100–120 min⁻¹ and ventilate the lungs at approximately 10 breaths min⁻¹. Avoid hyperventilation (both excessive rate and tidal volume)
- If there is no airway and ventilation equipment available, consider giving mouth-to-mouth ventilation. If there are clinical reasons to avoid mouth-to-mouth contact, or you are unable to do this, do chest compressions until help or airway equipment arrives
- If there is no airway and ventilation equipment available, consider giving mouth-to-mouth ventilation. If there are clinical reasons to avoid mouth-to-mouth contact, or you are unable to do this, do chest compressions until help or airway equipment arrives.
- When the defibrillator arrives, apply self-adhesive defibrillation pads to the patient whilst chest compressions continue and then briefly analyze the rhythm. If self-adhesive defibrillation pads are not available, use paddles. Pause briefly to assess the heart rhythm. With a manual defibrillator, if the rhythm is VF/PVT charge the defibrillator while another rescuer continues chest compressions. Once the defibrillator is charged, pause the chest compressions and then give one shock, and immediately resume chest compressions. Ensure no one is touching the patient during shock delivery.

Plan and ensure safe defibrillation before the planned pause in chest compressions

- If using an automated external defibrillator (AED) follow the AED's audio-visual prompts, and similarly aim to minimize pauses in chest compressions by rapidly following prompts
- in some settings where self-adhesive defibrillation pads are not available, alternative defibrillation strategies using paddles are used to minimize the pre shock pause
- Restart chest compressions immediately after the defibrillation attempt. Minimize interruptions to chest compressions. When using a manual defibrillator it is possible to reduce the pause between stopping and restarting of chest compressions to less than five seconds
- Continue resuscitation until the resuscitation team arrives or the patient
- Shows signs of life. Follow the Voice prompts if using an AED
- Once resuscitation is underway, and if there are sufficient staff present, prepare intravenous canula and drugs likely to be used by the resuscitation team
- Identify one person to be responsible for handover to the resuscitation team leader. Use a structured communication tool for handover (e.g. SBAR, RSVP). locate the patient's records

The quality of chest compressions during in-hospital CPR is frequently sub-optimal. The importance of uninterrupted chest compressions cannot be over emphasized. Even short interruptions to chest compressions are disastrous for outcome and every effort must be made to ensure that continuous, effective chest compression is maintained throughout the resuscitation attempt. Chest compressions should commence at the beginning of a resuscitation attempt

and continue uninterrupted unless they are paused briefly for a specific intervention (e.g. Rhythm check). Most interventions can be performed without interruptions to chest compressions. The team leader should monitor the quality of CPR and alternate CPR providers if the quality of CPR is poor.

3. Methods and material

The methods and material of this study used to assess nurses performance regarding cardiopulmonary resuscitation in critical care unit (intensive care unit and coronary care unit) in military hospital, method and materials of this study are presented in three main designs as follow:

1. Technical design
2. Operational design
3. Statistical design

3.1 technical design :

Technical design of the study included study design, study area, setting, study population, sampling, DATA collection tools and pilot study.

3.1.1 study design :

Descriptive cross –sectional hospital based conducted to assess performance of nurses regarding cardiopulmonary resuscitation in critical care unit in military hospital.

3.1.2 study setting :

The study will be conducted in military hospital on Omdurman locality, Khartoum state in critical care unit (ICU, CCU). Omdurman is the second largest city in Sudan and Khartoum state, lying on the western banks of the river Nile ,opposite the capital , Khartoum ,Omdurman has a population of 2,395,159(2008) and is the national centre of commerce, with Khartoum and Khartoum north or BAHRI ,it forms the cultural and industrial heart of the nation. Small private clinics that are

scattered throughout the city are common sight, especially closed to HAY-ALSHOHADA. Some notable hospital include ,Omdurman teaching hospital biggest public hospital with an emergency center, Omdurman military hospital , Omdurman maternity hospital , blue Nile hospital private hospital , Asia hospital private hospital, ALTIGANY ALMAHY hospital public historical hospital specializing in psychological and mental health.

3.1.3 Study area:

In critical unite care the hospital provide more than 23 beds and find tow unit intensive care unit and coronary care unit with equipment viability and trained nursing staff any unite with separate head nurse matron provide service for military and civilian people and it is branch from military hospital. this hospital was established since 1954 as small center , the hospital provide medical service specialty for army people and also assistance civilian hospital to increase medical service production , the hospital provide all medical services (medicine , surgery , critical care unit , dialysis ,ophthalmology , dermatology ,ENT, dental care) ,

3.1.4 Study population:

The population of this study was constituted all nurses with available in the critical care unite as time of the study and mach the criteria of the sample. The estimation number of nurses (42) nurse .whom in critical unite with experience 1years.

Inclusion criteria:

- Experience more than 1years
- Nurse staff in critical unite

Excluded criteria:

- Matron of the unit and administration role nurses
- -Experience less than 1 years

3.1.4 Sample size:

Total coverage of available nurses (42) nurse (27) intensive care unit and (15) on coronary care unit. 5 nurse exclude by pilot study the sample size=37.

3.1.5. Tool of data collection:

For this study two tools are used to collect data to achieve the objective of the study, under supervision of the researcher himself. Data collected by the following means:

- 1- Cardiopulmonary resuscitation questionnaire sheet to assess the nurse's knowledge.
- 2- Cardiopulmonary resuscitation observation check list to assess the nurse's performance about...

1- Structured questionnaire :

It was developed by the researcher to assess nurse's knowledge regarding nursing care during cardiopulmonary resuscitation for patients with cardiac arrest .It was constructed and reviewed utilizing the most recent and relevant literature It was written in English language in the form of multiple –choice questions . It included the following parts

Part (A): That includes socio demographic variables such as, (age, sex, educational level, years of experience in unit and training program)

Part (B): it includes 16 Questions related to nurse's knowledge & attitudes

towards performance of cardiopulmonary resuscitation in critical care unit in military hospital.

- Basic knowledge Assessment of collapse not response victim (4items)
- Knowledge of Nursing care during cardiopulmonary resuscitation(4items)
- Knowledge about chest compression (3 items)
- Knowledge about rescue breath(2items)
- Knowledge about external defibrillation (2items)
- Attitude about family presence during cardiopulmonary resuscitation (1items) .

2-observational checklists:

Include an observational checklist to assess nurse's performance regarding cardiopulmonary resuscitation in critical care unit in military hospital. It was developed by researcher based on checklist from basic life support provider's course of American heart association and rated by done /not done list. The checklist contain (steps number, Critical performance criteria, done, not done)

the observation was done by using men' can and the participants in front me do the steps and I check done in list if the steps done correctly and not done if not in proper way the checklist contain :

Part A: assessment of collapse victims: this contain 6 steps (safety approach, check for response, check for pulse, check for breathing, time use to assess victim, call for emergency team)

Part B : give high quality chest compression 5 steps (hand placement , rate of compression 30 push/ 18 seconds , chest recoil , depth of compression 2 inches , Minimizes Interruptions Gives 2 breaths with pocket mask in less than 10 seconds)

3.2 operational design:

Operational design included a pilot study, Data collection, technique, ethical consideration .

3.2.1 Pilot study:

A pilot study was carried out on 10% (5)of subject. It was done to test the clarity and practicality of the tools, the results of the data obtained from the pilot study helped in modification of the tools; items were corrected or added as needed.

Accordingly modifications were done and the final form was developed. The sample & results from the pilot study were not included in the main statistical sample.

3.2.2 Data collection technique:

In this study the data was collected in two phases, the first phases the questionnaire was dispensed for participants and each on them is allowed sufficient time to fill it, all participants return questionnaire back. The second phased regrind checklist of performance cardiopulmonary resuscitation the researcher observe by himself the participants during practice cardiopulmonary resuscitation on the muckiness and evaluated him ,also using stop watch to assess rate of chest compression and time need to assessment patient.

3.2.1 Ethical consideration:

- An official later from the faculty of high science and scientific research , Khartoum branch , SHENDI university to directors of training department of army medical services and also the head department of intensive care unit and coronary care unit and the matron of intensive care unit and coronary care unit .
- An agreement will be developed to participate was be taken from nurses in critical care unit in military hospital involved in the study , after explanation of the purpose of the study after obtaining his, her verbal consent for participation in the study .

- Each participant was correct properly after finished skill checklist observation.

3.3 Statistical design:

The collected data was coded, organized and analyzed. the data analyzed by used SPS program 21 and descriptive statistics will be used to present data using percentage .

4. Limitation of the study:

The researcher was faced with a lot of limitation during this study period with include , difficulty on fined muckiness'' to make observational skill checklist , some included criteria participant refused to include on the research , the researcher also doesn't receive any financial support from anywhere ,

Result

Table: No (1) distribution of study group according to their Socio-Demographic characteristic (age, sex, years of experience, education Level) (n=37

Age	Number	Percentage %
20-30	35	94.6%
31-40	2	5.4%
<40	0	0%
Total	37	100%
sex		
male	16	43.2%
Female	21	56.8%
Total	37	100%
Years of experience		
1-5	32	86.5%
6-9	3	5.4%
<10	2	8.1%
Total	37	100%
Level of education		
Bachelor	33	89.2%
Diploma	3	8.1%
Master	1	2.7%
Total	37	100%

Table: No (1) showed that more than above half of study group (56.8%) were female, and most (94.6 %) their age between 20-30 years, most 86.5% their years of experience (1-5) years and most 89.2% of them level of education bachelor degree.

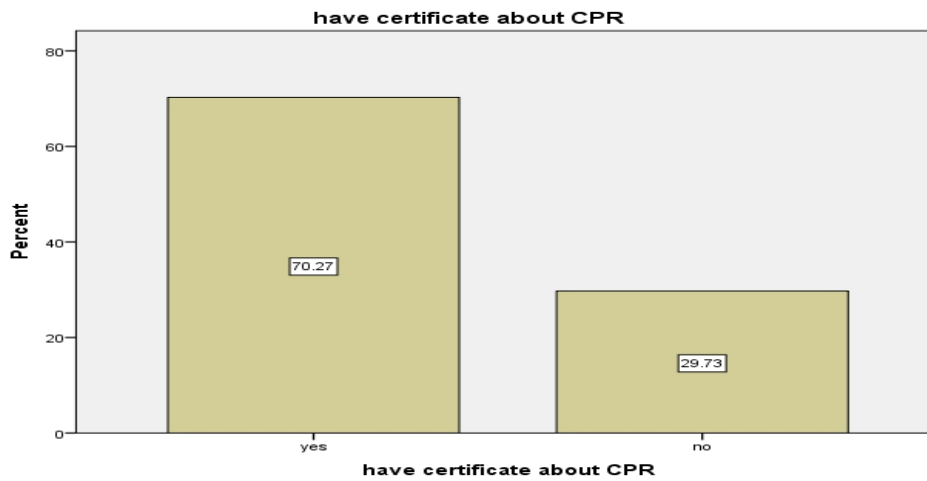


Figure (3): The distribution of the study population according to have Certification on cardiopulmonary resuscitation

This figure (3) explains that majority (70.27%) of study group had certification and training course on cardiopulmonary resuscitation, respectively. while less than third (29.73%) not had certification and training course on cardiopulmonary resuscitation

Table: No (2) distribution of study group according to their certificate course on cardiopulmonary resuscitation (type of course, date last time course) (n=37).

type of course	Frequency	Percentage
BLS	22	59.3%
ALS	4	11%
total	37	70.3%
last course date		
<1years	20	54%
<2years	2	5.5%
>2years	4	10.8%
total	37	70.3%

Table No (2) showed that, above than half 59.3% the type of course basic life support, less than third 11% advance life support. And showed that above than half 54% the time of last course <1years, the less than one third 5.5% the time of course <2years, less than one third 10.8% the time of last date course.

Table No (3) distribution of study group according to their knowledge about cardiopulmonary resuscitation on (first action, check response and time need to assess collapse victim) (n=37).

First action for collapse victim	Frequency	Percent
Safety approach	30	81.1
Check response	7	18.9
Total	37	100.0
Check response to collapse victim		
good	27	73
fair	9	24.3
poor	1	2.7
Total	37	100%
Time need to assess collapse victim		
yes	37	100%
No	0	0
Total	37	100%

Table No (3): showed that majority 81.1% of study group had knowledge safety approach and less than third 18.1% check response. And majority of study group 73.0% of nurses had good knowledge about first action to do on collapse victim and less than third 24.3% fair knowledge and less than third 2.7% poor knowledge. And the most 100% of study group good knowledge about time need to assess collapse victim.

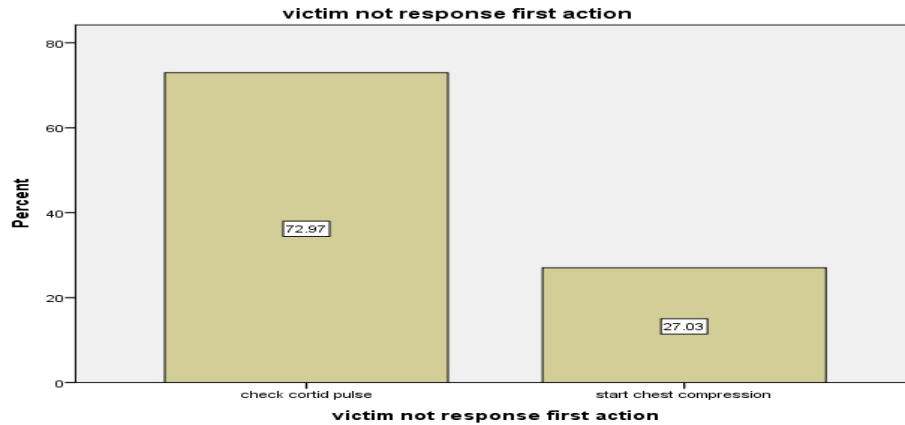


Figure No (4).The Knowledge about first action to victim not response among study group.

Figure No (4) showed that majority 73.0% of study group the knowledge about first action to victim not response (check of carotid pulse) and lees than third 27% start chest compression.

Table No (4) distribution of study group according to their knowledge about maneuvers to open air way (n=37).

Maneuver to open air way	Good		Fair		Poor		Total	
	F	P	F	P	F	P	F	P
Percent /frequency	33	89.2%	4	10.8%	0	0	37	100%

Table No (4): showed that most 89.2% of nurses had good knowledge about maneuvers to open air way and less than quarter 10.8% fair and.

Table No (5) distribution of study group according to knowledge about link of chain of survival, situation to stop chest compression, ventilation chest compression ratio.

Item	good		Fair		Poor		Total	
	F	P	F	P	F	P	F	P
Chain of survival	19	51.4%	17	45.9%	1	2.7%	37	100%
Situation to stop chest compression	33	89.2%	3	8.1%	1	2.7%	37	100%
Ventilation/compression /ratio	15:2		30:2		Total			
	F	P	F	P	F	P	F	P
	6	16.2%	31	83.8%	37	100%		

Table No (5) showed that above half 51.4 % of study group had good knowledge about chain of survival, less than third 45.9% fair knowledge, less than third 2.7% poor knowledge and showed that majority 89.2%of nurses had good knowledge about situation to stop chest compression ,less than third 8.1% fair knowledge ,

less than third 2.7% poor knowledge. Showed that majority 83.8% of study group had knowledge about chest compression ventilation ratio.

Table NO (6) distribution of study group according to their knowledge about pause the compression to assess the rhythm (n=37).

Pause to assess rhythm	Frequency	percent
Good	37	100.0
Fair	0	
Poor	0	
Total	37	100%

Table No (6) showed that most 100% of nurses good knowledge.

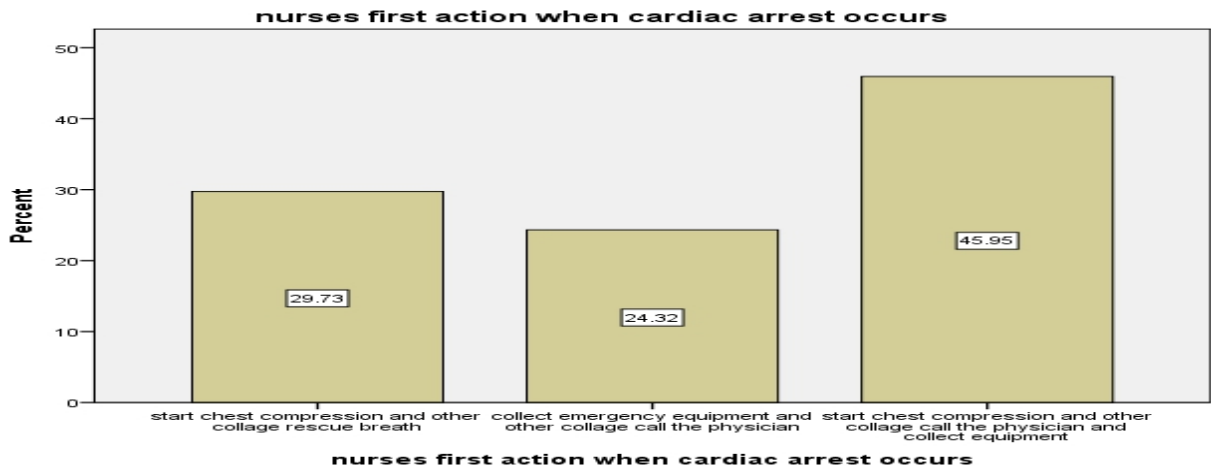


Figure No (3) the knowledge of study group about first action when cardiac arrest occurs in the ward

Figure NO (3) showed that less than half 45.9 % of study group good knowledge about first action on ward if cardiac arrest occurs, near to third 29.7% fair knowledge and less than third 24.3% poor knowledge.

Table No (7) distribution of study group according to their knowledge about the inspiratory time of valve mask ventilation (n=37).

Inspiratory time of valve mask ventilation	Frequency	percent
1 second	32	86.5
Don't know	5	100.0
Total	37	

Table No (7) showed that most 86.5% of nurses answer 1 seconds and 13.5% don't know.

Table No (8) distribution knowledge of study group about the apply adhesive pads of defibrillation on victim chest action during the automated external defibrillation analyses rhythm (n=37).

apply adhesive pads of defibrillation	Frequency	percent
Good	15	40.1%
Fair	20	54.5%
poor	2	5.4%
Total	37	100%
Action during AED analyze rhythm		
Good	10	27.0%
Fair	27	73.0%
Poor	0	0
Total	37	100.0%

Table No (8) showed that more than one third 40.5% of nurses good knowledge, more than one half 54.1% fair knowledge and less than quarter 5.4 poor knowledge about apply adhesive pads on the chest and that less than third 27.0% of nurses good knowledge ,the majority 73.0 % fair knowledge about action during automated external defibrillation analyze rhythm.

Table No (9) distribution of study group according to their knowledge about contraindication of mouth to mouth breathing (n=37).

Contraindication of mouth to mouth breathing	Frequency	percent
Good	11	29.7
Fair	24	64.9
Poor	2	5.4
Total	37	100

Table No (9): showed that lees than third 29.7% of nurses good knowledge, tow third 64.9% fair knowledge and less than quarter 5.4% poor knowledge about knowledge of contraindication of mouth to mouth breathing

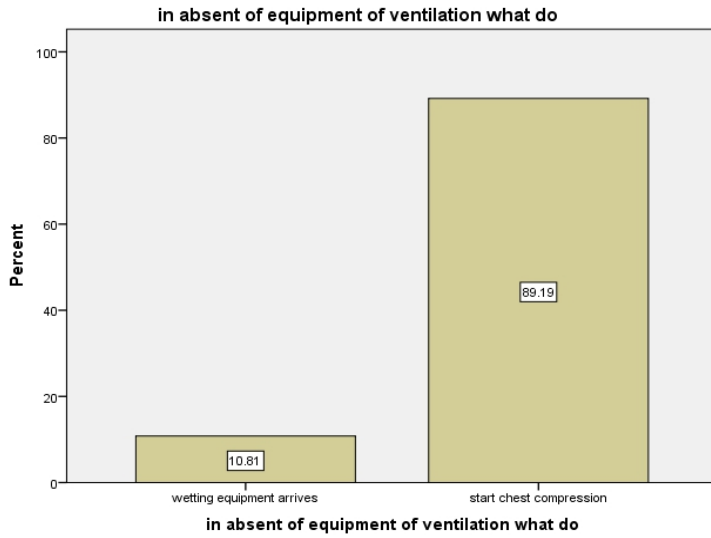


Figure: No (6) distribution of study group according to their knowledge about in absent of equipment of ventilation with contraindication of mouth to mouth breathing (n=37)

Table No (6) showed that knowledge of study group about in absent of equipment of ventilation in contra-indication of mouth to mouth breathing most 89.19% start chest compression and less than quarter 10.81 % wetting equipment arrives.

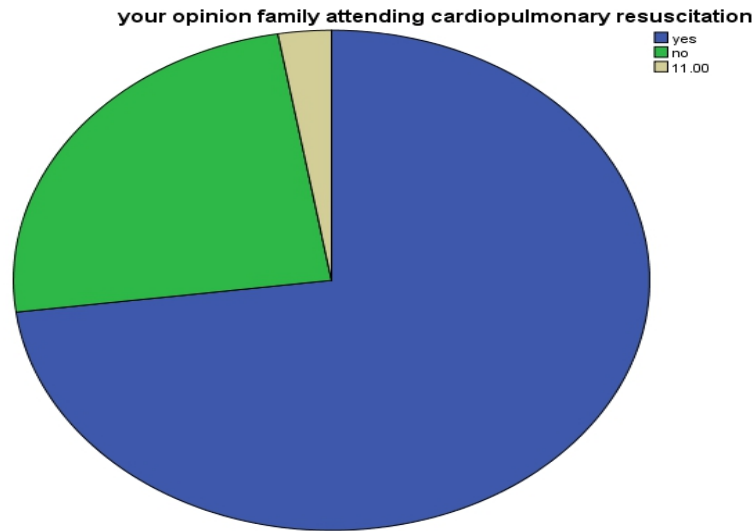


Figure No (7) distribution of study group according to their knowledge about your opinion family attending cardiopulmonary resuscitation.

Table No (7) showed that majority 73.0% of study group our opinion family attending cardiopulmonary resuscitation and less than third 23.3% no opinion family attending and lees than quarter 3.7% not answer this question.

Table(10) distribution of study group according to their education level related to their practice Cross tabulation

education level		practice			Total
		good	poor	fair	
	Bachelor	8	10	15	33
	Diploma	0	0	3	3
	Master	0	0	1	1
Total		8	10	19	37

Table (10) showed that p. value was .373 not significant between practice and education level .

Table(11) distribution of study group according to their practice on CPR related to certificate on CPR Cross tabulation.

certificate		practice			Total
		good	poor	fair	
	have certificate	8	10	8	26
	not have	0	0	11	11
Total		8	10	19	37

Table (11) showed that the p. value was 0.01 significant between practice and have certification course on cardiopulmonary

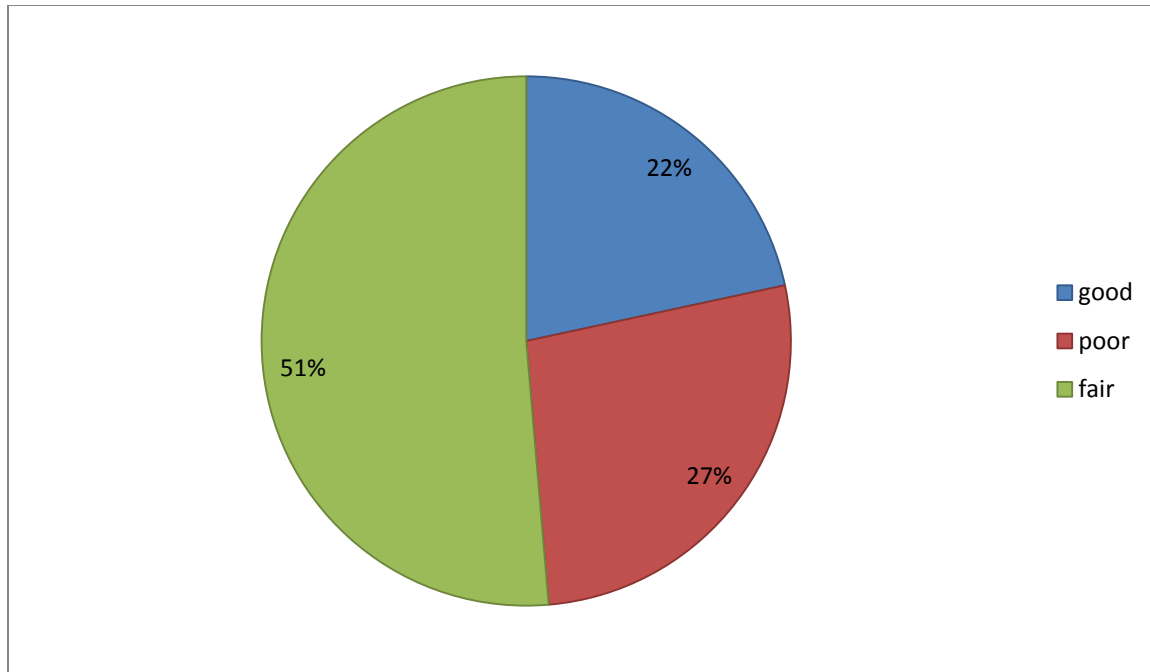


Figure no (8) distribution of study group according to their practice on cardiopulmonary resuscitation .7

The figure no (8) showed that less than third 22% of study group had good practice on cardiopulmonary resuscitation , more than half 51% had fair practice and less than half 27% had poor practice on cardiopulmonary resuscitation .

5. Discussion

There are multiple reasons for concern regarding the quality of CPR. Even though CPR training programs are ubiquitous, a number of studies demonstrate that these learned resuscitation skills deteriorate over time. Furthermore, issues such as translation of skills from training environments to actual cardiac arrest settings, as well as rescuer fatigue during resuscitation, may limit CPR quality. Recent investigations have revealed that patients may be hyperventilated during out-of-hospital arrest, and that low chest compression rates are present during in-hospital arrest⁽²¹⁾.

There for the aim of this study to assess performance of nurses staff regarding cardiopulmonary resuscitation in critical unit of military hospital from (may to December 2017).

Regarding Socio-Demographic characteristic of nurses, the study revealed that most 94.6% of nurses from age group range(20-30)years, above half 56.8% female sex and most 89.2% experience (1-5)years , the most 89.2 % had bachelor .this result is differ from the study research of Assessment Of Nurses Performance During Cardiopulmonary Resuscitation In Intensive Care Unit And Cardiac Care Unit At The Alexandria Main University Hospital .the level of education more than tow third 62.3 secondary school and number of nursing staff had course and training on cardiopulmonary resuscitation more than tow third 60.4%⁽¹⁸⁾.

In regard to CPR certification in present study the type above half 59.3% basic life support and less than quarter 11% advance life support and that remaining less than one third 29.7% did not had certification on cardiopulmonary resuscitation in compare with other study done by Hussain Marzooq BSN MN the

Cardiopulmonary resuscitation knowledge among nurses working in Bahrain the result showed CPR certificate type, 56.1% of respondents have basic life support.

Only 7.3% of respondents have a CPR course certificate. Notably, 14.6% of the Respondents have ACLS certificate. The remaining 22% did not have a CPR certificate. Significantly, 61% have not renewed their CPR certificate and 17.1% renewed recently. This question was not applicable for 22% of the respondents as They do not have CPR certificates⁽¹⁰⁾.

Regarding knowledge of nurses about assessment on cardiopulmonary resuscitation .the majority 81% good knowledge first action on collapse victims (safety approach),the majority 73.0% good knowledge about check response on collapse victims and the most 89.2% good knowledge on maneuvers of open air way and the most 100% of nurses good knowledge about time need to assessment cardiac arrest victim ,on other hand found the result of practice is less than knowledge if compare that more than third 37.8%of nurses practice safety approach , more than tow third 64.9%of nurses practice check for response ,the majority 78.4% of study group practice check for pulse , more than half 59.5% of nurses practice check for breathing , most 86.5% of nurses practice correct compression hand placement , tow third 62.8%of nurses do assessment on time and that more than half 59.5%of nurses practice call of emergency team , in related to this result the nurses not complete the full competent on cardiopulmonary resuscitation.

In present research the result showed knowledge on study group of the first action when cardiac arrest occur in the ward and with you one collage showed that less than half 45.9% of study group good knowledge because his/her answer it was start chest compression and other collage call physician and collect emergency equipments this competent knowledge action of nurses and satisfied the outcome of resuscitation due to flow the algorithm of European and American guideline

about early chest compression and call for help, near to third 29.7% fair knowledge because his/her knowledge it was start chest compression and other collage rescue breath it was not competence because not follow the algorithm for help, the last group less than third 24.8% poor knowledge about first action in the ward if cardiac arrest occurs his/her knowledge collect emergency equipments and call physician this harm outcome of cardiopulmonary resuscitation

According to European and American guideline of early chest compression, and high performance and effective cardiopulmonary resuscitation ⁽¹⁸⁾.the result in in this study that less than third 22% good practice on cardiopulmonary resuscitation ,less than third 27% had poor practice and more than half 51% had satisfied practice on cardiopulmonary resuscitation this result not enough to perform effective cardiopulmonary resuscitation and safe life in area with higher percentage on cardiac arrest on critical unite but this result near to research done on Alexandria the satisfied performance about 54% .

According to result of this study on cross tabulation between the certification course on cardiopulmonary resuscitation and the practice on study group will found the p. value 0.01 and this significant four that courses on cardiopulmonary resuscitation that maintain practice and this result well go to match the European and American guideline that mandatory courses on cardiopulmonary resuscitation to maintain practice and continues training .

The present study showed the majority 73.0% of nursing staff in critical care unite opinion to family presence during cardiopulmonary resuscitation and it is satisfied result if compare to the study done on American Association Of Critical Care Nursing . A 30-ITEM Survey Was Mailed to a Random Sample of 1500 Members of the American Association Of Critical-CARE Nurses and 1500

Members of the Emergency Nurses Association result 45% And 51%, Respectively family presence during cardiopulmonary resuscitation and invasive procedure Procedures. Some Respondents Preferred Written Policies Allowing Family Presence (37%)⁽²³⁾.from sudden cardiac arrest and it may cause traumatic psychological impact towards the relatives. This emotional impact may cause the negative effect on the relatives on bereavement and it makes health care providers face the difficulty in handling it. Recently, there are sounds promoting the family presence during the resuscitation. The guideline from American Heart Association (2005) suggests that the health care provider should give a choice to the relatives whether they are present or not during the resuscitation. There are some studies suggested that there may be some benefits towards the relatives which can reduce emotional impact and provide them support. The idea of witness resuscitation is allowing the relatives to understand the procedure of resuscitation. They would realize the most appropriate treatments have been done to the patients and it may help the grieving process. However, there are some opinions that the benefit of witness resuscitation is not proven and it may cause the unexpected effect on the health care providers. In the western countries, the witness resuscitation is a trial and the use of witness resuscitation only depends on each single situation like pediatric cases or in some single department like intensive care unit.

Witness resuscitation is not proven and it may cause the unexpected effect on the health care providers. In the western countries, the witness resuscitation is a trial And the use of witness resuscitation only depends on each single situation like pediatric cases or in some single department like intensive care unit⁽²²⁾

According to European resuscitation council guideline 2015 Deliver compressions ‘in the centre of the chest’, Compress to a depth of at least 5 cm but not more than 6 cm, Compress the chest at a rate of 100–120 min⁻¹, with as few

interruptions as possible Allow the chest to recoil completely after each compression; do not lean on the chest hand, the result of my study research unsatisfied because, that more than third 35,1% practice good rate of chest Compression, more than half 51, 4 % good practice on complete chest recoil, and The majority 70.3 good practice on adequate depth in addition Quality CPR is a means to improve survival from cardiac arrest. Scientific studies demonstrate when CPR is performed according to guidelines, the chances of successful resuscitation increase substantially. Minimal breaks in compressions, full chest recoil, adequate compression depth, and adequate compression rate are all components of CPR that can increase survival from cardiac arrest⁽²⁴⁾.

The present result reveal that more than quarter (27.6) % of study population good practice on assessing rhythm for automated external defibrillation, and less than tow half 40.5 good knowledge about adhesive pads of automated external defibrillation .this result is unsatisfied for nurses work in critical care unit on area higher possibility of arrest and in other hand the European guideline 2015 that important of early defibrillation on shock able rhythm.

Conclusion

Based on the finding of present study it is concluding that:

The present study reveal that more most of study group ranged age between (20-30), and the education level most of them bachelor degree.

As regarding to certification and training course the most of them had received course on cardiopulmonary resuscitation and the above half with in the last 1years.

On this study practice performance of chest compression most of them minimize interruption to chest compression and more than third practice good compression rate.

As regarding practice performance of cardiopulmonary resuscitation above half of study group had satisfied practice on cardiopulmonary resuscitation.

On this study the finding reflect affect of courses on cardiopulmonary resuscitation to do good performance cardiopulmonary resuscitation .

In side of opinion on family presence the majority of staff had opinion on family presence during cardiopulmonary resuscitation.

Recommendation

In the light of the result, the following recommendation can made

- The all military hospital exactly the critical care unite must be put compulsory important refresh course on cardiopulmonary resuscitation

- The practice proper rate and depth and recoil chest can lead to highly quality chest compression because that ensuring on the training course the nursing staff reaches the rate and depth.

- A to the desire and opinion of the nurses in staff in critical care unit in military hospital on study group sample aim suggest putting written policy about family presence during cardiopulmonary resuscitation.

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Military hospital map:



SUDAN MAP



Shendi University

Faculty OF graduate

Questionnaire assessment nursing performance regarding (CPR) guideline in critical care unit in military hospital:

NO: ()

Age: 20-30 () 31-39 () <40 ()

Sex: male () female ()

Years of experience: 1-5 () 6-10 () < 10 ()

Education level: diploma () bachelor () master () PHD ()

Have certificate about CPR? Yes () NO ()

Type of course? BLS() ILS () ALS ()

Last course within? < 1years () <2 years() > 2years ()

1. First action to do on collapse victim?

Safety Approach () check response ()

2. Check response on collapse victim what to do?

Shacked victim shoulder () call in bilateral ear are you okay ()
don't know ()

3. Assessment of collapse victim must be done with in 10 second?

Yes () no ()

4. Victim not response first action?

Check carotid pulse () start chest compression ()

5. The technique of open air way?

Head tilt chin-lift () jaw thrust () don't know ()

6. The link of chain for survival?

Early recognition () early chest compression () early defibrillation ()

7. Stop chest compression for?

Assess rhythm () deliver defibrillation shock ()

Return spontaneous circulation ()

8. Compression ventilation ration during cardiopulmonary resuscitation?

15:2 () 30:2 ()

9. Pause the compression to assess the rhythm every?

2 minutes () 3 minutes () don't know ()

10. Nurse's first action when cardiac arrest occurs in the critical unit?

Start chest compression and other colleague rescue breath ()

Collect emergency equipment and other colleague call physician ()

Start chest compression and other colleague call the physician and collect equipment ()

11. Inspiratory time during valve mask ventilation?

1 second () don't know ()

12. When apply adhesive pads of defibrillation on victim chest should be?

Continue chest compression ()

Minimize interruption of chest compression ()

Don't know ()

13. Contraindication of mouth to mouth breathing?

Mouth trauma () clinical reasons () don't know ()

14. In absence of equipment of ventilation what to do ?

Wait equipment arrives () start chest compression ()

15. During the automated external defibrillation analyses rhythm?

Stop chest compression () no on touch patient ()

16. Your opinion family attending cardiopulmonary resuscitation?

Yes () no ()

بسم الله الرحمن الرحيم

Shendi University

Post graduate collage

Checklist of research of : assessment of nursing performance regarding cardiopulmonary resuscitation in critical care unit in military hospital

Step	Critical performance criteria	Done	Not done
	Assessment :		
1	Safety approach		
2	Check for response		
3	Check for pulse		
4	Check for breathing		
5	Time use to assessment victim		
6	Call emergency team		
	Give high – quality CPR		
7	Correct compression hand placement		
8	Adequate rate : at least 100/m(30 chest compression every 18 sec		
9	Allow complete chest recoil		
10	Adequate depth : 2 inches		
11	Minimizes interruptions		