**POST GRADUATE DIPLOMA IN PUBLIC HEALTH**

**MODULE 8 ASSIGNMENT**

**FIRST AID**

**SUBMITTED TO: AFRICA CENTRE FOR PROJECT MANAGEMENT**

**SUBMITTED BY: RANTSALA BERNARD SANAHA**

**STUDENT NUMBER: ACPMPGD 082/2018**

**SUBMITTED ON THE 31st JULY 2019**

**INTRODUCTION**

There are many situations which may require first aid, and many countries have legislation, regulation or guidance which specifies a minimum level of first aid provision in certain circumstances. This can include specific training or equipment to be available in the workplace, the provision of specialist first aid cover at public gatherings, or mandatory first aid training within schools. First aid however does not necessarily require any particular equipment or prior knowledge, and can involve improvisation with materials available at the time, often by untrained people.

**Question 1: Definition of first aid and why it is important for Public Health Practitioner to have first aid skills**

An emergency is considered any instance in which an individual becomes suddenly ill and requires immediate attention. Some common signs that an individual has an emergency include unusual noises such as yelling, moaning or crying. A person may appear to be behaving strangely when choking or if having difficulty breathing. To recognize when an emergency exists, it is important to have sharp senses of hearing sight and smell and be acutely sensitive to any unusual behaviors.

First aid is the first and immediate assistance given to any person from suffering from either a minor or serious illness or injury with care provided to preserve life, prevent the condition from worsening or to promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing cardiovascular resuscitation (CPR) while waiting for an ambulance, as well as the complete treatment of minor conditions such as applying a plaster for a cut. First aid is generally performed by some with basic medical training.

Mitchell and Horoun (2002:390) indicate that first aid refers to providing emergency care to an accident victim or to someone who has suddenly become ill. The goal of first aid is to provide care to minimize the effects of the injury or illness until the victim can be treated by the physician. On the other hand, Lindh et al (2002:95) add that first aid is designed to render immediate and temporary emergency care to persons injured or otherwise disabled prior to the arrival of a physician or transport to a hospital or other health care agency. Emergency situations can include:

* Wounds
* Bleeding
* Burns
* Shock
* Fractures
* Poisoning
* Sudden illness such as fainting
* Illnesses related to heat and cold
* Heart attack
* Choking and breathing crises.

Some of these will be life-threatening; all will require immediate care. In either case, it is critical to remain calm, to follow the emergency policies and procedures established by the ambulatory care setting, and to be well-versed in first aid and cardiopulmonary resuscitation techniques. To encourage individuals to get involved in helping victims during an emergency, a law has been passed by most states called the Good Samaritan Act. This provides individuals from liability when they stop to assist someone who has been hurt or is ill. This protection covers acts that are within the ability of the person to provide as long as there is no gross negligence or willful intent to harm the victim. Mitchell and Horoun continue to assert that the Good Samaritan laws vary somewhat between states. The Golden Rule in providing first aid is to ‘do no further harm’.

When an emergency situation arises, it is natural to want to do something and everything possible to assist the victim the best way to be ready for this situation is to learn as much as possible about first aid and CPR. Public Health Practitioners should be well skilled in first aid. This is because once it has been determined that an emergency exists, it is essential to act quickly. Before making any decisions about how to proceed, it is necessary to assess the nature of the situation. Does it include respiratory or circulatory failure, severe bleeding, burns, poisoning, or severe allergic reaction? This the question that a skilled practitioner should ask him/herself. The following are some the examples why first aid skills are important to Public Health Practitioner.

**Infant safety**

In the context of safety attending an infant, first training cannot be recommended enough. Infant first aid training is designed to attend to medical emergencies that affect this vulnerable age group in a unique way. This training can teach a practitioner how to identify lesser known and well-known signs and symptoms, associated with infant illness or acute condition, and to address them suitably. Many infant disasters can be avoided with an intent knowledge of symptoms linked specifically to babies. Without this first aid knowledge, it is possible to overlook fewer known symptoms and this can result in infancy death in some cases. First aid training can also educate parents and child care providers on various preventive measures that can forgo the possibility of infant injury or death.

**Disasters**

When a natural disaster, such as hurricane, earthquake or tornado arises, immediate medical aid may be limited in some fashion. For example, if a flood or tornado is preventing the people from travelling along the road, they may need to harness their first aid training in order to treat a medical emergency. With this said, anyone who requires defibrillation, CPR or any other medical assistance can be promptly attended to.

**Work benefits**

First aid training can also be of tremendous help in professional environment. For example, in the event that a medical emergency occurred in work environment, and people lacked immediate access to a phone, first aid training would prove to be especially important.

**Household benefits**

With first aid skills, a person can fortify the safety of their homes. For example, if an accident were to occur, a person would be able to attend to this matter right away. Not only can parents be educated in first aid, but so can children. Furthermore, first aid training is not limited to CPR. It involves fire safety, as well as the use of Automatic External Defibrillation (AED). Not only can people increase their safety with these resources, but they can guarantee their own safety. If for instance, a person required Heimlich maneuver, and the child was the only available aid, first aid training skills would fully equip the child to help in this matter.

**Question 2: Four responsibilities of first aider**

Some emergency medical responders such as fire fighters and law enforcement personnel, work for public safety agencies and are equipped to respond to the scene of an emergency. Other emergency medical responders, such as life-guards, members of the ski patrol, and teachers, may be called on to provide emergency care when a sudden illness or injury occurs. Regardless of his/her profession, first aider should always strive to maintain the following responsibilities while performing his/her duties:

**Preserve life and provide initial emergency care and treatment to sick or injured people**

The overriding aim of all medical care which includes first aid, is to save lives and minimize the threat of death. To save a person’s life, first aider needs to have an open airway so it makes a clear passage where air can go through the mouth or nose through the pharynx and down into lungs, without obstruction. Conscious people will maintain their own airway automatically but those who are unconscious may be unable to maintain a patent airway, as the part of the brain which automatically controls breathing in normal situations may not be functioning. If the patient was breathing, a first aider would normally the place them in the recovery position, with the patient leant over on their side, which also has the effect of clearing the tongue from the pharynx. It also avoids a common cause of death in unconscious patients, which is choking on regurgitated stomach contents.

The airway can also become blocked through a foreign object becoming lodged in the pharynx or larynx, commonly called choking. The first aider will be taught to deal with through a combination of ‘back slaps’ and ‘abdominal thrusts.’ Once the airway has been opened, the first aider would assess to see if the patient is breathing. If there is no breathing, or the patient is not breathing normally, such as agonal breathing, the first aider would undertake what is probable the most recognized, such as agonal breathing, the first aider would undertake what is probably the most recognized first aid procedure CPR, which involves breathing for the patient, and manually massaging the heart to promote blood flow around the body. If the choking person is an infant, the aide will give five strong blows in the infant’s upper back by placing the infant’s face down on his forearm. The aide will be taught not to provide first aid if the infant is able to cough or cry. Coughing and crying indicate the airway is open and the foreign object will likely to come out from the force the coughing or crying produce.

The first responder also will be educated on how to perform CPR along using Automatic External Defibrillation (AED) for a person who is having a sudden cardiac arrest. Survival rate in people who had cardiac arrest outside hospital is low. The lack of oxygen supply to the brain for five minutes will cause permanent brain damage, so quick action is very important to save the person’s life. AED is a device that examine a heartbeat and give shock to restart the heart. AEDs were developed to allow first responders to successfully deliver shocks after seeing diagrams and auditory instructions of the device. The first aider is also likely to be trained in dealing with injuries such as cuts, grazes or bone fracture. They may be able to deal with the situation in its entirety (a small adhesive bandage on a paper cut), or may be required to maintain the condition of something like a broken bone, until the next stage of definitive care (usually an ambulance) arrives.

**Personal health and safety**

Although the patient’s well-being is an important concern at the scene of an emergency, the personal safety of the first aider must be the primary concern, followed by the safety of the crew, patients and bystanders. Before approaching the patient, the first aider must make sure the scene is safe to provide care. Appropriate personal protective equipment (PPE) should be put on to minimize the risk of exposure to potentially infectious body fluids or other infectious agents. When there has been notification of an emergency, first aider should prepare for the patient and the situation based on the information given to him/her. He/she should respond safely and in a timely manner to the address or location given. When arriving at the scene and before initiating patient care, the first aider should size up the scene to determine if the scene is safe. Then identify the mechanism of the injury or the nature of the illness, identify the total number of patients and request additional support or help if necessary. In the absence of law enforcement personnel on the scene, the first aider should create a safe traffic environment.

On the other hand, it should be always remembered that the job as first aider has physical demands that require stamina and endurance. The first aider will have to walk, stand, and assist in lifting and carrying ill or injured patients who weigh more than 125 pounds. Climbing and balancing may be required to gain access to the patient, such as on stairs or a hillside. The first aider may also have to help transport the patient safely. In some situations, the patient may be found in a location where patient assessment is possible only if you stoop, kneel, crouch or crawl. To make sure that the well-being of first aider, as well as that of patient and the co-workers, is not at risk in these situations, the first aider must first take care of himself/herself. Exercise also provides physical release for stress. Getting enough sleep, rest and good nutrition are important to staying health and doing job well. The immunizations should also be kept up to date.

**Prevent a casualty’s condition from becoming worse**

Prevent further harm also sometimes called prevent the condition from worsening or danger of further injury, this covers both external factors, such as moving patient away from any cause of harm, and applying first aid techniques to prevent worsening of the condition, such as applying pressure to stop a bleed becoming dangerous.

**Promote the recovery of the casualty**

First also involves trying to start the recovery process from illness or injury and in some cases might involve completing a treatment, such as in the case of applying a plaster to a small wound. It is important to note that first aid is not medical treatment and cannot be compared with what a trained medical professional provides. First aid involves making common sense decisions in best interest of an injured person. Aehlert (2007:21) highlights that it is the responsibility of first aider to identify themselves when personnel with more advanced medical training arrive on the scene. He or she should provide a brief explanation about what happened, the position in which the patient was found, his/her assessment findings, the emergency care he/she gave and the patient’s response to the treatment given. This is because when the personnel with advanced training arrive on the scene, they will assume the responsibility for the patient and first aider will be needed to assist in the following situations:

* Protecting an entrapped patient from injury during extrication procedures
* Performing emergency moves
* Lifting the stretcher and placing it in the ambulance
* Making sure that the patients and stretcher are secured.

**Question 3: Universal precautions in rescue mission by first aider**

An exposure is a direct or indirect contact with infected blood, body fluids, tissues or airborne droplets. An accidental exposure to infectious material can occur when your brain is pricked or cut, allowing the entry of germs. Germs can also enter the body through nicks or scrapes on the skin or through mucous membranes. As a result, first aiders should equip themselves with and use, personal protection equipment. This equipment is used to minimize infection from disease. The following passage will define the universal precautions in rescue mission by first aider.

**Wearing appropriate protective equipment for the task:** Personal protective equipment (PPE) and BSI precautions are part of the scene safety. PPE includes eye protection, protective gloves, gowns and masks. These items provide barrier between first aider and infectious material. The infectious condition of a patient is usually unknown. Therefore, first aider must wear PPE when an exposure to blood or other potentially infectious material is likely, especially since this type of exposure can occur when it is not expected. First aider must make it a habit to put on appropriate PPE before providing any patient care.

**Treating all persons as if infectious:** In the case where someone is bleeding heavily, the aim is to prevent further blood loss and minimize the effects of shock. If the first aider has disposable gloves, he/she should use them to reduce the risk of any infection being passed on.

**Washing following completion of task:** Handwashing is the single most important method that can be used to prevent the spread of communicable disease. Frequent handwashing removes germs picked up from other people or from contaminated surfaces. The first aider should wash hands before and after contact with a patient, after removing the gloves and between patients. Proper handwashing begins with removing all jewelry, using soap and warm water; briskly washing palm and back surface of each hand, wrists and exposed forearms.

Germs can be killed or inactivated by disinfecting or sterilizing. Different chemicals or combination of chemical kill or inactivate different germs. Physically removing germs by scrubbing is as important as the effect of the agent the first uses for cleaning or disinfecting.

**Appropriate disposal of disposable protective items and or equipment:** Once exposure to all human blood, body fluids and other potentially infectious materials are eliminated, the PPE should be carefully removed and disposed into a red bio-hazardous waste container. Once all PPE is removed and properly disposed, the first aider should wash their hands with soap and warm water. Waterless hand cleaner should be included with medical supplies as soap and water may not always be available. If the first aider is exposed to blood or other potentially infectious or hazardous materials, proper steps must be followed. For skin contact, the area should be immediately washed with soap and warm water. Splashes to the nose, mouth or skin should be flushed with warm water. Splashes in the eyes should be irrigated using eyewash for 10 to 15 minutes.

**Maintaining good hygiene practices before, during and after tasks involving contamination risk:** Hygiene practice focuses on the prevention of diseases through the use of cleaning as one of the several inputs. For example, a janitor cleans the floor of the health centre using detergent, mop and broom. They might also use chlorine solution to disinfect the floor. Hygienic practice encompasses both cleaning for the removal of physically observable matters and the use of chlorine for the removal of microorganisms. The hygiene practice in this example aims at preventing the spread of disease-causing organisms.

**Question 4: How to execute a cardiopulmonary resuscitation first aid experience**

Cardiopulmonary resuscitation (CPR) is an emergency first aid procedure that combines artificial respiration and artificial circulations; used in first aid emergencies where breathing and blood circulation have stopped (Insel & Roth: 2004:670). The components of CPR are:

**Air way:** If a patient is unresponsive and the first aider does not suspect trauma, first aider should open patient’s airway using head tilt-chin lift maneuver. If trauma is suspected, the airway should be opened using the jaw thrust without head tilt. If the patient is an unresponsive infant or child, do not hyperextend the neck when opening the airway. Look for an actual or potential airway obstruction, such as a foreign body, blood, vomitus, teeth, or the patient’s tongue. If there is blood, vomitus or other fluid in the patient’s airway, remove it with the fingers, cloth, or any other available material.

**Breathing:** after the patient’s airway is open, assess this breathing. Look for the rise and fall of the chest. Listen and feel for air movement from the patient’s nose or mouth. If the patient is not breathing, begin rescue breathing using pocket mask or mouth-to barrier device. If the patient has dentures, leave them in place to help provide a good mask seal. If the dentures are loose, remove them so they do not fall back into the throat and obstruct the airway. Watch the patient’s chest while you breathe slowly into the patient. If your breaths are going in, you should see the chest rise with each breath. Be sure to pause between breaths. This pause allows you to take another breath. It also allows the patient’s lungs to relax and air to escape. If the patient is unresponsive and an oral airway is available, insert it to maintain an open airway. Continue breathing for the patient until it begins to breathe adequately on his own or another trained rescuer takes over.

**Circulation:** Once the patient’s airway is open and have started rescue breathing, assess circulation. Use the carotid artery to check the pulse of an unresponsive adult or child older than 1 year of age. Feel for a brachial pulse in an unresponsive infant. Feel for a pulse for about 10 seconds and look for other signs of circulation, such as coughing or movement in response to your rescue breaths. If there is no pulse or signs of circulation, you must begin chest compressions.

**Defibrillation:** Ahlert (2007:226) provides that first aider may need to use an automated external defibrillator (AED) during CPR. When special pads are placed on the patient’s bare chest, the AED looks at the patient’s heart rhythm. The machine contains a computer programmed to recognize hearth rhythms that should be shocked, such as ventricular fibrillation. If a shockable rhythm is present, the AED will advise the first aider. It will then talk to him/her through some very simple steps to defibrillate the patient.

When performing CPR, the rule is that the first aider does not stop until

* Another trained person can take over
* EMS arrives and takes over care of the patient
* The first aider is physically exhausted and cannot be able to continue
* The environment becomes unsafe for any reason

To respond to a cardiac arrest emergency in infants, the first aider should follow the following steps:

* Done gloves
* Gently tap the infant to determine consciousness level. Activate EMS
* Tilt head. Look, listen and feel for breathing. If there is no breathing, position resuscitation mouth piece and give two slow breaths, covering mouth and nose. Check brachial artery for pulse for 5-10 seconds
* Find the finger position on the center of the sternum
* Compress the infant’s chest five times about half an inch
* Give on slow breath
* Repeat cycle of five compressions and one breath for a minute
* Recheck brachial pulse and breathing for about 5-10 seconds
* If there is no pulse, continue cycles of five compressions and one breath
* Recheck the pulse and breathing every few minutes
* Remove gloves. Wash hands
* Document the procedure (Lindh et al: 2002:126)

**Question 5: Brief explanation of first aid processes in the following processes:**

**An open fracture:** A fracture is a break in a bone. If a bone is broken, chipped, cracked or splintered, it is said to be fractured. Injuries to bones and joints may be open or closed. In an open injury, the skin surface is broken. The bone may protrude through the wound or may pull back inside the body from muscle contraction. These injuries can result in serious blood loss. An open injury also increases the risk of contamination and infection. An open fracture may result from bone ends or fragments tearing out through the skin it may also be caused by a penetrating injury that has damaged a bone and the surrounding soft tissues, such as gunshot wound. Most injuries to muscles, bones and joints are treated in a similar way; all require rest, elevation of the injured part, immobilization, and the application of ice on the injury. (steps to follow when assisting patient with closed fracture will also apply to open fracture).

**A closed fracture:** Aehlert (2007:390) highlights that as opposed to in open fracture, in closed bone and joint injuries, the skin surface is not broken. However, the joint injury is often painful, swollen, and deformed. Although closed fractures have no opening through the skin, these injuries can result in serious internal bleeding. For example, a broken femur (thigh bone) can result in the loss of up to 1 litre of blood. If a fracture is closed, the blood will have no place to go except to the surrounding tissue. As bleeding continues, the blood vessels and tissues of the thigh become compressed, reducing blood flow throughout the leg. Lindh et al (2002:107) indicate that it is sometimes difficult to determine the extent of an injury, especially in closed fractures. There are some assessment techniques to call upon, however, to gauge the seriousness of an injury. First aider can employ a variety of splints to immobilize bones and joints by:

* Place the padded splint under the injured area
* Hold the splint in place with gauze roller hand-age
* After splinting, check circulation to ascertain that the splint is not too tightly applied
* A sling can now be applied to keep the arm elevated, which increases comfort and reduces swelling
* Wash hands
* Document the procedure

**Poisoning by ingestion:** Poisons can enter the body in 4 ways:

* Inhalation
* Absorption
* Injection
* Ingestion: Ingested poisons enter the body by swallowing. Swallowed poisons may include medications, plant materials, household chemicals, contaminated foods and drugs. Whenever a patient call regarding poisoning or there is a suspicion of poisoning, the first aider should call poison control center or the local emergency number and ask for advice. The treatment for poisoning will vary according to the source of poisoning and must be tailored to the specific incident. The first aider should not give patient anything to eat or drink; try to determine what poison the patient was exposed to and if ingested, how much was taken; if the patient vomits, save some of the vomitus for analysis.

**Unconscious victim:** The following procedure steps should be taken while assisting unconscious child or adult

* Have someone call emergency services
* Put on gloves if available
* Lie person on back. Open victim’s mouth and look for a foreign object. Position resuscitation mouth-piece. Tilt back person’s head
* Give two breaths
* If air will not go in, re-tilt head to try to give breaths again
* Find hand position on breast bone 2 inches above xiphoid and compress 2 inches deep
* Lift the jaw, look for object and sweep it out of the mouth with finger
* Tilt back the head, lift the chin and give breaths again slowly. Continue giving breaths and compressions, looking for object and sweeping it out if seen
* Dispose of waste in biohazard container
* Remove gloves, dispose of in biohazard container and wash hands
* Monitor vital signs
* Document the procedure

**Spinal injury:** The spinal cord is made up of long tracts of nerves that join the brain with all body organs and parts. It is the center for many reflex activities of the body. The spinal cord is well protected by the spinal column in the back. Injuries associated with a lot of force are usually necessary to cause damage to the spinal cord. An injury to the spinal cord may be complete or incomplete. A complete injury occurs when the spinal cord is severed. The patient has no voluntary movement or sensation below level of the injury. Both sides of the body are equally affected. To assist a patient with a spinal injury, some of the following steps should be taken:

* Conduct a scene size-up ad ensure your safety. Evaluate the mechanism of injury before approaching the patient. Be on appropriate personal protective equipment (PPE).
* Form a general impression and determine the urgency of further assessment and care
* Perform an initial assessment to identify and treat any life-threatening conditions. If the mechanism of injury suggests a spinal injury, ask an assistant to stabilize the patient’s cervical spine manually while the assessment of patient’s airway is being done. Maintain manual stabilization of the patient’s cervical spine until Emergency Medical Services (EMS) personnel arrive and assume patient care or until the patient has been completely immobilized on a long backboard.
* Take patient vital signs and gather the patient’s medical history
* Cover open wounds with a sterile dressing
* Splint any bone or joint injuries. If the mechanism of injury suggests the patient has experienced an injury to the spine, the spine must be immobilized
* Comfort, calm and reassure the patient while waiting for EMS personnel. Keep in mind that injuries to muscles and bones are painful.

**Question 6: Management of first aid in the following conditions**

**Asthma:** According to Taylor (2002:270) asthma is a disorder of the pulmonary airways characterized by reversible obstruction, inflammation and hyperresponsiveness. The bronchospasm and inflammation may be triggered by allergens, infection and psychophysiological stressors. Allergens include inhaled substances such as molds, pollens, dust, animal danders industrial pollutants, tobacco smoke, smoke from wood stoves and cosmetics. Oral inducers may be food preservatives containing sulfiting agents and medications, especially aspirin. Respiratory infections, particularly viral, are also major stimulators. Occasionally a virus, such as the respiratory syncytial virus, induces bronchospasm in nearly all patients. some patients have attacks only with infections. Psychological factors certainly play a role in inducing asthma episodes. These triggers may be difficult to recognize and may manifest as part of a panic attack, as fear of the disease itself or as a symptom of abuse. The classic symptoms of asthma are cough, dyspnea and wheezing. The wheezing may be audible or require auscultation. Infrequently, a patient may be so tight that wheezing is detected only after initial therapy.

Patient and family attitudes are critical in the patient’s acceptance of this asthma. Several factors have been identified with regard to poor patient attitude: unpredictable nature of asthma leading to a feeling of ‘beyond control’; a feeling of stigmatization; a false perception that asthma is psychogenic and therefore ‘in my head’; a tendency to deny disease; and the fear elicited by an experience of being unable to breathe. These attitudes may handicap all attempts at treatment and should be addressed via thorough patient and family education. Also important is the tendency for families to label their asthmatics person. All activities should be continued, especially sports and physical education. It is far better to use MDI and run than to sit on the sidelines and watch.

**Stroke:** For brain cells to function as they should, they must have a continuous and ample supply of oxygen-rich. If brain cells are deprived of blood for more than a few minutes, they die. Insel & Roth (2004: 443) explain that stroke occurs when the blood supply to the brain is cut off. Many experts now refer to strokes as brain attacks, to emphasize their similarity to heart attacks and the importance of early treatment. There are two major types of strokes: ischemic strokes, which are caused by blockages in blood vessels and hemorrhagic strokes, which are caused by rupture of blood vessels, leading to bleeding into the brain. One type of ischemic stroke, the thrombotic stroke is caused by thrombus, a blood clot that forms in a cerebral artery that has been narrowed or damaged by atherosclerosis. The second type of ischemic stroke, called an embolic stroke, is cause by an embolus, a wandering blood clot that is carried in the bloodstream and may become wedged in one of the cerebral arteries. Many embolic strokes are linked to a type of abnormal heart rhythm called atrial fibrillation.

The other type of stroke, less common but more severe, is the hemorrhagic stroke. It occurs when a blood vessel in the brain bursts, spilling blood into the surrounding tissue. Cells normally nourished by the artery are deprived of blood and cannot function. In addition, accumulated blood from the burst vessel may put pressure on surrounding brain tissue, causing damage and even death.

Effective treatment requires prompt recognition of symptoms and correct diagnosis of the type of stroke that has occurred. Strokes should be treated with the same urgency as heart attacks. A person with stroke should be rushed to hospital. A computed tomography scan, which uses a computer to construct an image of the brain from X-rays, can assess brain damage and determine the type of stroke. Insel and Roth continue to assert that newer techniques using MRI and ultrasound are becoming increasingly available and should improve the speed and accuracy of stroke diagnosis. If test reveal that a stroke was caused by a cerebral hemorrhage, drugs may be prescribed to lower the blood pressure, which is usually high. If detection and treatment of stroke come too late, rehabilitation is the only treatment. Rehabilitation consists of various types of therapy: physical therapy, which helps strengthen muscles and improve balance and coordination; speech and language therapy, which helps those whose speech has been damaged; and occupational therapy, which helps improve hand-eye coordination and everyday living skills.

**Heart Attack:** Heart attack, also known as myocardial infarction, is usually caused by blockage of one or more of the coronary arteries. Symptoms include tightness of the chest, pain radiating down or both arms or pain radiating into left shoulder and jaw. Other signs include rapid and weak pulse, excessive perspiration, agitation, nausea and cold clammy skin. Breathing or respiratory emergencies occur for a variety of reasons including choking, allergies and other illnesses or injuries such as drowning and electrical shock. When an individual stop breathing, artificial breathing must be given quickly, for without a constant supply of oxygen, brain damage or death will occur. Lindh et al (2002:111) assert that when the breathing problem is accompanied by cardiac arrest, the rescue breathing must be accompanied by chest compressions.

Physicians have an expanding array of tools to evaluate the condition of the heart and arteries. Currently, the most common initial screening tool is the stress, or exercise, test, in which a patient runs or walks on treadmill or pedals a stationary cycle while being monitored for abnormalities with an electrocardiogram (ECG or EKG). Certain characteristic changes in the heart’s electrical activity while under stress can reveal particular heart problems such as restricted blood flow. Exercise testing can also be performed in conjunction with techniques such as ultrasonography and X-ray that provide further information about the heart and arteries.

Various treatments, ranging from changes in diet to major surgery, are available if a problem is detected. Along with a low-fat diet, regular exercise and smoking cessation, one frequent nonsurgical recommendation for people at high risk of cardiovascular disease (CVD) is to take half an aspirin tablet a day. Aspirin has an anticlotting effect, discouraging platelets in the blood from sticking to arterial plaques and forming clots; it also reduces inflammation. Prescription drugs can help control heart rate, dilate arteries, lower blood pressure, and reduce the strain on the heart, raising both quality and quantity of life in heart patients. in patients with coronary artery disease, a class of cholesterol-lowering drugs called statins is effective in preventing heart attacks; statins also have beneficial anti-inflammatory effects.

**Question 7: Is there a need for continued research in Public Health?**

Today’s health professional will give care to individuals of varied cultures who hold differing philosophical beliefs towards medicine. The informed and caring health professional will recognize that a person’s culture and ethnic heritage play an enormous role in any kind of health care. The following passage will examine the need for a continued research in public health.

In every society, medicine has been an important element for its people. From the earliest time, culture was an important influence on medicine, and modern-day medicine is in many ways a reflection of this diverse and rich heritage. Lindh et al (2002:30) add that religion, magic and science all played a vital part in the history of public health. Religion was important because it was perceived that certain gods were to be called upon for a cure through ceremonies, prayers and sacrifices. Magic was practiced because it was such an important part of many societies and was seen as an essential ingredient to chase away evil spirits. The importance of science was demonstrated in the use of plants and minerals for medicinal purposes. The use of plants and minerals is found throughout medicine’s history. During the rise of Christianity, emphasis was placed on the soul rather than the body; therefore, early Christianity monks held great control over medicine. The care of the sick was encouraged, but only through prayer and divine intervention. Thus, Christ’s healing mission was instrumental in a fashion that was to control medical care almost completely for the next 500 years, until the seventh century.

The writings of ancient Egypt reveal that when a woman suspected she was pregnant, she urinated over a mixture of wheat and barley seeds combined with dates and sand. If the wheat grew, she would have a boy. If a barley grew, it would be a girl. Urine is still used in modern tests to determine pregnancy. Early medical treatments were often crude. For a sore throat, a physician might mix barley, water, vinegar and mulberry syrup for a gargle. Someone suffering with rheumatism might be given a prescription of chopped mice, lynx claws, and elk hooves. Rhubarb, Senna, bitter apple, turpentine, camphor and mercury were among the physicians’ staples. Some physicians washed the instruments used in treating the ill; others scoffed at such a practice. Malaria, diphtheria, tuberculosis, typhoid and dysentery were commonplace. Leprosy was prevalent and venereal diseases were rife. Smallpox was frequent in villages; sometimes the sufferer would be placed in a meat pickling vat and fumigated. The death toll from such diseases was particularly high among children. Finally, in the 18th century, Edward Jenner made a great contribution to the prevention of disease by discovering a method of vaccination against smallpox.

Early in the 20th century, society was finally liberated from many of the infections and epidemic diseases that had scourged the human race for millennia. Smallpox vaccinations became common and causes of yellow fever, typhus and bubonic plague were determined. Life expectancy increased. Tuberculosis became less frequent. Yet, as we enter the 21st century, we are quite aware of the limitations of modern medicine the rise of AIDS is a reminder that plaques are still possible. In developing countries torn with war and strife, cholera causes the deaths of thousands simply because there is no proper sanitation. In the microbial world, Lindh et al note that there are new, drug-resistant strains of malaria, tuberculosis and other diseases that are not responding to known treatments. The challenge of public health is a strong as it was 100 years ago hence the need for continued research.

There has been phenomenal growth in public health in the past two decades. Much better imaging leading to much better diagnosis is now available. Where exploratory surgery might have been performed in the past to determine a diagnosis, noninvasive ultrasound, CT scans and MRIs assist in the diagnosis now. People who have worn glasses or contact lenses for many years are turning to eye laser surgery and implantable lenses. Recently, surgeons performed the first successful human larynx transplant. Consider the implications of an AIDS saliva that creates a needle-free way to test for HIV. Needleless injections are now possible. There is a flu prevention inhaler and an osteoporosis pill.

Clarke (2016:6) concludes that global health is distinguished from international health, which is a branch of public health concerned with health in poor countries and efforts of rich countries to provide support to these. Global health problems that cut across national borders or problems that have global political or economic significance. Global health is the health of populations in a global context and transcends the perspectives and concerns of individual nations. Global health has also been defined as an area of study, research and practice that prioritizes health improvement and equity in health for all people in the world. In summary, global health is concerned with improving health, reducing health inequalities and protecting society against global threats that transcend national boundaries. Major international agencies that influence global health include the World Health Organization (WHO), United Nations International Children’s Emergency Fund (UNICEF), World Bank and World Food Programme.

**Question 8: Some of the research challenges within the health sector in Lesotho**

Lesotho is a small, mountainous, and landlocked country, surrounded by its much larger neighbor, South Africa. It has a population of about two million, and per capita gross domestic product (GDP) of $1,318. Lesotho is classified as a low-middle-income country. It is mostly highlands, with lowest point 1, 400 meters above sea level. Lesotho’s greatest health challenge remains its high HIV/AIDS prevalence and tuberculosis co-epidemic. The HIV prevalence rate in Lesotho is 25% in the adult population (15-49 years), the second highest in the world. The incidence of TB stands at 724 cases per 100,000, according to the 2017 Global TB report, the second-highest globally. While high health costs constitute to the narrowing of the fiscal space, high HIV/AIDS and TB rates contribute to persistently high inequality and poverty. One of the main challenges facing Lesotho is securing the funds needed to run the healthcare programs. In the current fiscal year (2018/19) the health sector received 12.7% of the total expenditure. It still falls short of the Abuja Declaration target of 15%. In order to increase the budget, the government needs to explore the potential for introducing innovative financing mechanisms, which could include involving the private sector in financing health.

Primary health care receives only 7% of the health budget, which is the lowest portion of all the programmes within the health sector budget. If the government wants to achieve the Sustainable Development Goals related to this crucial component of public health, the budget needs to be increase. Increased budgets would contribute to areas in need of attention, such as data collection tool and quality of service provision. The poor credibility of spending in the health sector is an obstacle to achieving sector outcomes and is this an area of concern. It is important for the government to identify the bottlenecks and take appropriate action, such as implementing public finance management reforms.

Health budget execution in Lesotho is both low and erratic. Issues related to shortfalls in donor commitment, cumbersome procurement procedure and the spending capacity of ministries must be addressed as priorities. The maternal mortality rate and the infant mortality rate are extremely high. The maternity rate is 1, 024 per 100,000 live births and the infant mortality rate is 59 per 100,000 live births. Measures to lower the rate could include: improving the quality of care in prenatal and postnatal services and emergency obstetric care hospitals; and having skilled attendants in the critical periods of pregnancy, labour, delivery and post-partum. With 25% of adults infected, HIV prevalence in Lesotho is among the highest in the world. To reduce the rate, the focus should be on the prevention and alignment to the 2016 United Nations Political Declaration on Ending AIDS. A target of 75% reduction in new HIV/AIDS infections, especially in adolescent girls and young women, has been set.

The Health Sector Performance Enhancement Project has been implementing a quality improvement program in service delivery in health facilities. Under this program and in synergy with a performance-based funding (PBF) scheme rewarding quality of care, interventions include:

* Developing a new quality checklist and strategically revising its components’ weighting
* Continuously training health care workers
* Measuring clinical skills and processes
* Providing training materials
* Providing mentorship to hospital staff

Whilst initial assessment of the skills and knowledge of participating hospitals was very low, they have substantially improved over time, from 72. % to 81.2%. hospital staff have institutionalized regular quality reviews in the facilities. Data collection has improved, and hospitals conduct regular mortality reviews and audits to learn how to improve maternal care management and referrals.

Achieving greater accountability to the public will require increased reporting and dissemination of information about cost utilization and quality. Health services research will provide the basis for creation of report card to help purchasers and consumers choose among health providers. Laying a data-driven foundation for such judgment call involves applied, theoretical and philosophical challenges for health services research in goth government and private spheres of activity and funding. Provider’s own internal quality improvement activities will also play a role in monitoring. Providers can develop systemic ways to examine and the improve their own performance. As a large medical care organization, integrated health systems and accrediting agencies establish health services research units to do these and other analyses, they will open ip employment opportunities for health services researchers beyond those currently available in academic centers.

As more health services are provided in different types of settings, health services research can monitor the quality, cost and access to care and determine who are appropriate providers of cost-effective healthcare. Policymakers and managers may ask for instance, whether dental hygienists, nurses, occupational therapists and other health professionals can provide effective services safely and efficiently. The answers to such questions often rest on ill-defined basic assumptions about what is effective care and who bears what portion of its cost. Health services research provides a framework for clarifying the assumptions and thereby grounding answers more firmly in data and their appropriate interpretation. Furthermore, health services research will contribute to the development of medical informatics and the use of electronic communications media in the health field. As provider and accrediting organizations continue to make large investments in medical information systems, technical advances will provide health services researchers and managers access to new information sets; these in turn, offer opportunities to develop new demonstration models and environments and to devise practical and ethical ways to integrated data from long term care, inpatient, ambulatory and other settings for analyses of quality, cost and access. Health services research can and must be used to understand community and cultural values better because health services research care practice is becoming more patient or client driven. Fruitful areas of research include defining determinants of health for individuals and populations, measuring behavioral risk factors, and elucidating ethnic and cultural differences that affect the health of populations.

As health services researchers look increasingly at populations, as contrasted to individuals presenting for health care services, investigators can define this populations in many different ways. Although such groups are most commonly described in terms of their sociodemographic characteristics or geographic location, health services researcher can use their understanding of health care organization to define new groups. One example is to define population as all those people covered by particular service contract from an integrated delivery system, insurer or provider. With these and other varied tools available, health services researchers can create the valid comparison groups that will be needed to assess quality of care and ensure publicly accountable decisions.

**CONCLUSION**

It has been discovered that a course in first aid can help public health professional to respond appropriately when someone is injured. One important benefit of first aid training is learning what not to do in certain situations. For example, a person with a suspected neck or back injury should not be moved unless other life-threatening conditions exist. A trained person can assess emergency situations accurately before acting. It has been discovered that increased clinical and financial accountability is a significant trend in the health care field. Health services research can improve current methods of maintaining and monitoring accountability, drawing, in part, on elements in industrial management, statistics and operations research.

**BIBLIOGRAPHY**

Aehlert B. (2007). Emergency: Medical Responder. USA: The McGraw-Hill Companies

Insel P. M & Roth T. W. (2004) Core Concepts in Health 9th Edition. USA: The McGraw-Hill Companies

Limmer D & Grill M. (2000). Fire Service First Responder. USA: Prentice-Hall Inc

Lindh Q. W. Pooler M. Tamparo C. & Cerrato J. (2002). Clinical Medical Assisting 2nd Edition. USA: Delmar

Mitchell J. & Haroun L. (2002). Introduction to Health Care. USA: Delmar

Taylor R. (2002). Fundamentals of Family Medicine 3rd Edition. USA: Springer-Verlag Inc