



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**SCHOOL OF HEALTH SCIENCES**

**COURSE CODE: PHS 403**

**COURSE TITLE: ACCIDENT AND EMERGENCY**



**PHS 403**  
**ACCIDENT AND EMERGENCY**

Course Team      Dalyop D. Mancha (Developer/Writer) - CHT,  
Pankshin



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

National Open University of Nigeria  
Headquarters  
14/16 Ahmadu Bello Way  
Victoria Island  
Lagos

Abuja Office  
No.5 Dar es Salaam Street  
Off Aminu Kano Crescent  
Wuse II, Abuja  
Nigeria

E-mail: [centralinfo@nou.edu.ng](mailto:centralinfo@nou.edu.ng)  
URL: [www.nou.edu.ng](http://www.nou.edu.ng)

Published By:  
National Open University of Nigeria

First Printed 2011

ISBN: 978-058-237-1





<b>CONTENTS</b>	<b>PAGE</b>
Introduction.....	1
What you will Learn in this Course.....	1
Course Aims.....	2
Course Objectives.....	2
Working through the Course.....	2
The Course Material.....	3
Study Units.....	3
Presentation Schedule.....	4
Assessment.....	5
Tutor-Marked Assignment.....	5
Final Examination and Grading.....	6
Course Marking Scheme.....	6
Facilitator/Tutors and Tutorials.....	6
Summary.....	7

## **Introduction**

Introduction to Accident and Emergency is a 3-credit course available to all students offering Bachelor of Science (B.Sc.) in Community Health Science.

Accident and Emergency is a branch of emergency services dedicated to providing out-of-hospital acute medical care to a patient with illness or injury which the patient or the medical practitioner, believes constitutes a medical emergency.

The term accident, emergency, or medical emergency may also be locally known as a first aid squad, emergency squad, rescue squad, ambulance squad, ambulance service, ambulance corps or life squad.

A medical emergency is an injury or illness that is acute and poses an immediate risk to a person's life or long term health. This emergency may require assistance from another person, who should ideally be suitably qualified to do so, although some of these emergencies can be dealt with by the victim himself.

Dependent on the severity of the emergency, the quality of treatment to be given may require the involvement of multiple levels of care, from a first aider to an emergency physician to the specialist surgeon.

Any response to an emergency medical situation will depend largely on the situation, the patient involved and availability of resources. It will also vary depending on whether the emergency occurs whilst in hospital under medical care, or outside of medical care (for instance, in the street or alone at home).

## **What you will Learn in this Course**

The course consists of 3 modules, 15 units and a course guide. This course guide tells you briefly what the course is about, what course materials you will be using and how you can work with the materials.

In addition, it advocates some general guidelines for the amount of time you are likely to spend on each unit of the course in order to complete it successfully.

Furthermore, it gives you guidance in respect of your Tutor-Marked Assignment which will be made available in the assignment file. There will be regular tutorial classes that are related to the course. It is advisable for you to attend these tutorial sessions. The course will prepare you for the challenges you will meet in the field of accident and emergency.

## Course Aims

The course aims to provide you with an understanding of accidents and emergencies. It also aims to provide you with solutions to cases of accidents and emergencies in the society.

## Course Objectives

To achieve the aims set out, the course has a set of objectives. Each module and unit has specific objectives which are included at the beginning of the unit.

You should read these objectives before you study the unit. You may wish to refer to them during your study to check on your progress. You should always look at the unit's objectives after completion of each unit. By doing so, you would have followed the instructions in the unit. Below are the comprehensive objectives of the course as a whole. By meeting these objectives, you should have achieved the aims of the course as a whole.

After going through the course, you should be able to:

- explain the difference between accident and emergency
- identify fall related injuries in relation to accidents
- explain drowning as accidentally caused
- explain violence
- define poisoning
- list common emergency conditions
- identify and classify haemorrhage
- explain the term head injury and state its types
- identify fracture as an emergency condition
- explain wound, its types and characteristics
- define diabetes, its characteristics and clinical features
- identify emergency respiratory conditions
- discuss peptic ulcer as an emergency condition
- define cardiac attack and state how to carry out external cardiac massage
- explain peritonitis, its complications and management.

## Working through this Course

To complete this course you are required to read each study unit, read the textbooks and other materials which may be provided by the National Open University of Nigeria.



There is a final examination at the end of the course. The course should take you about 17 weeks to complete.

You will find listed below, all the components of the course, what you have to do and how you should allocate your time to each unit in order to complete the course on time and successfully.

This course entails that you spend a lot of time reading; I will advise that you avail yourself the opportunity of attending the tutorial sessions so that you will have the opportunity of comparing your knowledge with that of other people.

## **The Course Materials**

The main components of the course are:

1. The Course Guide
2. Study Units
3. References/Further Reading
4. Assignments
5. Presentation Schedule

## **Study Units**

The study units in this course are as follows:

### **Module 1**

Unit 1	Accidents
Unit 2	Fall Related Injuries
Unit 3	Drowning
Unit 4	Violent Injuries
Unit 5	Poisoning

### **Module 2**

Unit 1	Shock
Unit 2	Haemorrhage
Unit 3	Head Injury
Unit 4	Fracture
Unit 5	Wound

### **Module 3**

Unit 1	Diabetes
Unit 2	Cardiac Attack

Unit 3	Respiratory Condition (obstruction)
Unit 4	Peptic Ulcer
Unit 5	Peritonitis

The first unit focuses on the meaning of accidents and injuries resulting from an accident with its classifications and methods of prevention. The second unit deals with fall related injuries and how to prevent falls generally. The third unit is concerned with drowning, its risk and preventive measures. The fourth unit deals with violence and its related injuries, types of violence, risk of violence and preventive measures to violence.

Unit 5 deals with poisoning, various types of poisoning, management and prevention of poisons.

Units 6 to 10 deal with shock, haemorrhage, head injuries, fractures and wound; describing each causes, classifications, clinical features, management and preventions.

Unit 11 is concern with diabetes and its management while units twelve and thirteen deal with cardiac attack and respiratory obstructions - their causes, classifications, clinical features and preventive measures.

Units fourteen and fifteen explain peptic ulcer and peritonitis in terms of classifications, complications, clinical features and management.

Each unit consists of one or two week's work and includes an introduction, objectives, reading materials, conclusion, summary, Tutor-Marked Assignment (TMAs), references and other resources for further study.

Every unit directs you to work on exercises related to the required reading. In general, these exercises test you on the materials you have just covered or require you to apply in some way and thereby assist you to evaluate your progress and to reinforce your comprehension of the material.

Together with TMAs, these exercises will help you in achieving the stated learning objectives of the individual units and of the course as a whole.

### **Presentation Schedule**

Your course materials have important dates for the early and timely completion and submission of your TMAs and attending tutorials. You should remember that you are required to submit all your assignments

by the stipulated time and date. You should guard against falling behind in your work.

## **Assessment**

There are three aspects to the assessment of the course. The first is made up of self assessment exercises, second consists of the tutor-marked assignments and third is the written examination/end of course examination.

You are advised to do the exercises. In tackling the assignments, you are expected to apply information, knowledge and techniques you gathered during the course. The assignments must be submitted to your facilitator for formal assessment in accordance with the deadlines stated in the presentation schedule and the assignment file. The work you submit to your tutor for assessment will count for 30 per cent of your total course work. At the end of the course you will need to sit for a final or end of course examination of about three-hour duration. The examination will account for 70 per cent of your total course mark.

## **Tutor-Marked Assignment (TMA)**

The TMA is a continuous assessment component of your course. It accounts for 30 per cent of the total score. You will be given 4 TMAs to answer. Three of these must be answered before you are allowed to sit for the end of course examination. The TMAs will be given to you by your facilitator and returned after you have done the assignment. Assignment questions for the units in this course are contained in the assignment file. You will be able to complete your assignment from the information and material contained in your reading, references and study units. However, it is desirable in all degree level of education to demonstrate that you have read and researched more into your references, which will give you a wide view point and provide you with a deeper understanding of the subject.

Make sure that each assignment reaches your facilitator on or before the deadline given in the presentation schedule and assignment file. If for any reason you cannot complete your work on time, contact your facilitator before the assignment is due to discuss the possibility of an extension. Extension will not be granted after the due date unless there are exceptional circumstances.

## **Final Examination and Grading**

The end of course examination for Introduction to Accident and Emergency will be for about 3 hours and it has a value of 70 per cent of

the total course work. The examination will consist of questions, which will reflect the type of self-testing, practice exercise and tutor-marked assignment problems you have previously encountered. All areas of the course will be assessed.

You are advised to use the time between finishing the last unit and sitting for the examination to revise the whole course. You might find it useful to review your self- tests, TMAs and comments on them before the examination. The end of course examination covers information from all parts of the course.

### Course Marking Scheme

Assignment	Marks
Assignments 1 – 4	Four assignments, best three marks out of the four count at 10% each = 30% of course marks.
End of course examination	70% of overall course marks.
Total	100% of course materials.

### Facilitators/Tutors and Tutorials

There are 16 hours of tutorials provided in support of this course. You will be notified of the dates, time and location of these tutorials as well as the names and phone numbers of your facilitators, as soon as you are allocated a tutorial group.

Your facilitator will mark and comment on your assignments, keep a close watch on your progress and any difficulties you might face and provide assistance to you during the course. You are expected to mail your Tutor-Marked Assignment to your facilitator before the scheduled date (at least two working days are required). They will be marked by your tutor and returned to you as soon as possible.

Do not delay to contact your facilitator by telephone or e-mail if you need assistance.

The following might be circumstances in which you will find assistance necessary, hence you will have to contact your facilitator if:

- you do not understand any part of the study or the assigned readings.
- you have difficulty with the self – tests.
- you have a question or problem with an assignment or with the grading of an assignment.

You should endeavour to attend the tutorials. This is the only chance to have face to face contact with your course facilitator and to ask questions which are answered instantly. You can raise any problem encountered in the course of your study.

To gain much benefit from course tutorials prepare a question list before attending them. You will learn a lot from participating actively in discussions.

## Summary

Introduction to Accident and Emergency is a course that intends to provide a general understanding of accidents and emergencies cases that are most commonly seen in the health facilities in Nigeria.

Upon completing this course, you will be equipped with the basic knowledge of accidents and some emergency conditions like injuries, falls, drowning violence, poisoning, shock, haemorrhage, head injury, fractures, wounds, cardiac attack, respiratory obstructions, peptic ulcer, peritonitis, etc. In addition, you will be able to answer the following questions:

What's the difference between accident and injury?

Define the term "Road Traffic Accident".

Explain the levels of injury prevention.

Explain 5 fall related injuries.

Identify preventive measures for drowning.

Discuss the 3 categories of violence.

Mention 5 types of shock.

Explain the term haemorrhage.

Enumerate the clinical features of head injury.

Explain the term fracture and list the types.

Give the classifications of wound.

Define the term peptic ulcer.

Explain the term chronic heart failure.

Enumerate the clinical features of stroke.

Explain the characteristics of hyperglycemic coma.

Of course, the list of questions that you can answer is not limited to the ones above. To gain the most from this course you should endeavour to apply the principles you have learnt to your understanding of accidents and emergencies.

I wish you success in this course and I hope that you will find it both interesting and useful.

Course Code            PHS 403  
Course Title            Accident and Emergency

Course Team            Dalyop D. Mancha (Developer/Writer) - CHT,  
Pankshin



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

National Open University of Nigeria  
Headquarters  
14/16 Ahmadu Bello Way  
Victoria Island  
Lagos

Abuja Office  
No.5 Dar es Salaam Street  
Off Aminu Kano Crescent  
Wuse II, Abuja  
Nigeria

E-mail: [centralinfo@nou.edu.ng](mailto:centralinfo@nou.edu.ng)  
URL: [www.nou.edu.ng](http://www.nou.edu.ng)

Published By:  
National Open University of Nigeria

First Printed 2011

ISBN: 978-058-237-1

<b>CONTENTS</b>		<b>PAGE</b>
<b>Module 1</b>	<b>Accidents.....</b>	<b>1</b>
Unit 1	Accident.....	1
Unit 2	Fall - Related Injuries.....	9
Unit 3	Drowning.....	12
Unit 4	Violent Injuries.....	16
Unit 5	Poisoning.....	20
<b>Module 2</b>	<b>Emergency Conditions.....</b>	<b>26</b>
Unit 1	Shock .....	26
Unit 2	Haemorrhage.....	30
Unit 3	Head Injuries.....	33
Unit 4	Fracture.....	36
Unit 5	Wound.....	40
<b>Module 3</b>	<b>Common Emergency Conditions.....</b>	<b>44</b>
Unit 1	Diabetes.....	44
Unit 2	Cardiac Attack.....	48
Unit 3	Cardio Pulmonary Resuscitation.....	52
Unit 4	Peptic Ulcer .....	58
Unit 5	Peritonitis.....	62



## **MODULE 1      ACCIDENTS**

Unit 1	Accidents
Unit 2	Fall-Related Injuries
Unit 3	Drowning
Unit 4	Violent Injuries
Unit 5	Poisoning

## **UNIT 1      ACCIDENTS**

### **CONTENTS**

1.0	Introduction
2.0	Objectives
30	Main Content
3.1	Definition
3.1.1	Classification of Injuries
3.1.2	The Burden of Injuries
3.1.3	Epidemiological Considerations
3.1.4	Prevention of Injuries
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

### **1.0      INTRODUCTION**

Having gone through the course guide, you would have acquired a general overview of what this unit is all about. This unit will assist you acquire the basic understanding of accident and injury related issues. The unit's objectives below will also give you a better guide on what an accident is.

### **2.0      OBJECTIVES**

By the end of this unit, you should be able to:

- define the term accident
- differentiate between accident and injury
- classify injuries
- define road traffic accident
- discuss the preventive measures on accident and injuries.

### **3.0 MAIN CONTENT**

#### **3.1 Definition**

Accident is traditionally defined as an unintended and unplanned event independent of human will power, which may not be essentially preventable. Injury, on the other hand, may occur out of both unintentional and intentional harm. The emphasis is now more on the outcome of the event (i.e. injury) than the event itself (i.e. accident).

##### **3.1.1 Classification of Injuries**

Injuries are broadly divided into two main categories:

###### **Unintentional Injuries**

These are subdivided into:

- (a) Road traffic injuries
- (b) Poisoning
- (c) Falls
- (d) Burns
- (e) Drowning and “other unintentional injuries” e.g. exposure to animate and inanimate mechanical forces like firearms, electric current, radiation and extreme ambient temperature, pressures, forces of nature, contact with heat and hot substances, venomous plants and animals.

###### **Intentional Injuries**

These are subdivided into self-inflicted injuries (i.e. suicide), interpersonal violence (e.g. homicide), war-related injuries, and “other intentional injuries” (includes injuries due to legal intervention).

##### **3.1.2 The Burden of Injuries**

Injuries accounted for 12% of the global burden of disease and 90% of deaths in the year 2002. As projected, road traffic injuries will by 2020 move from the 9<sup>th</sup> position to the 3<sup>rd</sup> position as the leading cause of global disease burden (WHO Global Burden of Disease Project, 2002).

In many parts of the world, injury related database is thin and the real burden may be heavier than the estimate. For every injury-related death, several thousand more require hospital treatment; and victims suffer with impairments, frequently with disabling consequences.

## **Injuries by Age and Sex**

Injury mortality rate among men is twice as high as that concerning women. In some regions, however, mortality rates for suicide and burns in females are as high as or even higher than in males. Males in Africa and Europe have the highest injury-related mortality rates. Young people between the ages of 15 and 44 years account for almost 50% of the world's injury-related mortality. Mortality from road traffic injuries and interpersonal violence in males is almost 3 times higher than that in females. Children under 5 years of age account for approximately 25% of drowning deaths, and 15% of fire-related deaths worldwide.

### **3.1.3 Epidemiological Considerations**

Probability of occurrence of an injury and its severity primarily depends upon the agent, reservoir, vector, host, response, environment and other risk factors.

#### **Agent**

That agent is energy. Injuries are seen in a variety of different physical ways. Energy can be delivered in a way as to cause blunt trauma to tissues or organs; or it can be in form of projectiles, which may produce penetrating wounds. It may also exist in the form of mechanical, electrical, chemical, radiation and thermal force.

#### **Reservoir**

The reservoir is the place where the agent is usually found. For example, generators/power houses are the reservoirs of man-made electricity; petrol/diesel is a reservoir of energy converted by vehicles into kinetic energy.

#### **Vectors**

**These** are inanimate objects like motor vehicles, bullets, cigarettes, flammable cloths, etc, that transfer the energy from its reservoir to potential or actual host. An exposure may or may not result in injury, depending upon whether the amount of contact between a susceptible host and the energy involved is outside the band of tissue tolerance. A human being or animal can also exert mechanical energy, hence becoming an animate object or a vector of energy e.g. the kick of a horse.

## **Host Response**

There are limits beyond which energy delivered to the host can be absorbed or tolerated. The host response depends upon its age, medical condition, diet, physical conditions, etc. Males are as much at risk as females of being victims of an accident. Young males are at maximum risk of injury while the case fatality following an injury is highest in the elderly.

## **Environmental Factors**

Poor road conditions, inadequate public transport system, excessive heat and cold, poor illumination of road or work place, poor enforcement of law, lack of devices, easy availability of poisonous and hazardous substances, overpopulation, illiteracy, prevalence of stray animals on road are some of the environmental factors contributing to injuries.

## **Risk Factors**

Risk factors may be causative (exposure to hot fluids in burns) or contributory (driver fatigue in a road injury). They may be modifiable (speed of a vehicle) or non-modifiable (age and sex of the victim). Application of the “risk concept” can help identify individuals who are prone to a particular type of injury by virtue of having one or more risk factors.

A cluster of subjects with similar risk factors constitute a “risk group”. This group is vulnerable to a particular injury and need to be given priority in prevention programmes.

### **3.1.4 Prevention of Injuries**

Persons are injured on roadways, in work places, in homes, and during leisure activities. No group within a society is spared, although some are at more risk than others. A significant injury can change the lives of victims and other family members, often permanently. It is thus important to prevent injuries.

#### **Primordial and Primary Prevention**

Efforts are directed to remove the circumstances leading to injuries. The usual strategies consist of IEC (Information, Education and Communication) activities on prevention of injuries and specific environmental modification geared to protect people from injuries.

## **Secondary Prevention**

Immediate care is needed once an injury has occurred. Immediate resuscitation, first aid triage and quick referral, as well as early hospital care are the cornerstone of secondary prevention. This is aimed at reducing the severity and complication of injuries, as well as preventing death.

## **Tertiary Prevention**

This is aimed to reduce the long-term disabilities by physical and psychological rehabilitation of the injured and restoration of bodily functions to the maximum extent possible.

## **Road Traffic Accidents (Injuries)**

Road traffic accidents are crashes originating, terminating, or involving a vehicle partially or fully on a public highway.

## **Magnitude of the Problem**

Globally, road traffic crashes account for one-fourth of the total injury deaths, killing 1.2 million persons per annum. These deaths are expected to increase to 2.3 million (rise of over 85 %) by 2020 with more than 90 % of these deaths occurring in low and middle income countries (WHO, 2004).

## **Risk Factors**

There are many risk factors associated with road traffic accidents worldwide; however, some are discussed below:

### **Motor Vehicle**

Growing number of motor vehicle is one of the main factors contributing to the increase in global road crash injury.

### **Speed**

The speed of a vehicle is controlled by factors related to road, vehicle, traffic, environment, driver and the occupants in the vehicle.

### **Driver Factors**

Alcohol concentration of more than 0.04g/dl in the blood of the driver is associated with significant risk of crash. Fatigue or deprivation of sleep,

use of hand-held mobile phones while driving etc. are also responsible for road crashes.

### **Environment Factors**

The traffic on most roads is a mix of slow (pedestrians, cycles, bullocks and mopeds) and fast vehicles (motorcycles, vans, cars, trucks and buses). There are no lanes dedicated to a particular kind of traffic even in bigger metropolitan cities, inadequate visibility due to weather condition is also a major environmental risk factor.

### **Preventing Road Traffic Accidents**

Road traffic injury should be considered alongside heart disease, cancer and stroke as a public health problem; appropriate intervention that can prevent much of it from occurring.

### **Managing Exposure**

Eliminating the need or desire to travel is not possible, but length and intensity of exposure to types of road traffic that put people at risk can be reduced.

To achieve this, the places where people live, work and relax should entail minimum travel. Unnecessary trips should be discouraged. Some of the following should be adopted towards managing exposure to traffic accidents:

Provide shorter, safer routes for vulnerable road users.

Encourage the use of safer modes of travel such as affordable public transport, by rail and/or bus and coach.

Segregating slow and fast moving traffic.

Regulating motor vehicle use by young riders and drivers.

### **Preventing Crashes**

This can be done by better designing roads (having a hierarchy of high speed highways, transitional roads, rural roads and residential roads); insisting on crash protective road sides, promoting lane driving and enforcing road safety rules with respect to speed and alcohol limits, mandatory use of seat belts and helmets; and improving safety awareness among road users.

## **Preventing Injury in Event of a Crash**

The ultimate option is to design a “smart” vehicle that can sense and combat danger of crash, vehicles should be designed to withstand crashes and minimise injury to the occupants. The vehicle should have seat belts, frontal and side impact protection bars; the passenger compartment should not collapse in a crash and be devoid of elements that can cause injury.

## **Delivery Care after Crash**

The aims of care after crashes are to avoid death and disability, to limit the severity and suffering caused by the injury and to ensure optimal functioning of the crash survivors and reintegration into the community.

## **4.0 CONCLUSION**

In this unit, you have learned that accidents or injuries are traditionally defined as unintended, unplanned events which are independent of human will power. You have also realised that injuries are classified as unintentional and intentional. You should at this point be able to explain in your own words, road traffic accidents/injuries and how to prevent road traffic accidents/injuries.

## **5.0 SUMMARY**

This unit has been able to define the term accident, which is traditionally referred to as unintentional, unplanned event independent of human will power.

Also, the unit has classified injuries, the burden of injuries and its epidemiological considerations, the prevention of road traffic injuries/accidents on our roads.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1. Give a brief explanation of the term injury.
2. Explain the levels of injury prevention methods.
3. Define the term road traffic accidents.

## 7.0 REFERENCES/FURTHER READING

Bruce, B. and McGrath, P. (2005). “Group Interventions for the Prevention of Injuries in Young Children: A Systematic Review”.

*The Injury Chart Book: WHO 2002.* [www.who.int/violence\\_injury\\_prevention](http://www.who.int/violence_injury_prevention).

World Report: Road Traffic Injury Prevention. [www.who.int/world-health-ay/2004/infomaterials/world\\_report/en/index.html](http://www.who.int/world-health-ay/2004/infomaterials/world_report/en/index.html).

World Report: Violence and Health. [www.who.int/violence\\_injury\\_prevention/violence/world\\_report/en/index.html](http://www.who.int/violence_injury_prevention/violence/world_report/en/index.html).

“World Report on Road Traffic Injury Prevention”. (2004). Geneva: World Health Organization.



## **UNIT 2 FALL- RELATED INJURIES**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Fall
  - 3.2 Factors Relating to Fall
  - 3.3 Preventing Falls and Related Injuries
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Falls are the 2nd leading cause of unintentional injury after road traffic accidents. This unit will help you acquire some basic understanding of fall and its related injuries as indicated in the objectives below.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term fall
- mention factors relating to fall
- state methods of preventing fall-related injuries.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Fall**

Fall is an event which results in a person coming to rest inadvertently on the ground or floor or other lower level. According to the WHO database, fall-related deaths and non-bullet fatal injuries exclude those due to assault and intentional self-harm. Falls from animals, burning buildings and transport vehicles, and falls into fire, water and machinery are also excluded.

#### **3.2 Factors Relating to Fall**

Falls are responsible for the largest number of hospital visits for non-fatal injuries, especially for children and young adults, and even among the elderly.

Falls from roof tops, balconies, windows, staircases, trees, construction sites, slippery floors, etc. are rampant. Falls emanating from these can also lead to serious head injuries, fractures of hip, vertebrae, forearm, leg, ankle, pelvis, upper arm, hand, etc.

### **3.3 Preventing Falls and Related Injuries**

Safer playground design including use of mud and sand surfaces instead of hazardous paved ones should be adopted.

Enactment of safety regulations for playgrounds should be enforced.

Safety guidelines and standards should be adopted in designing chairs and other furniture for children and the elderly.

Sensitisation of architects, builders and masons for safer designs of stairs, balconies and rooftops with appropriate railings, grab bars and landings.

Encouragement of public use of safety standards for protectors on windows.

Safer furniture and household design guidelines for the elderly and disabled.

Encouragement/evolution of safer working techniques and use of harnesses for construction workers, tree climbers, window cleaners and all those who work at heights.

### **4.0 CONCLUSION**

This unit has exposed you to the term fall and its related injuries. It also exposed you to the preventive measures to be adopted in order to avoid incessant falls. You should at this point be able to explain in details and in your own words, fall-related injuries.

### **5.0 SUMMARY**

This unit has focused on the definition of fall and related injuries. It also highlighted the methods to be adopted in preventing falls and fall-related injuries.

### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Mention 5 fall-related injuries that you know.
2. State at least 5 preventive falls related to injuries.

## 7.0 REFERENCES/FURTHER READING

WHO, Department of Injury and Violence Prevention. [www.who.int/violence\\_injury\\_prevention/en](http://www.who.int/violence_injury_prevention/en).

World Report: Violence and Health. [www.who.int/violence\\_injury\\_prevention/violence/world\\_report/en/index.html](http://www.who.int/violence_injury_prevention/violence/world_report/en/index.html) Standard First Aid Course. [www.unh.org/standardfirstaid/toc.html](http://www.unh.org/standardfirstaid/toc.html).

## **UNIT 3 DROWNING**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Drowning
    - 3.1.2 Risk of Drowning
    - 3.1.3 Prevention of Drowning
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In 2002, an estimated 376,000 people drowned, making drowning the 3rd leading cause of unintentional injury deaths worldwide. This unit will help you acquire understanding of what drowning is and its basic components as indicated in the objectives below.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define drowning
- discuss risk of drowning
- list various ways to prevent drowning.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Drowning**

Drowning is the process of experiencing respiratory impairment from unintentional submersion/immersion in liquid. Drowning is death occasioned through submersion in water. Drowning outcomes are classified as:

- Morbidity
- Non-morbidity

### **3.1.1 Risk of Drowning**

Drowning can occur during swimming, boating, hunting, fishing and even while taking a bath. Approximately 10% of childhood drowning takes place in bathtubs. Small children can drown in as little as one inch of water and are therefore at risk of drowning in wading pools, bathtubs, buckets, diaper pails, toilets, spas and hot tubs.

#### **Important risk factors for drowning are:**

##### **Age**

Children under 5 years have the highest drowning mortality rate worldwide. Children under this age range constitute over half of the global mortality and 60 % of the total number of deaths arising from drowning. Drowning rate is also high among children aged between 0-14 years.

##### **Sex**

Males have higher drowning rates than females due to increased exposure to water and riskier behaviours such as swimming alone, drinking alcohol before swimming and boating.

##### **Occupation**

Communities dependent on water bodies for their living e.g. fishermen have a high risk of drowning.

##### **Floods**

Large numbers of drowning deaths are associated with floods, especially in China.

##### **Access to Water**

Unfenced homes in proximity to bodies of water increase the risk of drowning; pools, farm dams, irrigation channels and wells are also important risk factors for children drowning. Infants left alone or with another child in an adult bathtub are at significant risk.

##### **Transportation Vessels**

Vessels that are unsafe or overcrowded and poor weather conditions are associated with large number of deaths through drowning.

Unavailability or unawareness of a Personal Flotation Device (PFD) on a transportation vessel is another risk factor.

### **3.1.2 Prevention of Drowning**

Victims of drowning have a very slim chance of survival after immersion, the victim loses consciousness after approximately 2 minutes of immersion and irreversible brain damage can take place after 4 – 6 minutes.

Different preventive strategies include:

- Collection of data on drowning, identification of vulnerable populations, undertaking research to identify risk factors, protective factors and exposure measures.

- Promotion, facilitation and implementation of drowning prevention measures and policies.

- Monitoring and evaluating interventions which include removal of hazard (e.g. drain unnecessary accumulation of water baths, ponds, buckets etc.).

- Creating barriers to water bodies, especially in villages.

- Promoting “learn to swim” activities and

- Training the community in resuscitation.

Other preventive measures include development of strategies to ensure effective inspection and certification system for safe surface transportation on water and creation of safety standards for public and private swimming pools.

Sensitisation of policy makers and community leaders on the need to provide life jackets and floatation devices at swimming pools, boats and barges is also important towards preventing deaths arising from drowning. Training of life-guards, and fencing of deep parts of lakes and ponds.

## **4.0 CONCLUSION**

In this unit you have learned what drowning is and the risk involved in drowning. You should at this point be able to define drowning as process of experiencing respiratory impairment from unintentional immersion. You have also known the various ways of preventing drowning in the Nigerian context.

## 5.0 SUMMARY

This unit focuses on an important aspect of life which is often neglected by the society. The risk of drowning has been discussed extensively for your understanding.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. Drowning can occur during swimming. Discuss
2. Enumerate 5 preventive measures to reduce drowning related morbidity and mortality.

## 7.0 REFERENCES AND FURTHER READING

Basic Life Support: Resuscitation Council, UK. [www.resus.org.uk/pages/bls.htm](http://www.resus.org.uk/pages/bls.htm).

The Injury Chart Book: WHO 2002. [www.who.int/violence\\_injury\\_prevention](http://www.who.int/violence_injury_prevention).

WHO Department of Injury and Violence Prevention. [www.who.int/violence\\_injury\\_prevention/en](http://www.who.int/violence_injury_prevention/en).

## **UNIT 4 VIOLENT INJURIES**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Violence
  - 3.2 Risk Factors
  - 3.3 Suicide
  - 3.4 Prevention of Violence
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

An estimated 815,000 people killed themselves in year 2000, making suicide the 13th leading cause of death worldwide. This unit will help you understand what violence is and its basic components.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term violence
- differentiate types of violence
- discuss risk factors in violence
- define suicide
- mention the prevention of violence.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Violence**

The World Health Organisation (WHO) defines violence as “the intentional use of physical force or power, threatened or actual, against one self, another person, or against a group or community that either results in or has a high likelihood of resulting in physical, sexual or psychological injury, or death.”



## Types of Violence

Three broad categories of violence are recognised; depending upon who commits the violent act.

### Self-Directed Violence

This is the type of violence a person inflicts upon himself or herself. This includes suicidal behaviour and self abuse. Suicidal behaviour ranges from merely thinking about ending one's life, to planning it, finding the means to do so, attempting to kill self and completing the act.

### Interpersonal Violence

**This** violence is the type inflicted by another individual. This category includes family and intimate partner violence, child and elderly abuse, youth violence, rape or sexual assault, and violence between unrelated individuals.

### Collective Violence

The violence is between two groups of people. It includes armed conflict within or between states, genocide, repression, human rights abuses, terrorism; organised crime etc. Collective violence is inflicted by groups.

## 3.2 Risk Factors

Violence is often predictable and preventable. It occurs due to an interaction of multiple factors that could be biological, social, cultural, economic, political and religious. There is no single factor to explain why one person and not another behaves in a violent manner.

### Risk Factors Levels

The "WHO Report on Violence and Health" uses an ecological model to understand the multifaceted nature of violence. These are:

**Individuals:** Their personal characteristics i.e. age, education, income, personality disorders, substance abuse and a history of behaving aggressively or experiencing abuse.

**Relationship:** With friends, family, intimate partners and peers.

**Community:** In schools, workplaces and neighborhoods in which these relationships are taking place.

**Society:** Violence is more common in societies which encourage such behaviours.

**Religion:** Wanting to dominate one another, owners of religions or worship places, inciting sermons, etc.

Factors at each level are strengthened or modified by factors at another. This is prevented only by planned programmes after understanding the context of violence and its specific risk factors in the targeted population.

### 3.3 Suicide

This is the act or attempt to kill one's self intentionally, ruin one's own interest. Suicide rates vary within countries, between urban and rural populations, and between different racial and ethnic groups.

**Risk Factors:** Stressful events predisposing to self harm include: poverty, unemployment, loss of loved one, argument with family or friends, breakdown in relationship and legal or work-related problems.

**Personalities at Risk:** Alcohol and drug abusers, those with psychiatric problems, history of physical or sexual abuse, and social isolation have a high rate of violence. A general sense of hopelessness also plays a role. Chronic physical illness, particularly those that are painful or disabling, can also predispose one to self harm.

**Means to Kill:** Most typically, guns, medicines, and agricultural poisons are important determinants of success. History of previous suicide attempt also predisposes one to subsequent fatal suicidal behaviour.

**Protective Factors:** Good relationship with family and friends, high self esteem, social connectedness, happy marriage, and commitment to a religion appear to protect people against the desire to commit suicide.

### 3.4 Prevention of Violence

Violence is not inevitable, much can be done to address and prevent it, and our main emphasis will be on primary prevention of violence, i.e. aiming to prevent violence before it occurs.

**General Population:** Universal Intervention.

**Selected Intervention:** Individuals or groups having one or more risk factors for violence.

**Indicated Intervention:** Those who have demonstrated violent behaviours.

## 4.0 CONCLUSION

This unit has exposed you to violence and the types of violence which are very common in our society.

Also, suicide and suicidal attempts have been discussed. You should be able to explain in your own words what violence and suicide mean and also state ways of preventing them.

## 5.0 SUMMARY

The focus of this unit is to define the term violence and suicide which are both intentional in nature. Risk factors associated with each exposes the person to injury and death.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. In brief, discuss the three categories of violence that you know.
2. Define suicide and explain its preventive measures.

## 7.0 REFERENCES/FURTHER READING

“*The Injury Chart Book: WHO 2002*” [www.who.int/violence\\_injury\\_prevention](http://www.who.int/violence_injury_prevention).

World Health Organisation, Department of Injury and Violence Prevention [www.who.int/violence\\_injury\\_prevention/en](http://www.who.int/violence_injury_prevention/en).

## **UNIT 5 POISONING**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 30 Main Content
  - 3.1 Definition of Poisoning
    - 3.1.2 Types of Poisoning
    - 3.1.3 Diagnosis of Poisoning
    - 3.1.4 Basic Management
    - 3.1.5 Prevention of Poisoning
  - 3.2 Burns
    - 3.2.1 Ecology of Burns
    - 3.2.2 Preventing Burns
    - 3.2.3 Changing Risk Behaviour
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In year 2000, 315,000 persons died worldwide due to unintentional poisoning. More than 94% of total reported cases of poisoning occurred in low and middle income countries.

This unit will help you acquire basic understanding of what poisoning is.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define poisoning
- discuss types of poisoning
- state the diagnosis of poisoning
- explain the management of poisoning
- list the preventive measures of poisoning.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Poisoning**

A poison may be defined as any substance which produces ill-health, disease or death when administered into the body.

Poisoning refers to all unintentional poisoning related deaths and non-fatal outcomes caused by exposure to noxious substances; those which are intentional, or for which the intent is determined as well as those resulting from reactions of drugs.

### **3.1.2 Types of Poisoning**

Poisoning can be classified as due to non-toxic or toxic ingestion.

#### **Non-Toxic Ingestion**

A non-toxic ingestion occurs after an individual consumes a non-edible product, that usually does not produce symptoms, such as abrasives, adhesives, air fresheners, aluminum foils, baby toys, cosmetics, candles, chalk, erasers, ink, lipstick, lubricants, etc.

#### **Toxic Ingestion**

Household toxic ingestion consist of consumption of any of the following: soaps and detergents, shampoos, bleaches, disinfectants, and deodorizers, acid and alkalis, boron compounds, cosmetics, nail polish remover (gamma butyrolactone), disc, batteries, button cells, naphthalene moth balls, tobacco products, insecticides, pharmaceuticals and paints.

### **3.1.3 Diagnosis of Poisoning**

Many poisons and drugs taken in over dosage do not cause rapid loss of consciousness. The diagnosis of self poisoning may be made almost always on clinical and circumstantial evidence. There are often medicine bottles and containers at the scene and a “suicide” note may be found; certain intoxication may produce a characteristic clinical picture.

### **3.1.4 Basic Management**

#### **Emergency Stabilisation**

Transport patient in the head-down semi prone position to minimise the risk of inhalation of gastric contents.

#### **Evaluation**

Complete evaluation by detailed history, physical examination and laboratory investigation directed towards identifying the toxic; or

possibly, toxicology should be done. It helps in knowing the severity, complication and associated injuries.

### **Decontamination**

To reduce the absorption of poison, the following can be carried out:

#### **Eye Decontamination**

Immediately irrigate the affected tissue with neutralising solution (e.g. normal saline or water) copiously for at least 15-20 minutes.

#### **Skin Decontamination**

In case of organ phosphorous poisoning, irrigate the whole body including nails, groin and skin-folds with water or saline as soon as possible; after exposure for 15 minutes, remove all contaminated clothes.

#### **Gut Decontamination**

The role of gut decontamination is quite controversial. Theoretically, unabsorbed drug in the stomach can be removed by gastric aspiration and leverage or by induction of emesis.

#### **Emesis**

This is the preferred method of emptying the stomach in young children, emetics cannot be used in unconscious patients. Vomiting can be induced by tickling faeces with finger, feather or a leafy twig of a tree, administration of copious draughts of warm water and gargling with non-detergent soap or saline emetics in warm water.

#### **Enhancing Drug Elimination**

If the physio-chemical properties, deposition, and pharmaco kinetics of the substance are known, some drugs can be removed reasonably by employing any of: forced diuresis hemodialysis, hemoperfusion and peritoneal dialysis.

### **3.1.5 Prevention of Poisoning**

“Prevention is better than cure.” A large majority of poison does not have a specific antidote.

Parents should be educated regarding the dangers associated with medicine, household substances and agrochemicals.

Parents must teach their children the danger of touching, eating or playing with unknown objects including medicine, pesticides and insecticides, household chemicals or plants berries.

Medicines, pesticides and insecticides and other poisonous substances should be stored in locked cabinets.

Dyes, polishes, kerosene and other chemicals should never be left on a low shelf or on the floor; do not store in kitchen or bathroom.

Combustion services should be adequately ventilated.

Inhalation of spray or fumes should be prevented during painting, or application of insecticides.

Wear protective clothing, goggles, gloves and masks.

Dispense medicine and dangerous chemicals in childproof, tamperproof containers.

Education on proper hygiene and storage of food to avoid food poisoning.

Training of workers on safe use of chemicals, etc.

## **3.2 Burns**

A burn is an injury or area of damage caused by a source of heat or energy.

### **Fire-Related Burns**

Burn occurs when some or all of the different layers of cells in the skin are destroyed by a hot liquid (scald), a hot solid (contact burn) or a flame (flame burns).

Skin injuries due to ultraviolet radiation, radioactivity, electricity or chemicals, as well as respiratory damage resulting from smoke inhalation, are also considered to be burns.

#### **3.2.1 Ecology of Burns**

Fire related burns occur either in the home or in the workplace. Burn related injuries specifically include firework related injuries during festivals and celebrations.

House fires, conflagrations and clothing fires are responsible for most lethal events.

Kitchen is the most common place where children and women sustain burns. Burns can be sustained while cooking on open fires, explosion of pressure stoves, instability of small stoves, use of open fire to keep warm during winters and use of inflammable materials in housing and furnishings.

Men are at high risk to sustain burns at workplace from fires and flames, scalds, chemical burns due to high voltage currents, etc.

### **3.2.2 Preventing Burns**

Primary prevention remains the best way (e.g. the application of cold water as first aid measure) to prevent burns. Other ways to prevent burns include:

- Improving environmental safety.

- Promoting the use of safe stoves, replacement of pressure cooking stoves with more efficient wick and gas stoves.

- Introduction of more stable stands for lamps and stoves.

- Use less hazardous fuels.

- Fire drills for evacuation from large buildings and public places.

- Installation of fire and smoke alarms in public buildings.

- Ban on the use of dangerous firework.

- Greater use of flame retardant fabrics and materials in building construction.

### **3.2.3 Changing Risk Behaviour**

- Discourage smoking and increase public awareness of fire-related injury.

- Disseminate burn prevention information through schools and the media.

- Legislation and regulation to improve and enforce fire building codes.

## **4.0 CONCLUSION**

In this unit, you have learned what poisoning is and the types of poisoning. You also learned their diagnosis and prevention measures. You have also learnt about burns and how to prevent its occurrence.



## 5.0 SUMMARY

This unit has exposed you to the definition of poisoning and burns. The various ways of management and prevention of poisoning and burns have been discussed.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the term poisoning and state the types of poisoning that you know.
- 2a. State the basic management of poison.
- b. Define the term burns.
- c. Mention ways of preventing burns at home and at work place.

## 7.0 REFERENCES/FURTHER READING

*Poison Treatment in Home:* American Academy of Pediatrics  
Pediatrics.aappublications.org/cgi/reprint/112/5/1182.

*Poisoning Prevention and Management.* [www.who.int/ipcs/poisons/en/](http://www.who.int/ipcs/poisons/en/).

“Guidelines for Poison Control” [www.who.int/ipcs/publications/training\\_poisonguidelines\\_poison\\_control/en/index.html](http://www.who.int/ipcs/publications/training_poisonguidelines_poison_control/en/index.html).

## **MODULE 2      EMERGENCY CONDITIONS**

Unit 1	Shock
Unit 2	Haemorrhage
Unit 3	Head Injury
Unit 4	Fracture
Unit 5	Wound

### **UNIT 1      SHOCK**

#### **CONTENTS**

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Acute Conditions
3.1.1	Shock
3.1.2	Types of Shock
3.1.3	Clinical Features
3.1.4	Management
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

#### **1.0      INTRODUCTION**

Having gone through the course guide, you would have acquired a general overview of this unit. It is therefore believed that this unit will help you understand what shock is and its basic components as enumerated below.

#### **2.0      OBJECTIVES**

By the end of this unit, you should be able to:

- define the term shock
- state the various types of shock
- mention the clinical features of shock
- state the management of shock

### **3.0 MAIN CONTENT**

#### **3.1 Acute Conditions**

##### **3.1.1 Shock**

Shock occurs when the metabolic needs of cells are not being met because of inadequate blood flow. In effect, there is a reduction in circulating blood volume, in blood pressure and in cardiac output. Hypoxia is as a result of deficiency in the amount of oxygen reaching the tissues and it eventually leads to shock.

##### **3.1.2 Types of Shock**

###### **Hypovolaemic Shock**

This occurs when the blood volume is reduced by 15 - 25 %, reduced venous return and in turn cardiac output may occur following:

- Severe haemorrhage (whole blood loss),
- Extensive superficial burn in which serum is lost and blood cells at the site of the burn are destroyed,
- Severe vomiting and diarrhoea in which water and electrolytes are lost,
- Perforation of an organ allowing its contents to enter the peritoneal cavity (peritonitis).

###### **Cardiogenic Shock**

This occurs in acute heart disease when the damaged heart muscles cannot maintain an adequate cardiac output, e.g. in myocardial infarction.

###### **Septic Shock (bacteraemic, endotoxic)**

This is caused by severe infections in which endotoxins are released into circulation from dead gram-negative bacteria e.g. endobacteria, pseudomonas.

###### **Neurogenic Shock (vasovagal attack, fainting)**

The causes include sudden acute pain, severe emotional experience, spinal anaesthesia and spinal cord damage. Parasympathetic nerve impulses reduce the heart rate, and in turn, the cardiac output. The

venous return may also be reduced by the pooling of blood in dilated veins. These changes effectively reduce blood supply to the brain, causing fainting.

### **Anaphylactic Shock**

In allergic reactions an antigen interacts with antibody and a variety of responses can occur. In severe cases, chemicals released e.g. histamine, bradykinin, produce widespread vaso dilation and constriction of bronchial or smooth muscles (bronchospasm), which reduces the venous return and cardiac output resulting in tissue hypoxia.

#### **3.1.3 Clinical Features**

- Pallor
- Moist skin
- Cold extremities
- Thready pulse
- Low blood pressure
- Thirst
- Alteration of mental status
- Restlessness and apprehension
- Suppression of kidney function etc.

#### **3.1.4 Management**

- Diagnose and ensure that the patient is in the state of shock,
- Set up I.V either NaCl or 5 % dextrose to replace the lost fluid,
- In case of blood loss, give blood transfusion,
- Establish and maintain a clear airway,
- Start resuscitation procedure if necessary,
- Give oxygen to augment the oxygen carrying capacity of arterial blood,
- Control haemorrhage as it can compound shock level,
- Maintain systolic blood pressure at 90-110 mmHg through fluid and blood,
- Insert a urinary catheter,
- The urine volume reveals adequacy of kidney function,
- Carry out rapid physical assessment to determine the cause of shock,
- Maintain close observation of the vital signs,
- Observe colour and urinary output to assess response to treatment,

Elevate the feet slightly to improve cerebral circulation and promote venous return to the heart, (contraindicated in patient with injury),

Re-assure and comfort the patient and give drugs as suitable,

Maintain body temperature in case of septic shock,

Relieve pain consciously.

#### **4.0 CONCLUSION**

In this unit, you have learned about shock, which occurs as a result of the metabolic need of cells not being met due to inadequate blood flow.

This unit has also classified the types of shock into 5 major groups, their clinical features and management process.

#### **5.0 SUMMARY**

This unit has focused on the common emergency conditions very vital to health which is shock, the various types and their management.

Subsequent unit will also discuss other emergency conditions e.g. haemorrhage, fractures, etc.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Using your own words, define the term shock.
- 2a. Mention the 5 types of shock.
- b. Mention 5 clinical features of shock.

#### **7.0 REFERENCES/FURTHER READING**

Basic Life Support: Resuscitation Council, UK. [www.resus.org.uk/pages/bls.htm](http://www.resus.org.uk/pages/bls.htm).

Standard First Aid Course. [www.unh.org/standardfirstaid/toc.html](http://www.unh.org/standardfirstaid/toc.html).

## UNIT 2 HAEMORRHAGE

### CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Haemorrhage
    - 3.1.1 Types of Haemorrhage
    - 3.1.2 Bleeding Control Points
    - 3.1.3 Management of Haemorrhage Pressure Points
    - 3.1.4 Use of Tourniquet
    - 3.1.5 Disadvantages of Tourniquet
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### 1.0 INTRODUCTION

This unit will help you acquire basic understanding of haemorrhage and how to apply pressure in bleeding control points. Before we do this, an overview of the objectives below will serve as a guide.

### 2.0 OBJECTIVES

By the end of this unit, you should be able to:

- define the term haemorrhage
- describe the major 3 types of haemorrhage
- identify bleeding control points
- management of haemorrhage.

### 3.0 MAIN CONTENT

#### 3.1 Definition of Haemorrhage

Haemorrhage is bleeding from a vein or artery.

##### 3.1.1 Types of Haemorrhage

**Arterial Haemorrhage:** This is evident as bright red blood coming from the wound which spurts and can be profuse. Arteries most commonly involved are those in the heart, brain, kidney, small intestine and lower limbs.

**Venous Haemorrhage:** This is a steady flow of dark, brick-red blood, it may also be profuse.

**Capillary Haemorrhage:** This is the general oozing of blood which is usually not serious and is usually controlled.

### 3.1.2 Bleeding Control Points

Temporal artery: This is to control bleeding from the scalp.

Common carotid artery: This is for bleeding from the neck and head, but one must be careful not to occlude blood supply to the brain which can cause unconsciousness.

Facial artery: This is for bleeding from the front of the face.

Subclavian artery: This is from the armpit and chest wall.

Brachial artery: This is from the arm.

Femoral artery: This is from the leg.

### 3.1.3 Management of Haemorrhage Pressure Points

Direct manual pressure over the wound with a sterile dressing, clean cloth or handkerchief. This is usually adequate in the control of mild bleeding.

Digital pressure can be applied at pressure point.

The main artery to the injured extremities which lies near the skin and over the bone is the second avenue of approach in the control of bleeding.

### 3.1.4 Use of Tourniquet

A tourniquet is device for stopping the flow of blood through an artery, typically by compressing a limb with a cord or tight bandage. The use of tourniquet should only be in case of severe life-threatening haemorrhage. Tourniquet should be applied on the arm, hand or below the elbow, on the leg or below the groin.

Tourniquet should consist of a flat band at least 1 inch wide.

Do not use a rope or twine as tourniquet.

Use neck-tie, handkerchief, towel, scarf or belt.

Place a pad over the artery and rope several layers of clothes around the extremities for protection of the soft tissue.

Rope the tourniquet around the extremities applying a hall knot.

Place a stick or a rod or a stick and complete the knot.

The tourniquet must be tight enough to shut off arterial blood flow.

### **3.1.5 Disadvantages of Tourniquet**

Compression inefficiency to stop arterial blood flow allows the blood to continue into the extremities, but block the venous return from the extremities causing increased venous bleeding and inducing greater haemorrhage.

Tourniquets are unstable.

It may be applied too tightly, thus causing cuts on the skin or injury to the nerve or muscles tissue. It is safe to leave tourniquet for 2-3 hours or until the patient is in the emergency care room or with the physician.

## **4.0 CONCLUSION**

This unit has exposed you to know what haemorrhage is, and you can also state the types of haemorrhage and identify the bleeding control points. You should at this point be able to discuss haemorrhage.

## **5.0 SUMMARY**

This unit has defined haemorrhage as bleeding from a vein or artery. The pressure points to control haemorrhage and management have been discussed.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1. Explain in brief, the types of haemorrhage.
2. Mention 5 important uses of tourniquet in the control of tourniquet.

## **7.0 REFERENCES/FURTHER READING**

World Health Organizations – Injuries (<http://www.who.int/topics/injuries/en>).

World Report: Violence and Health. [www.who.int/violence\\_injury\\_prevention/violence/world\\_report/en/index.html](http://www.who.int/violence_injury_prevention/violence/world_report/en/index.html).



## **UNIT 3 HEAD INJURY**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Head Injury
    - 3.1.1 Types of Head Injuries
    - 3.1.2 Clinical Features
    - 3.1.3 Management
    - 3.1.4 Emergency Care
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Injury involving the head is a critical one which should not be ignored. Having gone through the course guide, you should have acquired an overview of what constitutes a head injury; this unit will further help you know about head injury as indicated in the objectives below.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term head injury
- describe the types of head injuries
- mention the clinical features of head injury
- state the management of head injury.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Head Injury**

The brain may be injured by a blow to the head or movement of the brain during sudden acceleration or deceleration of the head. The damage to the brain may be serious even when there is no outward sign of injury.

### 3.1.1 Types of Head Injuries

Open wound head injury: This means that the skull has been fractured and the durable matter is lacerated.

Closed wound head injury: This occurs when there is severe impact to the head area without obvious wound being sustained or laceration occurring. It is important to note that the brain dies when the blood supply to it is interrupted for a few minutes and there is no regeneration of damaged neurons.

Fractured skull: The fracture itself is not as important as the fear of brain injury and as such patients are treated as neurological conditions.

### 3.1.2 Clinical Features

Persistent pain.

Swelling in the region of fracture.

Bleeding from nose, ear, and pharynx and below the conjunctiva, this suggests fracture of base of the skull.

There may be escape of cerebrospinal fluid from the ear which is regarded as otorrhea and from the nose as rhinorrhea.

Bloody cerebrospinal fluid which suggest brain laceration or confusion.

### 3.1.3 Management

Assess the neurological states of the patient.

Assess the level of consciousness.

Compare the pupils' size and the movement of the extremities.

Note or observe if the patient is wide away, coherent, dull, lethargic, semi-comatose or in deep coma.

Note the reaction of pupils to light.

Establish the patient's airway.

Place the patient in semi-prone position with the head turned to one side.

Monitor every vital sign every 15 – 30 minutes, until stable.

Maintain the head injury chart.

Give oxygen therapy if need be.

### 3.1.4 Emergency Care

Patient's airway must be maintained.

Apply sterile dressing to scalp laceration

Examine the other systems to determine the cause of shock if present.

Assess the neurological state of the patient and note any change for medical attention.

Patient should be transported lying on a side with his head supported.

Objects protruding from the skull should be left undisturbed.

#### **4.0 CONCLUSION**

In this unit, you have learned what head injury is and the types of head injuries that may occur. You should be able to define what head injury is and its management.

#### **5.0 SUMMARY**

This unit has focused on the definition of head injury, its clinical features and necessary emergency care. This understanding will enable you to take immediate care should you encounter such situation.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Define the term head injury
2. Enumerate the clinical features of head injury.

#### **7.0 REFERENCES/FURTHER READING**

Bruce, B.; McGrath, P. "Group Interventions for the Prevention of Injuries in Young Children: A Systematic Review". 2005.

'WHO Disease and Injury Country Estimates" ([http://www.who.int/healthinfo/global\\_burden\\_disease/estimates\\_country/en/index.html](http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html)): World Health Organization 2009.

## **UNIT 4 FRACTURE**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Fracture
    - 3.1.1 Types of Fractures
    - 3.1.2 Fracture of Spine and Pelvis
    - 3.1.3 Clinical Features
    - 3.1.4 Management
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Having acquired a general overview of this unit, you will be helped further to know what is fracture and its components. The objectives below will also enable you acquire basic understanding of fracture.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term fracture
- describe the various types of fractures
- list the clinical features of fracture
- enumerate fracture management.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Fracture**

This is a break in the continuity of bone and is usually caused by injury either deliberately or accidentally. Apart from the broken bones, other structures may be affected resulting in oedema in soft tissue, haemorrhage into the muscles and joints, rupture of tendons, injured nerves and joint dislocation.

### 3.1.1 Types of Fractures

**Complete fracture:** This involves a break across the entire cross section of the bone and is frequently displaced.

**Incomplete fracture:** In this type, break occurs only through a part of the cross section of the bone and is usually undisplaced.

**Open fracture:** This break extends through the skin and mucus membrane.

**Closed fracture:** This break does not communicate with the outside area.

**Green stick fracture:** This is a fracture in which one side of the bone is broken and the other is bent.

**Comminuted fracture:** Here the bones fractured are more than two; a bone can be broken in more than two places.

**Depressed fracture:** This is bone driven and is frequent in fracture of the skull of facial bone.

**Compressed fracture:** This is a fracture in which a fractured bone has been compressed by another bone e.g. in a vertebrae fracture.

**Pathologic fracture:** This is a fracture occurring through an area of diseased bones, e.g. tumour, the bone or osteoporosis in the elderly.

### 3.1.2 Fracture of Spine and Pelvis

This condition is relatively common in the elderly, degenerative changes cause narrowing of intervertebral discs and osteophytes may develop round the margins of joints of the vertebral column, and cervical region (cervical spondylosis). They may cause damage to the nervous system varying from compression of individual spinal nerves to spinal cord injury.

### 3.1.3 Clinical Features

Pain which is continuous and increases in severity until the fractured bone is immobilised.

Loss of function

Localised swelling

Discoloration of the skin

Deformity

Tenderness

Penetration of fractured bone in open wound.

### 3.1.4 Management

Check for bleeding, paralysis and other conditions.

Mobilise people around to help in splinting.

Place the injured limb in as natural a position as possible before padding and splinting.

Do not apply traction when a broken wound is protruding above the skin.

To control bleeding, apply pressure gently by applying a sterile dressing to cover the site and rope an elastic bandage.

Apply the splint properly before attempting to move fractured victim.

Do not attempt to align an open fracture.

Give analgesic to relieve pain.

Broken neck patients should be moved in support to neck immediately.

## 4.0 CONCLUSION

In this unit, you have learnt that fracture is a crack or break in the continuity of bone and its features. You should be able at this point to describe fracture.

## 5.0 SUMMARY

This unit has focused on the definition of fracture, its types and clinical features. It also dealt on the management of different kinds of fractures.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. Define the term fracture.
- 2a. Mention all types of fractures.
- b. State the clinical features of fracture.
- c. Enumerate 5 management plans for fracture.

## 7.0 REFERENCES/FURTHER READING

World Health Organizations – Injuries (<http://www.who.int/topics/injuries/en>).

“Head Injury: Description” [http://www.seattlechildrens.org/child\\_health\\_safety/health\\_advice/head\\_injury.asp](http://www.seattlechildrens.org/child_health_safety/health_advice/head_injury.asp)

[http://en.Wikipedia.org/wiki/Head\\_injury](http://en.Wikipedia.org/wiki/Head_injury).

Basic Life Support: Resuscitation Council, UK. [www.resus.org.uk/  
pages/bls.htm](http://www.resus.org.uk/pages/bls.htm).

Standard First Aid Course. [www.unh.org/standardfirstaid/toc.html](http://www.unh.org/standardfirstaid/toc.html)

## **UNIT 5     WOUND**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Wound
  - 3.2 Clinical Features of Wound
  - 3.3 Classification of Wound
  - 3.4 Wound Healing
  - 3.5 Factors Influencing Healing of Wounds
  - 3.6 Wound Suturing
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

The course guide had introduced you to the unit which has helped you acquire understanding of wound and its basic components. The objectives below will also guide you in studying the unit.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term wound
- classify wound
- list and explain factors influencing the healing of a wound
- define wound suturing.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Wound**

A wound may be described as a disruption in the continuity of the body cell. It is an injury to living tissue caused by a cut, blow, or other impact. When a wound occurs, a variety of different effects or responses may follow.



### 3.2 Clinical Features of Wound

There will be immediate loss of all or parts of the functioning organ.

There may be haemorrhage and blood clotting.

There will be bacterial contamination leading to sepsis.

There will be death of the cells called gangrene.

### 3.3 Classification of Wound

**Incised wound:** This is a clean wound cut with a sharp object, e.g. surgical wound during operation.

**Contused wound:** This occurs through a blunt force. It is characterised by rupture of the small blood vessels; i.e. capillaries, haemorrhage and swelling as well as soft tissue injury.

**Lacerated wound:** The tissue is torn resulting in a rugged appearance; e.g. wound sustained from glass or barbed wire.

**Punctured wound:** This is a small perforation of the skin usually caused by sharp objects; e.g. bullets, knife stab, stepping on nails, etc.

**Cleaned wound:** Cleaned uninfected wound be closed by suturing to aid healing.

**Septic wound:** This contains bacteria and pus which may be extracted from the wound.

Some wounds are very small, that they can be adequately taken care of at home by the family but punctured wounds need adequate care and prophylactic immunisation to prevent tetanus.

### 3.4 Wound Healing

**Healing by 1st intention:** This occurs in minimal injury or incised clean wound that can be sutured, small amount of connective tissue filled the wound and it heals up within a week.

**Healing by 2nd intention:** This occurs in cases of wound involving a large tissue area which cannot be sutured, it may also be infected with pus. Healing is delayed until the pus is cleaned out, the connective tissues are laid down and when healing is completed, there is scar formation.

**Healing by 3rd intention:** This occurs when a previously sutured area breaks down and necessitates re-suturing of the wound. When healing occurs by this method, the scar formation is larger.

### 3.5 Factors Influencing Healing

**Age:** Healing of wounds occurs faster in young people than old people.

**Nutrition:** Adequate nutrition has a preventive effect on wound healing, high protein diet helps in tissue repair and growth, while Vitamin C helps in the formation of collagen which is necessary for wound healing.

**Hormonal Activity:** Certain hormones such as growth, aldosterone, steroids, and sex hormones tend to depress the healing process.

**Blood Supply:** Deficient blood supply and infection has a negative effect on healing. Inadequate blood supply causes inadequate nutrient to the tissue.

### 3.6 Wound Suturing

Recent clean cut (wound) will heal faster if the edges are brought together so that the cut (wound) stay closed. Suture a deep wound when it is less than 12 hours old and when it is very clean, through the following procedure:

- sterilise a suturing needle and a clean thread
- wash hand properly with clean water
- set up the requirement using aseptic technique
- inform the patient of what you want to do
- clean the wound area with antiseptic solution e.g. methylated spirit
- give local anesthetic iodine to the area to prevent pain
- make the first stitch in the middle of the wound and close it tightly
- make other stitches to close the whole open wound
- dress the wound with dressing and leave it for 5-7 days before removing the stitches.

### 4.0 CONCLUSION

In this unit, you must have learnt what wound is, you have also realised that wound is classified into 6 types; the healing process and factor affecting healing. You should at this point be able to master and practice on wound.

### 5.0 SUMMARY

This unit has focused on critical and common ailments in the society which is wound, its definition and components therein.

## **6.0 TUTOR-MARKED ASSIGNMENT**

1. Define the term wound.
2. Give the 6 classifications of wound.

## **7.0 REFERENCES/FURTHER READING**

‘WHO Disease and Injury Country estimates’ ([http://www.who.int/healthinfo/global\\_burden\\_disease/estimates\\_country/en/index.html](http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html)): World Health Organization 2009.

Anderson, R.N., “Deaths: Leading Causes for 1999.” National Vital Statistics Report, pp. 1- 87.

## **MODULE 3      COMMON EMERGENCY CONDITIONS**

Unit 1	Metabolic Emergency Diabetes
Unit 2	Cardiac Attack
Unit 3	Emergency Respiratory Condition
Unit 4	Peptic Ulcer
Unit 5	Peritonitis

### **UNIT 1      METABOLIC EMERGENCY DIABETES**

#### **CONTENTS**

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Diabetic Coma (Hyperglacaemic Coma)
3.1.1	Characteristics of Hyperglacaemic Coma
3.1.2	Causes
3.1.3	Clinical Features
3.1.4	Management
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

#### **1.0      INTRODUCTION**

Having read through the course guide, you would have acquired a general overview of the condition diabetes, this unit will further make you to understand what diabetes is.

#### **2.0      OBJECTIVES**

By the end of this unit, you should be able to:

- define the term diabetes
- explain the characteristics of hyperglacaemic coma
- state the clinical features of hyperglacaemic coma
- explain the management process.

### **3.0 MAIN CONTENT**

#### **3.1 Diabetic Coma (Hyperglacaemic Coma)**

This mainly affects insulin-dependent diabetes. Keto-acidosis develops owing to increased insulin requirement or increased resistance to insulin due to some added stress, such as pregnancy, microbial infection and cerebrovascular accident.

The inadequate supply of insulin may also be due to failure by the patient to administer the prescribed dose or inadequate adjustment of the prescribed dose to meet the increased needs.

##### **3.1.1 Characteristics of Hyperglacaemic Coma**

- Deep rapid gulping respiration
- Warm dry skin
- Drowsiness or unconsciousness
- Confusion or disorientation
- Stupor
- Lapse into coma
- Bad breath (smell)

##### **3.1.2 Causes**

- Acute infection and gastro-intestinal disorder
- Dietary indiscretion
- Consumption of high carbohydrates
- Lack of insulin therapy
- Undiagnosed diabetic mellitus

Diabetic coma occurs in uncontrolled diabetic; it develops more slowly than in hypoglycaemia usually over several days with signs of thirst (polyuria) glycosuria, and weakness.

The glucose in the blood cannot be used by the cells and fat is broken down to provide energy. The fat is metabolised and broken down rapidly producing ketone bodies in excess of the tissue cells ability to metabolise them. The acids and ketones accumulates in the blood, the patient's urine shows a high concentration of sugar and ketones.

The blood sugar is elevated, the sodium and chloride blood level are low, and there is dehydration.

### 3.1.3 Clinical Features

Profuse sweating  
Tremor  
Apprehension  
Hunger  
Weakness  
Tachycardia  
Palpitation  
In severe cases, faintness and dizziness  
Blurred vision  
Head ache  
Slow reaction  
Uncoordinated movement.

### 3.1.4 Management

The immediate care is directed towards stimulating the utilisation of glucose by the cells and decreasing the production of ketones bodies by the administration of insulin and correction of dehydration and electrolyte balance.

Treat causative disorders.

## 4.0 CONCLUSION

In this unit, you have learned what diabetes is and the components therein; you have also studied the characteristics and clinical features to enable you to also manage the disease. You should at this point be able to define diabetes in details.

## 5.0 SUMMARY

This unit has focused on the definition of diabetes as a chronic systemic disease characterised by hyperglacemia, its characteristics and clinical features. You should also be able to ensure effective management of diabetes.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the characteristics of hyperglacemic coma.
- 2a. List clinical features of hyperglacemia.
- b. Enumerate 2 critical management of hyperglacemia.

## **7.0 REFERENCES/FURTHER READING**

Diabetes Mellitus: WHO, [www.who.int/diabetes/facts/en/](http://www.who.int/diabetes/facts/en/).

Tutorial on Diabetes: NLM, USA. [www.nlm.nih.gov/medlineplus/tutorials/diabetesintroduction/htm/index.htm](http://www.nlm.nih.gov/medlineplus/tutorials/diabetesintroduction/htm/index.htm).

## **UNIT 2     CARDIAC ATTACK**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Heart Attack
    - 3.1.1 Clinical Features
    - 3.1.2 Management
  - 3.2 Stroke
    - 3.2.1 Clinical Features
    - 3.2.2 Types of Stroke
    - 3.2.3 Management
  - 3.3 Chronic Heart Failure
    - 3.3.1 Clinical Features
    - 3.3.2 Management
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

This unit will help you acquire the basic understanding of what cardiac attack is and its main components under the objectives below.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define heart attack and its components
- discuss stroke
- explain chronic heart failure
- state the management of stroke and heart attack.

### **3.0 MAIN CONTENT**

#### **3.1 Heart Attack**

This is an acute attack known as coronary thrombosis which is a blockage of the flow of blood to the heart, caused by a clot in a coronary artery.



Though the attack is sudden, it is the result of slowly developing hardening process of the coronary arteries which is known as arteriosclerosis.

Arteriosclerosis is the cause of most heart attacks and the accompanying chest pain known as angina pectoris. The arterial wall becomes rough and narrow due to fatty deposits which harden into patches along the inner lining of the arteries. A blood clot may be formed as a result of the narrowing and block channels, thus leading to less flow of blood to the heart. This results to heart attack otherwise called coronary thrombosis or coronary occlusion.

### **3.1.1 Clinical Features**

Painful sensation of pressure under the breast often lasting for hours.

Sudden intense shortness of breath.

Sweating.

Occasional loss of consciousness.

### **3.1.2 Management**

Make every effort to ensure that the victim relaxes so that the heart muscles will not tighten around the clot and further limit the passage of blood.

Unconsciousness may occur at any stage of the attack followed by cessation of respiration.

Manual or mechanical respiration should be administered at once.

Little can be done to relieve the severe chest pain which may be referred to the shoulder, arm and hand.

Analgesics can be given to relieve pain.

Apply a high concentration of oxygen because the shortness of breath can affect respiration, it can be applied by face mask or through a canula.

Ensure physical and emotional rest by patient to avoid stress on the heart.

## **3.2 Stroke**

This occurs when the blood supply to a part of the brain is cut off; this impairs the functions of certain nerves within the brain and also impairs the body functions controlled by the nerve. The effects may be slight or severe.

### 3.2.1 Clinical Features

- Unequal pupils of the eyes
- Victim may be conscious or not
- There may be partial or complete paralysis of one side of the body
- There is difficulty in speech, slurred speech
- Inability to work
- Loss of memory
- Cynosis
- Difficulty in breathing

### 3.2.2 Types of Stroke

- Cerebral haemorrhage or bleeding stroke
- Cerebral thrombosis or clot stroke

### 3.2.3 Management

- Elevate the head slightly
- Place cold cloth or ice bag on the head
- Do not move the patient more than necessary
- Do not give patient anything by mouth
- Avoid all stimulant
- Give oxygen by face mask
- If breathing stops, apply artificial respiration
- Ensure clear airway
- Keep victim warm but not too hot.

## 3.3 Chronic Heart Failure

This can be as a result of old age or a former heart condition that has weakened the heart.

### 3.3.1 Clinical Features

- Swollen feet
- Swollen hands
- Fluid retention in the tissue
- Continuous fatigue

### 3.3.2 Management

- Ensure rest and prevent strain

Anticipate patient needs and ensure it is within reach  
Give oxygen as victim exhibits hunger for oxygen  
Noisy respiration can be prevented with the use of inhalator and breathing gas  
Avoid exposure to cold  
Place patient in semi-recumbent position to improve lung ventilation  
Give sip of water and moisten his lip.

#### **4.0 CONCLUSION**

In this unit, you have learned what heart attack, stroke and chronic heart failure is and all their clinical features and management. You should at this point be able to define each condition and explain its management.

#### **5.0 SUMMARY**

This unit has focused on the definition of heart attack, stroke and chronic heart attack. You should also be able to refer to further reading on the unit.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Define the term heart attack.
- 2a. State the clinical features of stroke.
- b. Mention the management of heart failure.

#### **7.0 REFERENCES/FURTHER READING**

Anderson, R.N. (2001). *Deaths: Leading Causes for 1999*. National Vital Statistics Reports.

“The World Report on Violence and Health.” Geneva: World Health Organization, Violence and Injury Prevention 2002.

## **UNIT 3      EMERGENCY RESPIRATORY CONDITION**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Respiratory Conditions
  - 3.2 Asphyxia
  - 3.3 Cardio-Pulmonary Resuscitation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Respiratory conditions are of great importance in understanding and dealing with health emergencies. In this unit, you will acquire the basic understanding of respiratory obstructions, asphyxia and cardio-pulmonary resuscitation.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define respiratory obstruction
- explain asphyxia
- state cardio-pulmonary resuscitation.

### **3.0 MAIN CONTENT**

#### **3.1 Respiratory Conditions**

Respiration or breathing is a process by which oxygen passes from the air into the lungs while carbon dioxide as waste product is expelled. Respiration involves the production of energy, typically with the intake of oxygen and the release of carbon dioxide from the oxidation of complex organic substances. This gaseous exchange takes place in the lungs; the air we breathe consists of 20 % oxygen while the air we breathe out consists of 16 % oxygen.

This accounts for the effectiveness of the expired air methods of artificial resuscitation. When respiration is impaired, there is lack of oxygen to the lungs and if this continues without relief, death can occur.

### 3.1.1 Respiratory Obstruction

This is one of the most common respiratory emergencies; the cause must be removed quickly and promptly before any measure can be effective.

### 3.1.2 Causes of Respiratory Obstruction

Foreign body blocking the airway, e.g. vomitus, mucus, trinkets, food and water that enters the trachea instead of the oesophagus.

Swollen vocal cords.

Tongue blocking the airway when it falls backward into the pharynx in an unconscious patient.

### 3.1.3 Clinical Features

Great effort by the patient to breathe in

Restlessness

Head thrown back

Bulging eyes

Impartial obstruction, some air may be felt or heard coming from the victim's mouth

Complete obstruction, no air is felt entering or leaving, the abdomen bulges as the diaphragm contracts downward in an attempt to breath

There may be depression above the collar bone which is the clavicle; this sign indicates great danger to life.

### 3.1.4 Management

Determine quickly the cause of obstruction. Make sure that it is removed or relieved at once. Then start immediate resuscitation if breathing has ceased or stopped or is irregular.

Do not attempt to remove pieces of food or other objects from the airway with finger unless they are at easy reach, to prevent it being pushed further in.

If the patient is a child, turn him down and strike one or more blows on his back, between the shoulder blades, this will dislodge the object.

In the case of an adult, lie him face down in a prone position on a table or a bed with the entire body above the waist hanging over the side of the bed or table.

If this method fails to dislodge the object, begin mouth-mouth resuscitation with the hope of getting some air past the obstruction.

Transport victim quickly to the hospital for emergency opening of the trachea.

If victim is unconscious, the obstruction could be vomitus or large bit mucus.

Use suction equipment if available.

## **3.2 Asphyxia**

Is a condition caused by lack of oxygen and excess of carbon dioxide in the lungs, blood and organs of the body. This condition can lead to unconsciousness or death if not quickly resolved.

### **3.2.1 Cause of Asphyxia**

Blockage of airway due to foreign body or spasm of the larynx or bronchial muscle, as in the case of asthmatic attack.

Disease of the lungs in which the air alveoli are been filled by inhaled exudates from pneumonia or water.

Inhaled vapour or gas which replaces air, the victims drown in vapour or water.

Drowning in which water rushes into the lungs.

Paralysis of the respiratory system.

Pneumo-thorax.

There is also a condition of congenital or neonatal asphyxia arising from obstruction or paralysis of the airway; in this case the airway fails to expand when the baby is born.

### **3.2.2 Prevention and Management**

In unconscious patient, control the tongue by putting it forward and lifting the mandible forward to prevent the tongue from falling back.

Put the patient in prone position or semi-prone to ensure that no fluid can be collected in the pharynx or be aspirated into the trachea.

Suction to remove mucus, blood or other bacteria which has accumulated into the throat.

Give artificial respiration in sudden arrest of respiration by interference with the vital centers in the brain stem as in electric shock, cerebral concussion and drowning.

Tracheotomy is performed if the throat cannot be kept clear.

### **3.3 Cardio-Pulmonary Resuscitation**

This is a general term which covers all measures taken to restore life or consciousness to one who is apparently “dead”. These include artificial respiration, to restore breathing and closed chest cardiac massage to restore cardiac action.

#### **3.3.1 Mouth to Mouth Resuscitation**

This depends on the inflation of the victim’s lungs with the expelled breath of the rescuer. Any revulsion which may be felt against this mouth to mouth or mouth to nose method is overcome by placing a thin handkerchief over the patient’s mouth and nose, but in emergency situations, rescuers don’t usually think of fitness.

#### **3.3.2 Methods of Mouth to Mouth Resuscitation**

Place the victim on his back on a hard surface immediately.

Waste no time in moving the patient to a better location.

Loosen clothing at the neck and waist or drain the lungs of water since resuscitation should be started within 4 minutes after patient has stopped breathing.

Quickly clear the mouth and throat of any mucus, food, blood or other obstructions.

Tilt the head back as far as possible.

Place the top of the head in such a way that is tilted backward with the neck stretched.

Lift the lower jaw forward but be careful not to depress the tongue.

Pinch the nose to prevent air leakage.

Open your mouth wide.

Take a deep breath.

Seal your lips over those of the victim and blow forcefully until you see the chest rise.

Give four deep breaths without allowing time for full lung deflation between breaths.

Listen for exhalation, quickly remove your mouth from the patient’s mouth and allow him to exhale passively when the chest rises.

If the victim makes snoring sound, it means the jaw is high enough or well tilted, this indicate that the airway is not clear.

Repeat the cycle every 3 seconds until the victim begins to breathe normally.

Remove air blown into the victim's stomach periodically by firmly pressing on the upper abdomen with your hand.

Clean out the mouth and the throat if vomitus occurs.

In infants or young children, open your mouth wide and take a deep breath, place your mouth over both the mouth and nose of the victim and blow gently into his lungs until the chest rises.

Then remove your mouth until the chest falls.

If the heart is beating normally, continue with the artificial respiration until natural breathing is restored.

If the heart is not beating, place the patient on his back and start external cardiac massage.

### **3.3.3 Steps to External Cardiac Massage**

Locate the pressure point at the lower part of the sternum just above the point where it meets the soft abdomen.

Place yourself at one side of the patient and apply the heel of your hand over the pressure point, the other hand is placed heel down on top of the first hand.

Apply firm heavy pressure downwards using your entire body weight; the heart must be well compressed to facilitate an adequate circulation of blood. This forceful compression will pinch the heart between the sternum and the vertebrae column.

Hold the compression for about  $\frac{1}{2}$  a second, then release it rapidly, re-apply pressure once every second or at a slightly faster rate.

With small children from 2-10 years of age only one hand may be required for external cardiac compression. With infants, the child's chest may be compressed with the thumb holding the child within the two hands.

Since the amount of circulation produced by external cardiac massage is only 40-50% normal, every pause in the process will cause the victim's oxygen supply to fall.

If one person has to perform both the mouth to mouth resuscitation as external cardiac massage at the same time, immediately ventilate the lungs three times and shift position slightly to apply heart compression 15 times at the rate of one beat per second, continue this cycle until you are able to get help.

### **3.3.4 Points to Note in Successful ECM**



The colour of the patient will improve.

The pupils will become smaller.

The pulsation of the carotid or femoral artery becomes stronger.

#### **4.0 CONCLUSION**

In this unit, you have learned what respiratory obstruction, asphyxia, and cardiopulmonary resuscitation are, their clinical features and management. You should on your own read further on these conditions.

#### **5.0 SUMMARY**

This unit has focused on the definition of respiratory obstruction as one of the most common respiratory emergencies. Asphyxia is lack of oxygen and excess carbon dioxide in the lungs, while cardio-pulmonary resuscitation is the measure taken to restore life or consciousness to a patient.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Define cardio-pulmonary resuscitation.
2. Enumerate the points to note for successful cardiac massage.
3. Explain the causes of asphyxia.
4. State the clinical features of respiratory obstruction.

#### **7.0 REFERENCES/FURTHER READING**

Anderson, R.N. (2001) *Deaths: Leading Causes for 1999*. National Vital Statistics Reports.

“The World Report on Violence and Health.” (2002) Geneva: World Health Organization, Violence and Injury Prevention.

## **UNIT 4 PEPTIC ULCER**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Definition of Peptic Ulcer
    - 3.1.1 Classification of Peptic Ulcer
    - 3.1.3 Types of Peptic Ulcer
    - 3.1.4 Clinical Features
    - 3.1.5 Complications
    - 3.1.6 Diagnosis
    - 3.1.7 Management
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Having gone through the course guide, you would have acquired a general overview of what peptic ulcer is. This unit will further help you acquire understanding of peptic ulcer as indicated in the objectives below.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term peptic ulcer
- explain the types of peptic ulcers
- mention the clinical features of peptic ulcer
- state the management of peptic ulcer.

### **3.0 MAIN CONTENT**

#### **3.1 Definition of Peptic Ulcer**

Peptic ulcer also known as *ulcus pepticum*, or peptic ulcer disease (PUD) is defined as mucosal erosions equal to or greater than 0.5cm of an area of the gastrointestinal tract that is usually acidic and thus extremely painful. Ulcers can also be caused or worsened by drugs such as aspirin, Non-Steroid Anti-Inflammatory Drugs (NSAID). Contrary to general belief, more peptic ulcers arise in the duodenum (first part of the small intestine, just after the stomach) than in the stomach.

### 3.1.1 Classification of Peptic Ulcer

Stomach (called gastric ulcer)

Duodenum (called duodenal ulcer)

Oesophagus (called oesophageal)

### 3.1.2 Types of Peptic Ulcer

- Type I: Ulcer along the lesser curve of stomach
- Type II: Two ulcers present-one gastric, one duodenal
- Type III: Prepyloric ulcer
- Type IV: Proximal gastro esophageal ulcer
- Type V: Anywhere along gastric body.

### 3.1.3 Clinical Features

Abdominal pain, classically epigastric with severity relating to mealtimes, after around three hours of taking a meal (duodenal ulcers are classically relieved by food, while gastric ulcers are exacerbated by it).

Bloating and abdominal fullness.

Water brash (rush of saliva after an episode of regurgitation to dilute the acid in oesophagus).

Nausea, and copious vomiting

Loss of appetite and weight loss

Hematemesis (vomiting of blood): This can occur due to direct bleeding from a gastric ulcer or damage from the oesophagus as a result of severe/continuing vomiting.

Melena (larry foul-smelling faeces due to oxidised iron from hemoglobin).

Rarely, an ulcer can lead to a gastric or duodenal perforation. This is extremely painful and requires immediate surgery.

**NOTE:** A history of heart burn, gastro oesophageal reflux disease (GERD) and use of certain forms of medication can raise the suspicion of peptic ulcer. Medicines associated with peptic ulcer include Non-Steroid Anti-Inflammatory Drugs (NSAID) that inhibits cyclooxygenase, and most glucocorticoids (e.g. dexamethasone and prednisolone). The timing of the symptoms in relation to the meal may differentiate between gastric and duodenal ulcers. A gastric ulcer will give epigastric pain during the meal, as gastric acid is secreted, or after the meal, as the alkaline duodenal contents reflux into the stomach. Symptoms of duodenal ulcers will manifest mostly before the meal -

when acid (production stimulated by hunger) is passed into the duodenum.

### **3.1.4 Complications**

- Gastro intestinal bleeding
- Perforation
- Penetration
- Gastric outlet obstruction
- Pyloric stenosis

### **3.1.5 Diagnosis**

- Endoscopy
- Stool antigen test
- Histological examination
- Urea breath test

### **3.1.6 Management**

- Give anti- acids
- Bismuth subsalicylate
- Surgical procedures

## **4.0 CONCLUSION**

In this unit, you have learned that peptic ulcer occurs as a result of mucosal erosion due to gastric acidity. You have also learnt about its types and clinical features with expected management.

## **5.0 SUMMARY**

This unit has focused on the definition of peptic ulcer, its complications, diagnosis and management.

## **6.0 TUTOR-MARKED ASSIGNMENT**

- 1 Define the term peptic ulcer.
- 2a. State the clinical features of peptic ulcer.
- b. Enumerate complications of peptic ulcer.

## 7.0 REFERENCES/FURTHER READING

“Ulcer, Diagnosis and Treatment” – CDC Bacterial, Mycotic Diseases  
<http://www.cdc.gov/ulcer/history.htm>).

“Atlas of Pathology” ([http://www.pathologyatlassro/chronic\\_peptic\\_ulcer.php](http://www.pathologyatlassro/chronic_peptic_ulcer.php))

“Gastric Ulcer” (<http://rad.usuhs.edu/medpix/parent.php3?mode=pt-finder&srchstr=gastric%20ulcerhtop>)

## **UNIT 5 PERITONITIS**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Peritonitis
  - 3.2 Causes of Peritonitis
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Having gone through the course guide and acquired a general overview of the condition peritonitis, this unit will further assist you to understand what peritonitis is.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define the term peritonitis
- explain the clinical features of peritonitis
- state the causes of peritonitis
- discuss the management of peritonitis.

### **3.0 MAIN CONTENT**

#### **3.1 Peritonitis**

Is an inflammation of the peritoneum, the serious membrane which lines part of the abdominal cavity and viscera. Peritonitis may be localised or generalised, and may result from infection or non-infectious process.

##### **3.1.1 Clinical Features**

- Acute abdominal pain
- Abdominal tenderness
- Abdominal guarding
- Fever
- Sinus tachycardia
- Nausea and vomiting.

### 3.1.2 Complications

Sequestration of fluid and electrolytes, as revealed by decrease venous pressure may cause electrolyte disturbance, as well as significant hypovolemia, possibly leading to shock and acute renal failure.

A peritoneal abscess may form e.g. above or below the liver, or in the lesser sac.

Sepsis may develop so blood cultures should be obtained.

The fluid may push on the diaphragm causing splinting and subsequent breathing difficulties.

### 3.1.3 Diagnosis

Abdominal X-ray

Stool examination

Laparoscopy

## 3.2 Causes of Peritonitis

### 3.2.1 Infected Peritonitis

Perforation of part of the gastrointestinal tract is the most common cause of peritonitis, e.g. oesophagus, peptic ulcer, gastric carcinoma.

Disruption of the peritoneum: Even in the absence of perforation of a hollow viscus, may also cause infection by letting micro-organisms into the peritoneal cavity, e.g. trauma, surgical wound, continuous ambulatory peritoneal dialysis, intra-peritoneal chemotherapy, candida, etc.

Intra-peritoneal dialysis predisposes to peritoneal.

Infection

Spontaneous bacterial peritonitis: Is a peculiar form of peritonitis occurring in the absence of an obvious force of contamination in patients with ascetics.

Systemic infections (such as tuberculosis) may rarely have a peritoneal localisation.

### 3.2.2 Non-Infected Peritonitis

Leakage of sterile body fluids into the peritoneum such as blood (e.g. endometriosis, blunt abdominal trauma), gastric juice (e.g. peptic ulcer, gastric carcinoma), bile (e.g. liver biopsy), urine (pelvic trauma), menstrum (salpingitis), pancreatic juice (pancreatitis), or even the contents of a ruptured dermoid cyst.

**Sterile Abdominal Surgery:** Normally causes localised or minimal generalised peritonitis, which may leave behind a foreign body reaction and/or fibrotic adhesion. Obviously, peritonitis may also be caused by the rare, unfortunate case of a sterile foreign body inadvertently left in the abdomen after surgery (e.g. gauge, sponge).

Much rare non-infectious causes may include familial Mediterranean fever, porphyria and systemic lupus erythematosus.

### 3.3 Treatment of Peritonitis

General supportive measures such as vigorous intravenous and correction of electrolyte disturbances.

Antibiotics are usually administered intravenously.

Surgery (laparoscopy).

## 4.0 CONCLUSION

In this unit, you have learned what peritonitis is, its clinical features; complications and management.

## 5.0 SUMMARY

This unit has focused on the description of peritonitis as inflammation of the peritoneum with its clinical presentations, diagnosis and complication. You should be able to describe peritonitis in your words.

## 6.0 TUTOR-MARKED ASSIGNMENT

1. Define the term peritonitis.
- 2a. Enumerate the clinical features of peritonitis.
- b. State the complications of peritonitis.

## 7.0 REFERENCES/FURTHER READING

“Biology Online’s Definition of Peritonism” [http://www.biology\\_online.org/dictionary/peritonism](http://www.biology_online.org/dictionary/peritonism)). [http://www.biology\\_online.org/dictionary/peritonism](http://www.biology_online.org/dictionary/peritonism). Retrieved 2008-08-14.

“Peritonitis Emergencies: Merck Manual Home Edition” (<http://www.merck.com/mmhe/S6C09/ch132/ch132g.html>).

“Peritonitis” (<http://www.healthsquare.com/mc/fgmc9043.htm>) at Health Square.com.