DIPLOMA IN REGISTERED NURSING

eLEARNING TRAINING PROGRAM

Course Title: Fundamentals of Nursing

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COURSE INTRODUCTION

Welcome to the Fundamentals of Nursing course. This course forms the foundation of nursing practice and it is designed to equip you with knowledge and skills which will assist your practice on the ward and community. This course prepares you to be a critical thinker, client advocate, clinical decision maker, and client educator. Fundamentals of Nursing cover the concepts (ideas) and models (theoretical way of understanding an idea) that will guide you in planning the nursing care of the client. The concepts or ideas taught in these models will assist you understand issues related to illness, wellness, disease, health seeking behaviour and health practice. The subject also introduces you to basic skills that enables you to provide quality nursing care.

The course starts by describing the organisation and function of the hospital and community and roles of various members of the healthcare team. It continues by looking at the nurse in the health care system, health perception and systems. You will also look at nursing theories, models and interactive process in patient care.

The course will further help you understand the importance of providing a safe environment for the patient and what you will do when admitting the patient to the health facility and what kind of nursing care you will provide to terminally ill patients.

In conclusion, the course will further provide you with skills that will enable you to apply First Aid in attending to emergencies.

Some of the information you will come across is very similar to with what you learned during high school and you are encouraged to consult extra reference materials in order for you to understand new words.

COURSE OBJECTIVES

By the end of the course you should be able to;

1. Describe the organization and functions of the hospital and community and roles of various members of the health care team.
2. Perform basic nursing procedures.
3. Use the nursing process to develop a nursing care plan.
4. Document and interpret information correctly.
5. Apply nursing theories and models in client care.
6. Identify situations requiring first aid management
7. Utilize first aid knowledge and skills in the management of emergency situations.
8. Explain the grieving process.
9. Describe the procedure for care of the body after death

COURSE CONTENT

The course has nine (9) main units as follows:

Unit One: The Nurse in the healthcare setting
In this unit you will be required to define key terms that are used in nursing; describe the nursing philosophy, the role of the nurse in the hospital and community setting. This unit also looks at the organisation and functions of the hospital and community setting. The purpose of this unit is to make you understand that as a nurse you will play a critical role of coordinating the efforts of the other team members for the common purpose of the patient, family and community.

Unit Two: Health Perceptions
In this unit you will come across the concepts of health, wellness, illness and you will be able to describe illness behaviour. Read these concepts with interest.

Unit Three: Healthcare Systems
This unit will help you in understanding the negative and positive factors that influence health care services. You will be able to identify the different cadres of health personnel that provide care to the patient in the hospital. In this section you also be able to explain the individual's rights to care and the problems being faced in healthcare delivery system and the challenges for the future. You will be able to go through the organisation of healthcare system in Zambia

Unit Four: Theories, nursing models and interactive process
In this unit, you will be oriented to the various nursing theories and models that guide nursing practice. You will learn how to apply the nursing process as a tool that will assist you in the management of the clients and patients. You will learn how to communicate effectively with patients and document your work. This unit will make you understand why continuous documentation is very cardinal in the provision of care in the hospital and community.

Unit Five: Provision of safe environment
In this unit you will learn what constitutes the patient's unit and what you must do in caring for the ward, equipment and linen. You will learn how to prevent infection on the ward, how to make different types of hospital beds and what body mechanics and or postures you must adopt as you provide care to patients.

Unit Six: Reception and needs of the client
In this unit you will learn how to receive patients to the ward, conduct assessments of the patient's health status and determine the patient's needs and meet them accordingly. This unit will introduce you to skills that enable you take patient's temperature, pulse, respiration and blood pressure.
You will also learn how to assist patients in achieving their basic needs such as hygiene, mobility, nutrition, respiration, exercise and sleep. Furthermore, learn how to manage selected signs and symptoms. Some of the terms you will be required to know in this section are words such as hypothermia, unconsciousness and you will be able to go through what diarrhoea, nausea and vomiting is respectively. Later in this unit you will learn how to plan for transfer, discharge and referral of a client.

Unit Seven: First Aid
This section will expose you to the aims and principles of First Aid. You will learn the different types of bandaging techniques and splinting. In this section you will also learn the different methods of lifting and transportation of casualties to the nearest appropriate healthcare provider.

Unit Eight: Emergencies
In this unit you will learn skills of how you will be able to assist casualties with emergencies such as asphyxia, cardiac arrest, spinal and chest injuries and others. Further you will learn how to provide assistance to a client who is fitting due to epilepsy, experiencing fainting and heat exhaustion.
You will also learn how to prevent fire on the ward, apply skills of how to evacuate patients from the ward during fire outbreaks (fire drills). This unit will further assist you in understanding the causes of poisoning and how to manage patients with poisoning. It will also look at corrosive, strong acids and alkaline substances.

Unit Nine: Death and Grief
In this unit you will acquire knowledge on theories of grief, factors influencing grief. You will further look at death and dying, how to care for the terminally ill and dying patient. You will also learn how to care for the grieving family, grieving nurse and also how to take care of the body after death.

ASSESSMENTS

1. You will be expected to write and submit a mid-course assignment and end of course assignment which will constitute 40% of your continuous assessment.
2. You will be expected to write a theory paper at the end of year 1 which constitutes 40%
3. You will be required to do an end of year practical examination which constitutes 20%

How long will the course take?

Fundamentals of Nursing will take you 10 weeks to finish

You will be required to do a number of activities, self-help questions and case studies
Further you will be required to visit the skills lab at your nursing college to practice the various procedures that are in your procedure manual book.

READINGS

You are required to read widely following the course syllabus or outline and objectives. The following are some of the reference books you may find helpful.

Ministry of Health, (1995) Health Management Information Systems, Lusaka.

Ngugi. E.N, (1984) Practical Notes on Nursing Procedures, African edition, Churchill Livingstone, London.

Potter P. and Perry A, (2009) Fundamentals of Nursing, 7th edition, MOSBY, Canada.

UNIT I: THE NURSE IN THE HEALTH CARE SETTING

1.1 Unit introduction

Welcome to this unit of the course. This unit forms the foundation of the whole course and all other subsequent units act as building blocks that will finally form a complete whole course.

As explained earlier, the learning materials you will come across in this unit will help you to define key terminologies that are used in Fundamentals of Nursing; describe the nursing philosophy, the role of the nurse in the hospital and community setting. This unit goes to look at the organisation and functions of the hospital and community health services.

This unit is important for you to pay attention to as it explains your role as a nurse. The nurse is responsible for obtaining and maintaining specific knowledge and skills for a variety of professional roles and responsibilities. In the past the nurse's main role was to provide care and comfort when completing specific nursing functions. However, changes in nursing have expanded the professional nursing role to include increased emphasis on health promotion and illness prevention as well as concern for the client as a whole.

The health care system in Zambia generally offers disease prevention, health promotion and primary, secondary and tertiary heath care services in a variety of health care settings. Nurses are especially important as client advocates in maintaining continuity of care throughout the levels of care.

At the end of this unit, you are expected to acquire knowledge and understanding on the organisation and functions of the healthcare system in Zambia.

1.2 Unit Objectives

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

1. Define the key terms related to nursing.
2. Describe nursing philosophy
3. Describe the organization and functions of the hospital and community health services.
4. Describe the roles of the nurse
5. Describe the nurse and the health care team in the hospital and the community settings.

1.3 Definition of Terms

The Nurse

A nurse is an individual who has completed a basic programme of nursing education and is qualified and authorized in his/her country to practice as a nurse (Ngugi 1984:18). In Zambia for one to practice nursing, he/she must be registered with General Nursing Council of Zambia (GNC).

Nursing

Virginia Henderson defines nursing as 'assisting the individual (sick or well) in the performance of those activities contributing to the health or its recovery (or to a peaceful death) that he would perform unaided if he/she had the

necessary strength, will or knowledge and doing it in such a way as to help him gain independence as rapidly as possible (Henderson, 1966).

The term nursing is derived from a Latin word 'Nutricus' which simply means to nature. Therefore, nursing is an art and science drawn from biological, social as well as behavioural sciences in rendering care to individuals, families and the community.

Nursing Practice

- It is any treatment or action based upon clinical judgement and knowledge that nurses perform to enhance patients outcomes which are designed to assist the client in moving from the present level of health to that which is described in the goal and measured by the expected outcome (Potter and Perry, 2005)
- It is the sharing of responsibility for the health and welfare of all people in the community and participating in programmes designed to prevent illness and maintain health.
- It is coordinating and synchronizing medical and other professional and technical services that affect patient care. It is supervising, teaching and directing all those involved in nursing care.

Fundamentals of Nursing

- This is the course that covers the basic principles and practices of nursing which emphasizes the importance of the fundamental needs of humans as well as competence in basic skills as prerequisites to providing comprehensive nursing care (Mosby, 2009).
- It is a course that comprehensively covers the nursing concepts, skills and techniques of nursing practice. It provides a contemporary approach to nursing practice, discusses the entire scope of primary, acute and restorative care.

1.4 Nursing Philosophy

Nursing philosophy is 'a vision for how nursing should be practiced. It should inspire the soul and be something which all staff members are proud of' (Hansten and Washburn, 1999).

A philosophy is a statement of beliefs and values which motivates action in a certain way. As you can see, even in your normal life, you have a personal philosophy that guides your life.

Philosophy guides behaviour of how to go about with different activities as an individual, family, institution, profession or even a country. Philosophy is expressed in form of statements of beliefs and values regarding life and reality for example, the importance of man regardless of ethnicity and colour

Beliefs: These are ideas that one accepts as true; they may be expressed by such things as decisions, opinions and creed.

Values: These are standards for decision making that endure for a significant time in one's life. They are abstract ideas that have four (4) basic parts; thinking, choosing, feeling and behaving

Value system: It is an enduring set of principles and rules organized into a hierarchy. When choosing between alternatives and making decisions, value systems help people decide which values are most important. Different theories and concepts are used to define and interpret nursing philosophy. The nursing philosophy also involves the beliefs and values of the nation. For example, the current philosophy was written in the second republic when Zambia was a humanistic country (believed in humanism). However, even these theories are derived from the standards of nursing formulated from the standards of the nurse ethics and etiquette.

The international council of nurses formulated some of these standards. The fundamental responsibility of the nurse is four fold:-

a) To conserve life
b) To alleviate suffering
c) To promote health
d) To prevent disease and disability

The philosophy for the schools training nursing

The members of staff for registered nursing schools believe that all nursing activities are cantered on man. This simply means nursing should be directed towards meeting man's needs.

We believe that the program to train registered nurses should be oriented towards meeting comprehensive needs of all people regardless of age, colour, race, creed or social status.

We believe that nursing is an art and science which draws from biological, social and behavioural sciences in rendering of care to individuals, families and communities.

We believe that the registered nurse should use the nursing process as a tool for nursing practice. We believe that public health care is a strategy to provide care to all.

We believe that the program should emphasize the role of a registered nurse optimally in the health care services of the Zambian community.

We also believe that the fundamental responsibility of the nurse is to promote health, educate the individual, families and community to prevent disease and disability in order to restore health and alleviate suffering.

We believe that despite the shortage of manpower, essential facilities and equipment, social and cultural factors, nurses should continue to improve and render effective nursing care to individual families and communities in meeting their needs.

We believe that learning is an active and continuous process and that teaching should be learner oriented.

Finally, we believe that registered nurse curriculum forms the basis of professional nursing and the student of this program should assume responsibilities for his or her personal and professional development and that he or she should be guided by the staff towards the attainment of this goal.

Self-assessment questions

Define the following terms;

a. Nurse

b. Nursing
c. Nursing practice
d. Fundamentals of nursing
e. Nursing philosophy

Answers

a. A nurse is an individual who has completed a basic programme of nursing education and is qualified and authorized in his/her country to practice as a nurse. (Ngugi, 1984: 18). In Zambia for one to practice nursing, he/she must be registered with General Nursing Council of Zambia (GNC).
b. Virginia Henderson defines nursing as 'assisting the individual (sick or well) in the performance of those activities contributing to the health or its recovery (or to a peaceful death) that he would perform unaided if he/she had the necessary strength, will or knowledge and doing it in such a way as to help him gain independence as rapidly as possible
c. It is the sharing of responsibility for the health and welfare of all people in the community and participating in programmes designed to prevent illness and maintain health.
d. It is a course that comprehensively covers the nursing concepts, skills and techniques of nursing practice. It provides a contemporary approach to nursing practice, discusses the entire scope of primary, acute and restorative care.
e. Nursing philosophy is 'a vision for how nursing should be practiced. It should inspire the soul and be something about which all staff members can be proud'

1.5 Organization and functions of the Hospital and Community Health Services

Now that we have finished looking at various definitions and nursing philosophy above, let us proceed and discover some more interesting terms that you will come across during your nursing practice. You do not have to memorise these definitions.

Hospital
This is an institution whose main function is to care for the sick and injured people. It is composed of patients, nursing staff, doctors and the members of the health team.

The Patient
The patient is a person who is undergoing treatment or is ill.

Client
The client is an individual registered with the medical institution and seeking assistance from the hospital whether ill or not.

Health care team
It is a group of health care providers who work together for the benefit of the patient for example Doctors, nurses, cleaners among others. The centre of the team is the patient and his family.

Role of the hospital is to;

a) Diagnose disease or injury quickly and accurately.
b) Curing disease or injury with minimal discomfort, cost and residual disability.
c) Alleviating suffering when cure is not possible; and helping those with terminal illness to die peacefully and with dignity.
d) To carry out research.
e) Promoting positive health.

The hospital has various departments which carry out varying functions such as:

Administration: This is the governing body of the hospital. It is like the school administration. So for the hospital, all the heads of departments make up what is called administration.

Accounts Department: This handles financial transactions for the hospital, patients and hospital workers.

Radiology: This is a diagnostic department of the hospital which does radiological investigations such as X-rays, ultra sound scan, MRI, among others.

Laboratory: This is a diagnostic department of the hospital which does various investigations such as hematology (blood tests), parasitology (stool, urine and blood tests), bacteriology and virology.

The Chaplaincy Department: This department provides spiritual care to patients and personnel.

Catering Department: This department is responsible for the preparation of appropriate and prescribed meals for patients

Housekeeping: This is a department that is responsible for the general cleanliness of the hospital.

Maintenance Department: This is a department that is responsible for maintenance of hospital equipment and buildings.

Laundry Department: This is a department that is responsible for washing and repairing of hospital linen and ensures that wards have adequate supplies.

Pharmacy Department: This is the department responsible for ordering, preparation and dispense of prescribed drugs and medical supplies to patient/clients/wards.

Purchasing and Stores Department: This is a department that is responsible for buying hospital requirements such as food, medicines, stationery among others. It also ensures that the hospital has adequate stocks all the time.

Medical Records Department: This is the department which takes care of all patients' records and other official essential hospital records.

Central Sterile Supply Department (CSSD): This department is responsible for sterilizing and distribution of sterile supplies and equipment to the wards and operating rooms (theatres).

Physiotherapy Department: This department treats patients by means of physical agents such as heat, water or exercises. For example people who have broken their limbs may need to be assisted in learning how to walk again.

Social Services Department: This is the department that attends to patients that require social aid.

Intensive Care Unit (ICU): It is a unit in the third level hospitals that cares for critically ill patients who require critical support.

Self-Test Questions

1. List any four roles of the hospital
2. Mention any five departments found in the hospital

Answers

Question 1

- Diagnose disease or injury quickly and accurately.
- Curing disease or injury with minimal discomfort, cost and residual disability.
- Alleviating suffering when cure is not possible; and helping those with terminal illness to die peacefully and with dignity.
- To carry out research.
- Promoting positive health.

Question 2

- Administration
- Accounts Department
- Radiology
- Laboratory
- Chaplaincy department
- Catering Department
- Housekeeping
- Maintenance Department
- Laundry Department
- Pharmacy Department
- Purchasing and Stores Department
- Medical Records Department
- Central Sterile Supply Department (CSSD)
- Physiotherapy Department
- Social Services Department
- Intensive Care Unit (ICU)

Activity

Think about the roles of a nurse that you know and write them down in your note book.

Congratulations for completing this activity now compare your answers with the following content. .

1.6 The Role of the Nurse

The nurse wears a lot of names depending on what function one is performing.

These include;

Care Giver
He/ she helps client regain health through the healing process by meeting all health care needs of the client such as measures to restore physical, emotional, spiritual and social well-being. She provides individualised nursing care for specific clients and their families, (Potter and Perry, 2009: 38).

Decision Marker
Nurse uses decision making skills throughout the nursing process depending on her/his assessment of patients' needs or problems.

Client Advocate
The nurse speaks for the patients and other vulnerable groups. The nurse also assists the clients and their families to interpret information from other care providers

Protects client's human and legal rights and provide assistance in asserting those rights if need arises, (Potter and Perry, 2009)

Educator
Explains to clients' concepts and facts about health, demonstrates procedures for example self-care activities, determines that client fully understands, reinforces learning or client's behaviour and evaluates progress in learning.

Communicator
Communication is important to the nurse - client relationship. Therefore, Nursing involves communication with clients and families to identify their strengths and weaknesses, their needs and their fears. With communication, it is possible for the nurse to give care, comfort and emotional support.

Manager
As managers, nurses coordinate and delegate care responsibilities and supervise other health care workers in delivering quality nursing care.

Rehabilitator
Nurses help clients cope with life style changes associated with chronic illness or physical impairment. For example a nurse can assist in teaching the client on how to use physical devices such as clutches.

Counsellor
In counselling, the nurse helps clients identify and clarify health problems and help them choose appropriate courses of action to solve their problem. As a counsellor, the nurse is responsible for providing information, listening objectively, being supportive, caring and trustworthy. She/he does not make decisions but helps client reach decisions that are best for them.

Collaborator
As a collaborator, the nurse works in a combined effort with all those involved in care delivery in seeing to it that mutually acceptable plans are achieved to meet the common goals.

Epidemiologist

The nurse is involved in case finding, health teaching and tracking incident rates of an illness. For example the nurse follows up a case of tuberculosis in the community.

Change agent
As a change agent, the nurse is involved in identifying and implementing new and more effective approaches to problems. She/he empowers individuals and their families to creatively solve problems or become instrumental in creating change within a health institution.

Consultant
The nurse can provide expert advice to other health care providers as well as clients and their families

Self-Test Questions

Match the following roles of the nurse in column 1 with the appropriate description in column 2.

Column 1.	**Column 2.**
1. Client Advocate	a) Determines that client fully understands
2. Educator	b) Protects client's human and legal rights
3. Counsellor	c) Nurses coordinate and delegate care responsibilities
4. Communicator	d) Helps clients identify and clarify health problems
5. Manager	e) Involved in case finding and health teaching
	f) Nurse - client relationship

Answers
1-b
2-a
3-d
4-f
5-c

Well done for completing the above topic and the self- test questions. Now we will look at the nurse and health care team in the hospital and the community setting.

1.7 The Nurse and health care team in the hospital and the community setting

The Nurse and health care team in the hospital
As we cover the subunit, it is important to define what a health care team is**;**

Health care team: is a group of health care providers who work together for the benefit of the patient for example Doctors, nurses, physiotherapists, nutritionist, radiographers among others. The Centre of the team is the patient and his family.

Therefore, the nurse does not work in isolation. There are other members who are not nurses who contribute to the effective management of the clients. The members of the multi -disciplinary team in the hospital set up include the following:

- Medical doctors: These are responsible for screening the patients, prescribing drugs and carrying out both medical and surgical procedures
- Laboratory technicians: They examine specimens in order to come up with the right diagnosis
- Physiotherapists: They treat patients by means of physical agents such as heat, water or exercises. For example people who have broken their limbs may need to be assisted in learning how to walk again.
- Nutritionists: They provide information about diet. Nutritionists can also prescribe diet which may be therapeutic for example diabetic diet
- Radiographers: These take and develop x rays for diagnostic purposes
- Social workers: They usually talk to patients and identify those in need with the help of the other hospital. The social worker also looks at the economic status and the general welfare of the patient. Some social workers also provide counseling
- Pharmacist: The pharmacist prepares and dispenses drugs. They provide advice to about drugs to clients and other members of the multi- disciplinary team
- Occupational therapists: They educate patients on different skills in order to rehabilitate them after injury or illness
- Speech therapists: They help in rehabilitating patients who have problems with speech after an illness
- Chaplain: The chaplain provides spiritual care and support to clients. The chaplain may also provide counseling for both spiritual and social issues

The members of the multi -disciplinary team interact at different levels in the provision of medical treatment. Without meaningful interaction, provision of health care will be compromised. Each health care team member should recognize and treat each other with respect.

Having looked at the nurse as a member of the health care team in the hospital, we will now look at the nurse in the community set up.

The Nurse in the community setting

Nursing in community based setting is concerned primarily with health promotion and maintenance, education and management, coordination and continuity of care within the community.

Community – based nurses assess the health needs of individuals, families and communities and help clients cope with threats to health and problems of illness. They provide services for acute and chronic conditions to individuals and families within the community. Community – based nurses are employed in a variety of settings such as in schools, industries, nursing homes and private practices.

Self-Test Question

Mention the members of the health care team who are not nurses but contribute to the effective management of the clients in hospitals.

Pause and check your answers
Doctors, physiotherapists, nutritionists, radiographers, laboratory technologists among others.

Well done for completing this unit and before you proceed to Unit 2, let us look at some take home points.

1.8 Summary

In Unit one, we looked at the definition of the terminologies: Nurse, nursing, nursing practice and fundamentals of nursing and nursing philosophy. The unit introduced you to the hospital organization showing the different departments of nursing and community health services. It must be interesting that you now know your role as a nurse and how your role blends with the other members of the health team in service delivery. This unit has informed you that you require the help of other trained hospital staff to enable you render the care required by the patient.

In the next unit you will be looking at health perceptions. You will learn about concepts of health, wellness, and illness. You will also learn how to describe illness behaviour.

1.9 References:

Hansten, R and Washburn, M (1998). **Clinical delegation Skill: A handbook for professional practice**, 2nd edition, Gaitherburg, Aspen.

Henderson, V (1966). **The Nature of Nursing: A Definition and its implication for Practice, Research and Education**, Macmillan, New York.

Mosby Staff (2009). **Mosby's Medical Dictionary**, 8th edition, Mosby

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Potter, A and Perry, G (2009). **Fundamentals of Nursing**, 7th edition, Mosby, St Louis.

UNIT 2: HEALTH PERCEPTIONS

2.1 Introduction

Welcome to unit 2, in the previous unit we looked at definition of nurse, nursing, nursing practice, fundamentals of nursing and briefly looked at philosophy of nursing. We also looked at the organization and functions of hospital and the community health services, the role of a nurse and the healthcare team. In the previous unit you also saw how the role of the nurse and the other team members work in providing quality care to the clients in the community and patients in the hospital.

Unit 2 will assist you to appreciate the concepts of health, wellness, disease and illness. At the end of this unit, you will also be able to describe illness behaviour.

2.2 Objectives

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

1. Describe the concepts of health, wellness, illness and disease
2. Describe illness behaviour

2.3 Health and illness

Concept of health, wellness, illness and disease

What do you understand by the term concept of health? Is your answer similar to the following?

Concept of health: This is a person's attitude towards health or the way different people perceive health. A client's concept of health is very important to a nurse in helping reach goals which may not be the same for all clients. Health and illness must be defined in terms of individual clients.

Activity

Health is a word we loosely use in our day to day conversations. Write down the definition of health and ask some of your friends in your study group.

Now that you have completed your activity, compare your definitions with the World Health Organisation (WHO) definition of health below.

(WHO, 2006) defines health as a 'state of complete physical, mental, social and spiritual well-being of an individual, not merely the absence of disease or infirmity'.

From the answers you and your colleagues gave, it is clear that definition of health varies from one person to another. Individual views about health can vary among age groups, gender, race and culture (Pender, 1996; Pender, Murdaugh and Parsons, 2002).

Illness

Illness is a word we usually use whenever we are not feeling well.

An illness is more of a subjective feeling. However, in more generalized terms, we can define an illness as a state where the person has feelings of pain or discomfort that does not have an identifiable reason.

Potter and Perry (2009) define illness as a 'state in which a person's physical, emotional, intellectual, social, development, or spiritual functioning is diminished or impaired compared with that person's previous experience'. Illness is not therefore the presence of systems rather the presence of disease including the effects on the functioning and well-being in all dimensions.

Wellness

What is wellness? We continually hear this word during the news, in conversations, at school or read it in newspapers, magazines, books and the like.

Wellness is the dynamic balance among the physical, psychological, social and spiritual aspects of a person's life.

Wellness is used interchangeably with health. Wellness is difficult to quantify, but several indicators can be used to describe wellness such as:

- The capacity of a person to perform to the best of his ability
- Ability to adjust and adapt to varying situations
- Reported feeling of wellbeing
- Feeling that everything is together and harmonious

Wellness is closely linked to your lifestyle and the choices you make. Each individual has a responsibility to themselves to provide for the essentials of good health – that being proper weight control, good nutrition, physical activity and exercise, and controlling of health risk factors such as tobacco use, alcohol and drug use and/or abuse. These things all have a role in wellness. Therefore, as a nurse you have the responsibility of promoting good health of the clients and the community at large by educating them to practice good habits.

Disease

You may have heard about the terms illness and disease on a regular basis. Do the terms mean the same things? Well, almost, but not quite. Therefore, a disease may be defined as follows;

A disease refers to a condition where the body or the parts of the body of a person does not work properly. There is usually a pathological reason behind the condition.

Disease is any deviation from or interruption of the normal structure or function of any body part, organ, or system that is manifested by a characteristic set of symptoms and signs and whose etiology, pathology, and prognosis may be known or unknown (Dorland's Medical Dictionary 2007)

Each individual has his/her own ***concept of health*** and as a nurse, you will be required to help clients and patients identify and reach their health goals by using information about their concept of health. Some people's conditions of life rather than pathological (disease) state are what define health. Life conditions can have positive or negative effect on health long before an illness is evident. These life conditions may include environment, diet, lifestyle practices or choices as well as other factors such as physiological or psychological ones. For example people who

eat a lot and do little exercise will easily suffer from high blood pressure (life style) or those who tend to worry a lot will most likely experience frequent headaches (psychological factors).

Health and disease must be defined in terms of an individual. A person who has had an illness but has been put on lifelong medication will consider him/herself healthy even when the disease has not been cured. For example a person who was admitted due to Diabetes Mellitus (Sugar disease) and has been put on lifelong treatment with insulin will consider oneself health.

Having looked at the concepts of health, wellness, disease and illness we will proceed to look at the illness behaviour.

Illness Behaviors

People react differently to illness. Some may experience fear, anxiety while others may deal with illness calmly. The reactions to illness can be termed as illness behaviors. This subunit will therefore, look at these illness behaviors.

Illness and disease affect the patient's physical, mental, social and spiritual well- being. Due to an illness, a person's concept of self- esteem and body image may be affected. Illness behaviours may take various forms. Nurses need to realize that illness behaviour do not just arise from physical problems but may be psychological and social in nature. There is not a single illness behaviour that matches directly with a specific illness. Different patients will manifest different behaviours though they may have the same clinical picture.

Illness behaviour related to admission

During admission to a hospital facility, patients' experience some form of apprehension because they have been placed in the hands of strangers surrounded with unfamiliar gadgets for example oxygen concentrator, drip stands among others.

The patient may become over dependent on the health workers so much that he may not want to do even simple things that he is capable of doing. The patient may be scared of the attitude of health workers, the diagnosis and the outcome of the condition. The patient may be worried because he/she may not know if he/she will be keep his job once discharged. The patient may show signs of depression by being mute, display extreme sadness, crying a lot, refusing to eat etc.

Illness behaviour related to pain

Pain is a common symptom in many diseases. The perception of pain and response to it vary from patient to patient. This may be determined by the patient's pain threshold. Broadly speaking, there are two types of pain namely organic and psychogenic pain. Organic pain is due to tissue damage whereas psychogenic pain is psychological in nature.

Illness behaviour related to pain includes restlessness, screaming, irritability.

Illness is in two types namely; **acute illness** which has a short duration and is severe and **chronic illness** which takes longer than 6 months.

Now that you have completed this unit, answer the self -assessment questions below to determine your level of understanding.

Self-Assessment Test

1. Defining health differs among many people. WHO defines health as:

    a) The absence of disease
    b) A personal concept of health
    c) Reaching full potential
    d) A state of complete physical, mental and social well-being, not merely the absence of disease or infirmity.

2. A state in which a person's physical, emotional, intellectual, social, development, or spiritual functioning is diminished or impaired compared with that person's previous experience is called:

    a) Health
    b) Disease
    c) Illness
    d) Wellness

3. Define the following terms

    i) Disease
    ii) illness

Answers

1. A
2. C
3. i. Disease is any deviation from or interruption of the normal structure or function of any body part, organ, or system that is manifested by a characteristic set of symptoms and signs and whose etiology, pathology, and prognosis may be known or unknown.
   ii. illness as a 'state in which a person's physical, emotional, intellectual, social, development, or spiritual functioning is diminished or impaired compared with that person's previous experience'

2.4 Summary

In Unit two, you looked at the health perceptions and you took time to learn about the concepts of health, wellness, disease and illness. You were also able to describe illness behaviour. The points below best summarizes unit two:

a) Health and wellness are not merely the absence of disease and illness
b) A person's state of health, wellness, or illness depends on individual values, personality and life style
c) Health promotion activities help to maintain or enhance health for example regular exercises, good eating habits, managing stress among others.
d) Wellness education helps clients to care for themselves
e) Illness behaviours differs from patient to patient despite having the same disease

2.5 References

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UNIT 3: HEALTH CARE SYSTEMS

3.1 Introduction

Welcome to unit three and we hope you are finding your lessons very interesting and the assessment questions very helpful.

In the last unit, you came across the concepts of health, wellness, and illness and disease and you were able to define those terms now you are able to describe illness behaviours. Read these concepts with interest so that you will be able to understand the different illness behaviours you will come across as you nurse patients in health facilities.

In this unit you will be looking at how the healthcare system is organized in Zambia.
Zambia like any other country in the world has a health delivery system which is similar to other countries in Sub-Saharan Africa. These challenges include long distance, lack of medicines, staff shortages and poor health seeking behaviour among most Zambians. The Ministry of health is responsible for formulation of health related policies regarding disease prevention, treatment and training of health staff. The other Ministry that supervises healthcare delivery is the Ministry of Community Development, Mother and Child Health. This ministry is responsible for supervising the primary care net-work (from health posts to district hospital).

3.2 Objectives

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

1. Describe the factors that influence healthcare services
2. Identify the providers of healthcare services
3. Explain the rights to healthcare
4. Describe problems in healthcare delivery system and challenges for the future
5. Describe the organization of healthcare system in Zambia

Activity
In your own understanding write down the factors influencing healthcare services in your note book.

Congratulations for completing the activity above! Now compare your answers with the ones covered in the section that follow.

3.3 Factors Influencing Healthcare Services

There are many factors that can lead a population to increased or decreased utilization of health care services.

These factors include:

i. Socio-economic status
ii. Staffing levels
iii. Policies and beliefs of a nation
iv. Risk behaviours of a population, and

v. Health status.

i. Socio-Economic Status (SES)

The socio-economic status (SES) of a community is a factor made up of many factors such as education, income, and demographic characteristics (sex, age, and ethnicity). It is believed that SES has a significant influence on utilization behaviour because of its effect on aspects such as need, recognition, and response to symptoms; knowledge of disease; motivation to get well; and access or choice of health services (Anderson, 1973; Hulka & Wheat, 1985).

It is well documented that persons of lower SES experience a greater degree of disease and mortality (death). Despite these facts, research has shown that clinic and hospital use is not reflective of their circumstances -- especially among infants and children. This disparity in use by young persons of lower SES can result in a disproportionate amount of use when they are older (Hershey, Luft, & Gianaris, 1975).

Education and income usually result in higher use of health care, especially preventive visits and clinic visits; however, educated persons experience less acute disease (Muller, 1986).

Research has shown that women have a slightly higher rate of utilization than their male counterparts (Hulka & Wheat, 1985).

Age is another significant aspect of SES. Although elderly persons use more health services, it is not equally distributed among the whole population. Research has shown how other factors, such as the presence of chronic disorders (health status), risk behaviours (for example, smoking), and access to care, also play an important role in how and why the aged use health care. This is an excellent illustration of the multi-factorial nature of health care utilization and the faults of a shortsighted approach to health policy decisions (Anderson, 1973; Hershey, Luft, & Gianaris, 1975; Muller 1986).

ii. Staffing Levels

When there are no trained health personnel, there will be less people accessing healthcare.

Staffing levels are as improtant as SES and a large part of the literature illustrates that its relationships with health care utilization is straight forward. An increase in the proportion of doctors and nurses available or access to doctors in a community consistently results in an increase in health care utilization of all types. This indicates that many patients will use or be encouraged to use services when the physician services are made available (Barer, Evans, & Labelle, 1988; Hulka & Wheat, 1985).

iii. Policies and Beliefs of a Nation

Government policies have an influence on how people use healthcare. If government makes deliberate policies to take services closer to the people, the accessibility will be high.

Government policies and the values of a country can have a direct effect on health care utilization. When a country wants to increase the use of health care by the population it can create policies in order to do so. Creation of health posts in Zambia is one of such policies. This policy will take services closer to the people.

iv. Risk Behaviour and Health Care Utilization

When people realise the risk on their lives, the utilisation of the health care increases. The best example in Zambia is the demand for Male circumcision, Cervical Cancer Screening and VCT.

Policies, such as the enforcement of wearing seatbelts in vehicles, have also helped to reduce the effects of risk behaviours that can have a significant impact on health utilization. Unfortunately, government efforts to reduce other risk behaviours such as smoking and alcohol and drug abuse have not been effective. Research has shown that lifetime health costs of smokers are 47% higher despite the lower life expectancy of smokers (Hodgson, 1992; Rice et al., 1986).

v. Health status and health care utilization

Health status is the most important factor associated with increased health care utilization. There is consistent evidence that shows that lower health status of a population directly results in increased health care utilization of all types (that is,, clinic visits, physician visits, and hospitalization) (Anderson, 1973; Hershey, Luft, & Gianaris, 1975; Hulka & Wheat, 1985; Muller, 1986).

Self Assessment Test

Write down four factors that influence ultilization of health care services and give an example of how each of them influences healthcare ultilization

Answers

1. Socio-economic status for example Education and income usually result in higher use of health care
2. Staffing levels for example an increase in the proportion of doctors and nurses available results in an increase in health care utilization of all types
3. Policies and beliefs of a nation for example creation of health posts in Zambia has helped take services closer to the people thereby increasing ultilization of health care services
4. Risk behaviours of a population for example reduced risk behaviours such as alcohol abuse, unprotected casual sex leads to a more healther population and this leads to reduced utilization of health care services
5. Health status for example lower health status of a population directly results in increased health care utilization of all types (that is, clinic visits, physician visits, and hospitalization)

Have you visited any health facility before? Take a minute and think of the facility, was it government, mission or private owned? In this subunit we will cover various providers of health care in Zambia.

3.4 Providers of healthcare in Zambia

Apart from the government owned health care facilities, there are other facilities which offer health services to clients.These include:

a. Private hospital and Clinics

Private hospital and clinics are owned by individuals and companies. With the liberalisation of the economy following the change of Government in 1991, many private hospital were established to supplement government hospital. People who seek healthcare service at these private healthcare centres are required to pay for the service received. The major private hospitals are mainly found in Lusaka and these are:

- Pearl of Health
- Care for Business

- Victoria Hospital
- FairView Hospital
- Lusaka Trust
- TEBA Hospital
- Italian Orthopeadic Hospital

b. Mission Hospitals

Mission hospital have been in existance for many years in Zambia and most of them are located in rural areas. The purpose of these hospitals was to provide treatment to the faith followers of christian organisation that provided spiritual guidance in that area. For example, the Salvation Army who are prodominantly found in Southern province, own Chikankata Hospital, Evangelical Church in Kasempa and Solwezi, own Mukinge Mission Hospital in Kasempa. The largest number of hospitals are owned by the Catholic Church. The mission hospital are affiliated to an organisation called Churches Association of Zambia (CHAZ).

c. Government/Public hospitals/clinics

These are run and funded by the government. These institutions charge a minimal fee for those that are seeking health services. However, there are exemptions for epidemics, chronic diseases and the elderly/under 5. The cost sharing schemes makes the consumers to feel and own the services they are receiving. Examples of government hospitals include; UTH, Ndola central Hospital, Kasama General Hospital, Mpika District Hospital among others.

Self- assessment question

Question: Mention the three main providers of health care in Zambia and give an example of each

Answers

a. Mission Hospitals e.g Mukinge Mission Hospital
b. Private hospital and Clinics e.g Pearl of Health Hospital
c. Government Hospitals e.g the University Teaching Hospital

3.5 The Right to Health Care

The human right to health means that everyone has the right to the highest attainable standard of physical and mental health, which includes access to all medical services, sanitation, adequate food, decent housing, healthy working conditions, and a clean environment.

The human right to health care means that hospitals, clinics, medicines, and doctors' services must be accessible, available, acceptable, and of good quality for everyone, on an equitable basis, where and when needed. The design of a health care system must be guided by the following key human rights standards and principles:

Universal Access: Access to health care must be universal, guaranteed for all on an equitable basis. Health care must be affordable and comprehensive for everyone, and physically accessible where and when needed.

Availability: Adequate health care infrastructure (for example hospitals, community health facilities, trained health care professionals), goods (for example drugs, equipment), and services (for example primary care, mental health) must be available in all geographical areas and to all communities.

Acceptability and Dignity: Health care institutions and providers must respect dignity, provide culturally appropriate care, be responsive to needs based on gender, age, culture, language, and different ways of life and abilities. They must respect medical ethics and protect confidentiality.

Quality: All health care must be medically appropriate and of good quality, guided by quality standards and control mechanisms, and provided in a timely, safe, and patient-centred manner.

The human right to health also entails the following *procedural principles*, which apply to all human rights:

Non-Discrimination: Health care must be accessible and provided without discrimination (in intent or effect) based on health status, race, ethnicity, age, sex, sexuality, disability, language, religion, national origin, income, or social status.

Transparency: Health information must be easily accessible for everyone, enabling people to protect their health and claim quality health services. Institutions that organize, finance or deliver health care must operate in a transparent way.

Participation: Individuals and communities must be able to take an active role in decisions that affect their health, including in the organization and implementation of health care services.

Accountability: Private companies and public agencies must be held accountable for protecting the right to health care through enforceable standards, regulations, and independent compliance monitoring.

The Human Right to Health is protected in:

1. Article 25 of the Universal Declaration of Human Rights
2. Article 12 of the International Covenant on Economic, Social and Cultural Rights
3. Article 24 of the Convention on the Rights of the Child
4. Article 5 of the Convention on the Elimination of All Forms of Racial Discrimination
5. Articles 12 & 14 of the Convention on the Elimination of All Forms of Discrimination Against Women
6. Article XI (11) of the American Declaration on Rights and Duties of Man
7. Article 25 of the Convention on the Rights of Persons with Disabilities

Self -assessment questions

1. List six rights to health care
2. Which article in the international human rights addresses the convention on the rights of children

Answers

Q 1**.** Health care should be;

- Universally Accessible
- Available

- Acceptable and of Dignity
- Of Quality
- Non-Discriminatory
- Transparency
- Participative
- provide Accountability

Q 2. Article 24

Now that you know your rights to health care, it is your responsibility to educate the patients of their rights to health care and aid in the implementation of these rights. We will now cover the problems faced in healthcare delivery system and challenges for the future.

3.6 Problems in Healthcare Delivery System and Challenges for the Future

There are many problems in the healthcare delivery system and some of them you may have heard or talked about them with your friends. Now let us look at them in details.

Change in legislation: With the enactment of the nurses and midwifery act of 1997, the scope of practice for nurses has been broadened. This means that now nurses are now able to do private practice, prescription and carrying out invasive procedures, however the challenge arises due to lack of specialization to gain the required competences and specialization.

Globalization: This is the tendency of the world to function as one entity. The tendency results in uniformity, and standardization of procedures. This means the ZRN curriculum should expose and equip students to be able to function anywhere in the world. However, some of the challenges arise due to limited equipment and machinery to enable the learner to practice and sharpen their skills to meet the global standard.

Technological changes: New technology has brought a variety of new machinery such as the ones used in the ICU. These machineries are improving the way care is being given. These technological changes means that nurses need continuous education to upgrade their knowledge and learn how to operate these machines. The emerging of distance education and E learning poses a challenge due to limited internet facilities and knowledge of ICT to the learner

Political and economic forces: Policies made by the Government does affect the way care is given. The reduction of funding towards the social sector such as health has an effect on nursing practice. Reduction of funding means that medical and surgical supplies will be inadequate and so nurses will be forced to be improvising. This will compromise the quality of care.

Increased disease burden and changing disease patterns: The HIV pandemic has caused some new conditions to resurface and there are significant changes in the presentation of common conditions. There is an increase in non-communicable diseases like cancers, hypertension. The new conditions like HIV has come with the introduction of new drugs like ARVs, this means student nurses have to learn about these new drugs. However, the challenge is that most the tutors in the training institutions are not yet trained as HIV Nurse Practitioner to equip the learner with necessary skills.

Changes in the nursing education system: A new curriculum has been introduced to equip student nurses with new concepts in the health sector. Some of the new concepts include integrated management of childhood

illnesses (IMCI), SMART care. Introduction of Distance education and direct entry at degree level poses a challenge on close supervision of the learner due limited number of lecturers at the department of nursing sciences.

Shortages of nursing staff: The shortages of nurses can be attributed to several factors such as poor salaries and poor conditions of services, increasing deaths among nurses, poor infrastructure and poor image of the nursing profession. This leads to poor health service delivery.

Human rights: With a lot of people becoming aware that health is not a privilege but a right, this is causing a great challenge to the nurses in that they need to be accountable for whatever they will be doing. The awareness of human rights has brought increased demand for quality care. More people are getting educated as such they cannot accept mediocrity in the service they receive

Self-assessment Question

State True or False

The following pose problems in healthcare delivery system and challenges for the future;

a. Shortages of health staff
b. Awareness of human rights
c. Scope of practice
d. Changes in the disease patterns
e. Poor delivery of health care
f. New machinery
g. Training of nurses in HIV/AIDS

Answers

a. T
b. T
c. F
d. T
e. F
f. T
g. F

3.7 Organization of Healthcare system in Zambia

Before you can proceed with the next topic, attempt the following activity.

Activity

Think of some of the health care levels which provide health services in Zambia and write them down your note book.

Ministry of Health (MoH) is a government sector that ensures that every Zambian citizen receives health care.

In Zambia, there are a variety of healthcare settings that offer care at various levels. These include;

i. Community based care

Community based care is offered in the community by community volunteers such as community TB Supporters, Community Health Workers (CHWs), TBAs, CBDs and are responsible for the health of the community.

There are other services offered in the community such as hospices (nursing home). These offer palliative care to terminally ill patients.

ii. Primary level care

This is essential health care delivered to patients in health posts and health centres as close to the family as possible.

iii. Health Post

This level of care is also offered at community level. The health posts are manned by trained community health workers. They treat minor cases and refer difficulty ones to the health centres.

iv. Health Centre

The health centres provide curative, promotive and preventive services. They have a bed capacity of 20 and are manned by a clinical officer, enrolled midwife, enrolled nurse and environmental technician (MoH, 1995). These operate for 24 hours in day and also offer maternity delivery services. They utilize nearest district hospitals for referrals.

v. First level referral (*(District hospital***)**

These are peripheral hospitals which offer curative and rehabilitative health care to patients referred from a health centre or by-passing a health centre**.** It has bed capacity of between 40-200 beds. It may also have a training institution such as schools of Nursing and Midwifery. These mostly offer enrolled nursing and midwifery programmes.

vi. Second level referral (*(General hospital***)**

These also offer curative and rehabilitative health care to patients referred from First level *referral hospital***.** It has a bed capacity of between 200 and 500. Examples of these hospitals include; Kasama, Livingstone and Mansa General Hospitals

vii. Third level or (Central) hospital

These provide curative and rehabilitative care to patients referred from first and second level hospitals. They have a bed capacity of above 500 beds. Examples of these hospitals include; Kitwe and Ndola Central hospitals

viii. Tertiary or specialized level hospitals.

These offer services to complicated cases referred by third level hospitals. They use advanced equipment such as magnetic resonance imaging among others. Referred cases are managed by consultants. They have a bed capacity of more than 1000 beds. Examples of these hospitals include; UTH (tertiary), Chainama Hills Hospital specialized in the management of mental disorders, Arthur Davison Children's' Hospital and Cancer diseases Hospital in Lusaka.

Self-assessment Test

Tick the most appropriate answer

1. The delivery of essential health care to patients as close to the family as possible is:

    a. Specialized health care
    b. Secondary health care
    c. Primary health care
    d. Tertiary health care

2. Third level hospitals have a bed capacity of:

    a. 100
    b. 1000
    c. 200 to 500
    d. 500

3. The first level hospital receives referral from:

    a. District hospitals
    b. Health centres
    c. Specialized level hospital
    d. Third level hospital

Answers
Q 1. C
Q 2. D
Q 3. B

3.8 Summary

So what is your feeling regarding our healthcare system? Does what you have read encourage you or you feel discouraged? Congratulations for choosing nursing because Zambia still needs a lot of health personnel in order for us to provide quality healthcare.

In this unit you have looked at factors that influence healthcare and you learned that factors such as socioeconomic status, staffing levels, policies and beliefs of a nation, risk behaviours of the population, and Health status do to large extent have a bearing on healthcare service. We went on looking at the providers of healthcare who are mainly government, mission hospitals and private hospitals and clinics.We also looked at the problems in health care delivery and challenges such as shortage of staff, globalisation, change in legislation , disease burden, eduacation, technology and policies.

The other interesting information you read is regarding the individual's right to health care. It must have been enlightening to you just like it has been to most of Nurses to learn about our rights to healthcare. Did you see the list of other rights that we are entitled to?

In conclusion, we looked at the organisation of the healthcare system in Zambia.

In the next unit, you will be oriented to the various nursing theories and models that guide nursing practice. You will learn how to apply the Nursing Process as a Tool that will assist you in the management of the clients and patients. You will learn how to communicate effectively with patients and document your work. This unit will make you understand why continuous documentation is very cardinal in the provision of care in the hospital and community.

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UNIT 4: THEORIES, NURSING MODELS AND INTERACTIVE PROCESS

4.1 Introduction

Welcome to this unit and is the fourth in the series. In the last unit, you took time to look at the Zambian Healthcare system and the challenges that we are facing as a country. The unit further looked at factors that affect healthcare services and the Right to Healthcare. The unit walked you through the healthcare system you saw how it is designed in Zambia, starting with the Ministry of Health which is in charge of healthcare policy development and training of health personnel, while the Ministry of Community Development, Mother and Child Health is responsible for Primary health care. The Ministry of Community Development, Mother and Child Health looks after health posts, clinics and District Hospitals.

In this unit, we are looking at theories and models that have been developed over the years and as you are aware, these were developed to assist healthcare givers in providing systematic and organized nursing care.

You will come across terms that are new and somehow difficult, but you must not give up. Once you understand them, you will find yourself using these terminologies in your everyday conversations.

4.2 Objectives

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

1 . Describe the nursing theories and models
2 . Describe the nursing process
3 . Describe the interactive process

4.3 Introduction to theories, models and nursing process

Definitions

a. **Model:** This is a descriptive picture of practice that adequately represents the real thing. (Pearson & Vaugan, 1987).

b. **Nursing Model:** This is a systematically constructed, scientifically based and logically related set of concepts which identifies the component of nursing practice together with the theoretical base of this concept and values required for the use of the practice.

   A set of abstract and general statements about the concepts that serve to provide a framework for organizing ideas about clients, their environment, health, and nursing (Medical Dictionary 2006)

c. **Theory:** This is a systematic explanation of the relationship between phenomena. It is a symbolic depiction of aspects of reality that are discovered or inverted for the purpose of describing, explaining, predicting, or prescribing responses, events, situations, conditions or relationships (McKay 1969).

d. **Phenomenon:** A phenomenon is an aspect of reality that can be consciously sensed or experienced (Meleis, 1997)
e. **Nursing Theories**: are reservoir in which findings related to nursing concepts, such as comfort, healing, recovery, mobility, rest, caring enabling, fatigue and family care are stored (Meleis, 1991)
f. **Nursing Process** is basically a problem solving approach to nursing that involves interaction with the patient, making decisions and carrying out nursing action on an assessment of an individual patient's situation (Kratz, 1979)
g. **Concept:** It is an idea or mental image or label used to describe a phenomenon.

Self- assessment Test

1. Define the following terms
   a. Model
   b. Nursing model
   c. Nursing theories
   d. Nursing process

Answers

1. **a. Model:** This is a descriptive picture of practice that adequately represents the real thing.
   a. **Nursing Model:** This is a systematically constructed, scientifically based and logically related set of concepts which identifies the component of nursing practice together with the theoretical base of this concept and values required for the use of the practice.
   b. **Nursing Theories**: Are reservoir in which findings related to nursing concepts, such as comfort, healing, recovery, mobility, rest, caring enabling, fatigue and family care are stored.
   c. **Nursing Process** is basically a problem solving approach to nursing that involves interaction with the patient, making decisions and carrying out nursing action on an assessment of an individual patient's situation.

Having defined the key terms related to theories, Models and Nursing Process, now we will proceed to cover the historical perspectives of Nursing Models.

Historical Perspective of Nursing Models

Nursing as a discipline has been trying to understand the human being and his needs. In an attempt to provide quality care in line with the philosophy of nursing, nursing models have been developed.

Nursing models emerge from a body of understanding about people and their needs. Nursing models take ideas from other fields of research and actively use these to suggest a better way of nursing and caring for people. Therefore to accomplish goals of optimum (best) health and well-being, nursing needs theories based on effective and efficient clinical therapeutics. Theories can be descriptive or prescriptive. Descriptive theories are those theories that describe a phenomenon, an event or a situation or relationship; identify its properties and its components and identify circumstance under which they occur for example, life process, person – environmental interactions among others. prescriptive theories are those theories addressing nursing therapeutics and the consequences of interventions for example nursing care plan.

Time Chart of Nursing Theories

The following time chart will help you see what has been done in nursing from before 1950s to date in order to arrive at the theories and models that are now being used worldwide.

a. Prior to 1955 from Nightingale to Nursing Research.

The first theoretical approach was made by Florence Nightingale in the late 19th to 20th century to describe nursing focus and action in the Crimean war. (For Example, achieving education of nurses, exposing the unhealthy conditions and environment endured by English soldiers during war situations).

b. Mid 1950s

American nurse educators prompted by the need to justify different levels of nursing and the need to develop curricular for different levels of nurse educators.

c. 1955 to 1960: Birth of Nursing Theory

Columbia University Teacher's College offered graduate programmes that focused on education and administration.

d. 1961 to 1965: Theory a National Goal in Nursing.

The Yale school of Nursing influenced by Columbia Teacher's College, considered nursing as a process rather than an end. They profoundly influenced nursing research in the United States in the 1960s. Then in 1980 there was revival of that impact as nurses acknowledged Yale University's strategies for theory development, evidenced by the recognition of Orland's work and by the paradigmatic shift in nursing research to phenomenology.

e. 1966 to 1970: Theory Development; a tangible goal for academics**.**

f. 1971 to 1975: American Nurses Association

Recommended that theory development was the highest priority in the profession and with the availability of the federal support, a symposium was sponsored by Case Western University and was held as part of the nursing Science programme.

g. 1971 to 1975: Theory Syntax

Nursing research focused on discussing and writing about research methodology.

h. 1976 to 1980: A Time to Reflect.

Utilization of existing theory and development of further theory

i. 1981 to 1985: Nursing Theories Revival

Emergence of the domain concepts, acceptance of the significance of theory for nursing and Doctoral programs in nursing were developed

j. 1986 to 1990: From Meta Theory to Single Domain Theory

There was increased writing related to concept development, knowledge development and central nursing concepts.

Types of nursing models and their application

This time we are going to talk about the nursing models and their application to the caring of the patients in the hospital. You will cover the purpose of these nursing models in nursing practice, their components and the types of models and their application.

The following are the purposes of the nursing models*:*

a. Suggest better ways of caring for people.
b. Suggest practical approach to nursing care.
c. Make sense of what nurses do.
d. Help those who work with them to understand fully what they do and why they do that.

Components of Models

Nursing models have a number of components which address the aspect of patient care. These are:

a. The nature of people
b. Causes of problems requiring nursing intervention
c. Nature of assessment process
d. Nature of panning and goal setting
e. Focus of intervention during implementation
f. Process of evaluation and effect of care
g. The role of the nurse

Now let us cover these models one by one

A. Orem's Model

The model was developed by an American nurse theorist by the name of Dorothea Orem. Orem was searching for the meaning of nursing. Her search for the meaning of nursing ended in her, developing the self-care deficit theory in 1970. Her Model is also called the ***Self-Care Model.*** The goal of Orem's theory is to help the client perform self-care. According to Orem, nursing care is only necessary when the patient is unable to fulfil biological, psychological, developmental or social needs. The nurse therefore must determine why the client is unable to meet these needs, what must be done to enable the client meet them, and how much self-care the client is able to perform. The goal of nursing is to increase the client's ability to independently meet these needs (Orem, 2000).

Orem's search for the meaning of nursing centred around 3 questions:

a. What do nurses do and what should nurses do as practitioners of nursing?
b. Why do nurses do what they do?
c. What results from what nurses do as practitioners of nursing?

She was later able to come up with a statement on which she based her model and the statement says: 'Nursing has its special concern of a man's need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease or injury and cope with their effects' (Orem, 1971). She then later came up with the following assumptions:

Major Assumptions

a. People should be self-reliant and responsible for their own care and others in their family needing care.
b. People are distinct individuals in other words; *no two people are the same.*
c. Nursing is a form of action – interaction between two or more persons.
d. Successfully meeting universal and development self-care requisites is an important component of primary care prevention and ill health.
e. A person's knowledge of potential health problems is necessary for promoting self-care behaviours.
f. Self-care and dependent care are behaviours learned within a socio-cultural context.

1. Orem's general theory of nursing had three parts and these are:

a. Theory of Self-Care Deficit

This theory states that self-care deficit (deficiency) results when the ability to perform self-care is not adequate to meet the demands of the individual. Therefore people will benefit from nursing because they have limitations in providing self-care related to health issues. This theory can be summarised as follows:

- Specifies when nursing is needed.
- Nursing is required when an adult (or in the case of a dependent, the parent) is incapable or limited in the provision of continuous effective self-care.

Orem identifies 5 methods of helping and these are:

- Acting for and doing for others
- Guiding others
- Supporting others providing an environment promoting personal development in relation to meet future demands
- Teaching another

b. Theory of Self Care

This theory is based upon the idea that self-care is a learned behaviour that individuals initiate and perform on their own behalf to maintain life, health and well-being. Adults care for themselves, whereas infants, the aged, the ill and the disabled require assistance with self-care activities. Self-care contributes to the self-esteem and self-image of a person and is directly affected by the self-concept. This theory can be summarised as follows:

i. Self-care – practice of activities that individuals initiate and perform on their own behalf in maintaining life, health and well -being.
ii. Self-care agency – is a human ability which is 'the ability for engaging in self-care' -conditioned by age, developmental state, life experience, socio-cultural orientation, health and available resources.
iii. Therapeutic self-care demand – 'totality of self-care actions to be performed for some duration in order to meet self-care requisites by using valid methods and related sets of operations and actions'.
iv. Self-care requisites - action directed towards provision of self-care. Three categories of self-care requisites (requirements) are-
    - Universal self-care requisites
    - Developmental self-care requisites
    - Health deviation self-care requisites

c. Theory of Nursing System

This theory suggests that nursing system forms the basis on which nurses prescribe, design, and provide nursing care. Nursing helps people to meet self-care needs by using one of the three nursing systems namely:

i. Totally compensatory nursing
In this system, the nurse will actually be the one to carry out the activities to meet the self-care demands of an individual who is unable to do so for example an unconscious patient will totally depend on the nurse.

ii. Partially compensatory nursing system
The nurse and the patient share the responsibility for the care in that the patient is able to meet some of his own self-care demands.

iii. Educative/ supportive nursing system
The client has the primary responsibility for meeting the self-care demands. The nurse only has to teach and support the client so that he is better able to meet the demands himself.

Emphasis of the Self-Care Model
Orem's self-care model emphasizes the existence of biological, physiological and social systems within a person. The model also lays emphasis on activities that maintain life, health and wellbeing. It also values personal responsibility for health. Self-care is a universal requirement for sustaining and enhancing life and health.

Key components of Self-Care
Orem identified the following components of self-care concept:

I. The Nature of People
The self-care model revolves around the fundamental belief that a need for self-care always exists, and that ideally one has the right and ability to meet this need. Orem refers to the self-care needs as 'universal self-care needs'. They are eight of them, namely:

- Maintenance of sufficient intake of air
- Maintenance of sufficient intake of water
- Maintenance of sufficient intake of food
- Provision of satisfactory elimination and excrement care (going to the toilet)
- Balance between activities and rest
- Balance between solitude (being alone) and social interaction
- Prevention of hazards to human life, human functioning and well being
- Maintain normalcy in the promotion of human functioning and development within social groups, in accordance with human potential and known human limitation.

II. Causes of problems requiring nursing intervention
According to Orem, an individual requires nursing care when a health experience arises that creates a self-care need. The nurse therefore conduct an assessment to determine what needs the client has.

III. Nature of The Assessment Process
The aim of assessment is to establish the person's self-care needs and to identify whether a self-care need exists. According to Orem, the nurse needs to:

- Assess if the client's state allows self-care

- Assess the demands being made on an individual for self-care
- Assess the individual's ability to meet these demands
- Assess the reason for the health care deficit
- Assess the client's potential for re-establishing self-care in the future

According to Orem, assessment is continuous.

IV. Planning and goal setting process

The nurse and the client will establish goals that are realistic and aims to reduce self- care demands to the level that the client can meet. The goal should describe observable behaviour to allow for evaluation at a later stage.

V. Focus of intervention during implementation

Implementing the care plan should involve the client, the nurse and significant others (relations and friends). This means that nurses should not ignore the patient and those who are close to the patient in developing the nursing plan.

VI. Evaluating the effects and quality of care

Evaluation is both summative and formative. It is based on the set goals. At the end of implementing the nursing care plan, you must see whether the plan you had put in place has met the set goals or objectives. *For example, if the objective was to reduce temperature. At the end of the intervention you had put in place, has the temperature gone down?*

VII. Role of the Nurse

Nurses assist clients to achieve competence in self-care. The nurse's major role is largely complementary. In cases where the patient is helpless, the nurse can provide care for the patient in every aspect.

Case Study 1

Application of this model

Mr Osward Nsama a 35 year old patient is admitted to the hospital with a provisional diagnosis of Congestive Cardiac Failure. During history taking the patient complained of dyspnoea, activity intolerance, and fatigue and generalised oedema. Using the Orem's nursing model do a problem analysis on Mr Nsama and identify two problems that you are going to nurse using the nursing care plan.

Problem analysis

Sufficient intake of air

- Dyspnoea due to accumulation of fluids in the lungs
- Inability to sleep due to nocturnal Dyspnoea

Sufficient intake of water

- Oedema and weight gain due to accumulation of fluids in the tissues.

Sufficient intake of food

- Patient had anorexia due to disease process

Satisfactory elimination function

- Risk of constipation due to reduced activity

Time spent alone balance with time spent with others

- Loneliness due to admission and non-visitation

Prevention of danger to self

- Risk of injury due to fatigue caused by reduced tissue oxygenation

Maintain normalcy

- Restlessness due to shortness of breath and anxiety
- Anxiety due to knowledge deficit.

Problems Identified

- Dyspnoea
- Oedema
- Activity intolerance
- Anxiety

Table 1: Nursing Care Plan

Problem	Nursing diagnosis	Objective	Nursing intervention	Evaluation
1. Dyspnoea	Dyspnoea due to impaired gas exchange related to interstitial and alveoli oedema evidenced by shortness of breath	To relieve Dyspnoea within 30 minutes to 1 hour of admission.	- To advise patient to be sitting in upright position supported by pillows or back rest to promote lung expansion. - To administer oxygen to patient whenever necessary that is, 5 litres per minute to perfuse body tissues.	- Dyspnoea relieved after 1 hour of nursing intervention as evidenced by patient's normal breathing pattern of 18- 20 breaths/minute.
Problem	Nursing diagnosis	Objective	Nursing intervention	Evaluation

2. Oedema	- Oedema due to excess fluid volume related to compensatory regulatory mechanisms secondary to decreased cardiac output and poor venous return evidenced by swollen feet and face.	To relieve Oedema by the end of one week and throughout hospitalization.	- Patient advised to elevate the legs in order to promote venous return - Patient advised to restrict salt intake in the diet because salt contains sodium, which retains fluids. - To give prescribed Lasix to the patient to encourage fluid excretion. - To monitor oedema by daily weighing to check if subsiding or not.	- By the end of one week, of treatment and before discharge, oedema of the face and feet subsides.

Problem	Nursing diagnosis	Objective	Nursing intervention	Evaluation
3. Activity intolerance	- Activity intolerance related to weakness, fatigue and general malaise evidenced by patient verbalization and irregular respirations	To promote patient tolerance to activity by the end of one week of hospitalization.	- Advise patient to avoid strenuous activities which can easily tire him/her - Doing all nursing procedures collectively to avoid tiring the patient. - Assist the patient with activities of living for example bathing, grooming, eating and so on - Encourage the patient to eat, especially energy foods which give energy.	At the end of one week of hospitalization, patient verbalizes tolerance of an activity at safe and acceptable levels. - Respirations of less or equal to 20 breaths/ minute noted after an activity.
Problem	Nursing diagnosis	Objective	Nursing intervention	Evaluation
4. Anxiety	- Anxiety related to dyspnoea, oedema, perceived threat of death evidenced by	To relieve anxiety within 4 days and throughout hospitalization.	- Explain the disease process to the patient so that patient is knowledgeable of the course of the	At the end of 4 days patient verbalized relief of anxiety and no longer expressed anxious facial

	patient verbalization and facial expressions.		illness. - Patient advised to be in upright position to relieve dyspnoea. - Encourage open discussions of feelings about diagnosis to demonstrate acceptance and concern for patient and allow verbalization of concern.	expressions.

You have learned a lot of new ideas from Orem's model. As we seek to assist clients, we must ensure that we do not create dependence in the person we are assisting. We must endeavour to ensure that clients work toward independence.

The next model was developed by **Virginia Henderson.**

B. Henderson's Nursing Model (activity of daily living)

i. Introduction

This model was developed by Virginia Henderson. It emphasizes the existence of biological needs within people. It further states that people have psychological and social needs that can sometimes lead to the need for nursing care. She believed that nurses must pay particular attention to accurately interpret both verbal and non-verbal information from patients

Early in her career, Henderson realized two features of nursing. These are:

a. Nursing was different from medicine

b .A clear definition of nursing was needed, hence by 1960 she came up with the definition of nursing 'It is the assistance given to an individual sick or well in the performance of those activities contributing to health or to a peaceful death that he/she would perform unaided if he had the necessary strength, will or knowledge'.

ii. The Nature of People

According to Henderson, human beings whether sick or well have human desires for food, shelter, clothing, love and appraisal, sense of usefulness and mutual dependence on social relationships. She elaborates this by identifying 14 fundamental needs common to all human beings. These are:

a. To breath normally
b. To drink and eat adequately
c. To eliminate body wastes
d. To move and maintain desirable posture
e. To sleep and rest
f. To select suitable clothes
g. To maintain body temperature within the normal range
h. To keep the body clean and well groomed

i. To avoid changes within the environment and injuring others
j. To communicate with others
k. To worship according to one's faith
l. To work in such a way that there is a sense of accomplishment
m. To play or participate in the form of recreation
n. To learn, discover and satisfy curiosity

iii. Causes of Problems Requiring Nursing Intervention

According to Henderson, nursing care is needed whenever a person is unable to carry out activities contributing to their health, their recovery or to a peaceful death.

iv. Nature of Assessment

Henderson argued that assessment of patients' needs should involve negotiation between the patient and the nurse except when the patient is in coma. Then the nurse can decide what is good for the patient's health.

v. Nature of Planning and Goal Setting

Henderson advocates that long term goals should be set which will relate, to help the patient regain independence with respect to fundamental human needs. She also advocated for setting short term or intermediate goals which should relate to the problems identified during assessment.

vi. Focus of Intervention During Implementation of Nursing Care Plan

Nursing intervention takes in the form of nursing activities aimed at achieving long term, intermediate and short term goals which have been set. These goals should relate to the human needs. She pointed out that nursing care should be carried out by professionals and that the plan of care should include drugs and treatment prescribed by the physician. She also advocates that a successful nursing intervention also requires involvement of the patient, relatives and members of the health care team.

vii. Process of Evaluation of The Quality and of Effects of The Health Care Plan

Evaluation is aimed at looking at the extent to which the patient has been helped by the nurse to meet basic needs. It also inquires to what extent the agreed upon objectives have been met.

viii. Role of the Nurse

She stresses the unique functions of the nurse as an independent health care professional. She emphasizes the complementary role that the nurse plays in seeking to substitute to what extent the patient lacks and make them complete, whole and independent. She sees also the role of the nurse as a physician helper with the possibility of nursing goals being brought under medical plan of treatment.

Summary: As you can see, the two models above have some elements that are similar. In both of them, the role of a nurse only goes as far as complementing what the patient is able to do.

C. **Roper, Logan and Tierney Nursing Model (Activities of Living Model)**

This model was developed by Nancy Roper, Winfred W Logan and Alison J. Tierney. The model focuses on everyday activities that people carry out. If any of these activities are neglected, an individual is likely to suffer ill health. The model indicates relationships between various components of the model.

Components:

There are five main components of this model namely;

a. Activities of Living (AL)
b. Life span
c. Dependence / Independence continuum
d. Factors Influencing activities of living
e. Individuality in living

a. Activities of Living

The activities of living include the following:

1. Maintaining a safe environment
2. Communicating
3. Breathing
4. Eating and drinking
5. Eliminating
6. Personal cleansing and dressing
7. Controlling body temperature
8. Mobilizing
9. Working and playing
10. Expressing sexuality
11. Sleeping
12. Dying

1. Maintaining a Safe Environment

Many of the everyday activities are aimed at keeping a safe environment for example a home environment is kept safe by keeping poisonous substances and dangerous articles in safe places, unplugging electrical appliances at night, guarding against fire, Personal and domestic cleanliness aim at decreasing the number of microorganisms in the environment thus rendering it safer.

2. Communicating

The activity of communicating includes use of verbal and non-verbal language. Communication helps to transmit feelings such as pleasure and displeasure. Communication permeates the whole area of interpersonal interaction and human relationships which are such an important dimension of human life.

3. Breathing

The very first activity of a new born is breathing and the ability to do so is vital. Through this activity, oxygen is taken in and carbon dioxide taken out. Oxygen is necessary for human life. When the brain cells are deprived of oxygen, irreversible damages are likely to occur. All other activities of living are entirely dependent on breathing.

4. Eating and Drinking

These activities are necessary to sustain life. Eating is necessary for nourishment. The ways meals are taken and selected reflect the influence of socio-economic factors on this activity of living. Many people in the world today die from starvation and malnutrition. This serves as a reminder of the essential nature of this activity of living.

5. Eliminating

This is closely associated with the activity of living of eating and drinking. The activity of urinary and faecal elimination is necessary for health living. It helps to get rid of waste products. Elimination is regarded as a highly

private activity and assistance of clients to achieve this activity when hospitalized is very important to prevent constipation. To those with diarrhoea and are bed ridden, bed pans should be provided.

6. Personal Cleansing and Dressing

Personal cleansing and dressing is necessary for health living. The activities of living (AL) help in the prevention of so many diseases for example scabies, hypothermia and pneumonia among others. Personal cleansing promotes a sense of wellbeing, and self- esteem, comfort and relieves fatigue and improves blood circulation. It includes activities like bathing, oral care, and nail care. Personal dressing normally is according to culture and offers protection to the body, and is done according to the weather.

7. Controlling Body Temperature

The temperature of the human body is maintained within a narrow range that is normal. This is necessary for many of the body's biological processes and it ensures personal comfort whatever the environmental temperature. Human cells cannot survive very long when subjected to extremes of heat and cold. Over exposure to heat may lead to heat stroke, while coldness may lead to hypothermia. Therefore this activity is also linked to personal dressing, as people dress according to the weather to maintain normal body temperature.

8. Mobilizing

It refers to the movements produced by a group of muscles enabling people to sit, stand, walk and run. It also applies to smaller movements such as those of the feet. These movements are necessary to achieve good health. This activity is linked with most activities of living like, work and play, breathing and eating and drinking. Mobilization helps to improve muscle tone, prevent contracture and promote blood circulation. Immobility may lead to muscle atrophy due to disuse and contractures. This can be prevented by passive and active exercises to bed ridden patients.

9. Working and Playing

Working provides income from which essential costs and leisure activities are met. Playing provides some form of activities. These are necessary for personal satisfaction and for a healthy mind. Playing helps in relieving stress and tension, and promotes blood circulation thereby preventing diseases associated with immobility such as deep vein thrombosis.

10. Expressing Sexuality

This AL is not only confined to sexual intercourse though it is an important dimension of adult relationships. It is essential for propagation of human species. There are many more ways in which sexuality is expressed. Femininity and masculinity are reflected in physical appearance, strength, odour and clothes.

11. Sleeping

Sleeping allows people to rest. Lack of sleep can lead to ill health. Adults spend one third of their lives sleeping. Sleep helps in growth and repair of worn out tissues, promotes relaxation and helps people to cope with stresses of daily living. Lack of sleep may lead to discomfort, poor memory and lack of concentration. Therefore a conducive environment should be created to promote sleep.

12. Dying

Man is mortal. The process of living is a fatal one and the final act of living is dying. Grieving is the activity linked with dying through which a bereaved person comes to term with death of a loved one. Helping the family to cope with the loss and preventing depression is very important. There is need to explore views and feelings on dying

from the patient and family. Spiritual support is necessary to provide hope on life after death for believers. If not handled properly this activity may lead to depression and suicidal attempts.

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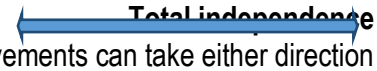
b. Life Span

Living is concerned with the whole person's life and each person has a life span which extends from birth to death. People go through continuous changes during their life span which is influenced by; socio-cultural factors, biological, psychological, environmental and political-economic circumstances encountered throughout life for example statutory ages for entering and leaving school, employment among others.

c. Dependence / Independence Continuum

This model is closely linked to other activities of living and life span. Each person could be said to have independence / dependence continuum for each activity of living, because there are stages when a person cannot perform certain activities independently.

Total dependence  **Total independence**

Arrows indicate that movements can take either direction of the continuum.

Independence is the ability to perform activities of living without help for example cleansing and dressing. Dependence is when you depend on others for help with most of the activities of living for example new born babies. Children gradually move from a state of total dependence along the continuum towards the independent continuum pole for each activity. Adult dependence occurs as a result of illness, accidents or old age for example use of wheel chair for mobility. Also healthy people are dependent on farmers for eating and drinking. Therefore there is no state of absolute independence in the activities of living. The dependence / independence continuum is also closely associated with factors influencing the activities of living.

d. Factors influencing activities of living

Biological:
Relates to the human body's anatomical and physiological performance and partly determined by an individual's genetic inheritance for example facial appearance, stature or physique.

Psychological:
These influence living throughout lifespan especially intellectual and emotional development and has a bearing on a person's level of independence. Psychological factors can lead to intellectual impairment, and stress among others.

Socio-Cultural:
These include spiritual, religious and ethnic aspects of living. Socio-cultural factors have a bearing on a person's level of independence, by influencing the person's individuality in living and affect the way each person carries out activities of living for example the role of an individual in society, or status in the community. These factors are closely related to biological, psychological, environmental, and politico-economic factors.

Environmental:
They influence living throughout lifespan and have a bearing on the person's level of independence. Inevitably they influence the person's individuality in living and affect the way each person carries out activities of living for example atmospheric pollutants like dust should be minimized to prevent respiratory infections in a home or hospital.

Politico-Economic:

These have legal connections and action is reflected in legislation. They influence living throughout lifespan, have a bearing on the person's level of independence, influence individuality in living and affect the way each person carries out activities of living for example poverty level in the country will determine people's health in the country and political laws will determine its economic development. This factor is related to environmental, socio-cultural, psychological and biological factors.

e. Individuality in living:
The model focuses on living as it is experienced by each person's individuality in carrying out activities of living for example how a person carries out activities of living, how often, where, why, what the person knows about activities of living, beliefs and the attitude towards the activity of living. Individuality in living is achieved by use of a nursing process which involves; assessment, diagnosis, planning, implementation, and evaluation. The nurse's role is seen as independent practitioner as well as playing the dependent role.

Case Study 2

Application of the model

Inonge a 14 year old girl is admitted on your ward in a sickle cell crisis and is complaining of severe joint pains and headache. Using the Roper, Logan and Tierney model do a problem analysis and identify 3 problems that you will nurse using a nursing care plan.

Problem analysis using the activities of daily living model

Maintaining a safe environment

For you to maintain a safe environment you need to do the following;

-prevent the risk of falls related to weakness and dizziness.

-Need to prevent infection and prompt treatment.
-Need to be nursed in isolation.
-Restlessness may lead to falls.

Communication

The following can affect effective communication during the care of the client;

-Severe pain may impair cognitive perception which will affect the listening, speaking and attention.

-Anxiety and lack of usual contacts may affect communication.

-Crying due to pain will affect communication.

Breathing

The following are the causes of breathing problems presented by Inonge

-Inonge has shortness of breath at rest or with activity.
-Inonge has rapid respirations and pulse rate due to anxiety and pain.

Eating and drinking

These bellow were the problems identified related to eating and drinking;

-Poor appetite related to nausea and vomiting.

-Altered nutrition less than body requirements related to nausea and vomiting.

-Need for frequent mouth wash to improve appetite.

-Need to take a lot of fluid/water in order to remain hydrated; this help to keep the blood diluted which reduces the chance that the sickle cells will form.

Elimination

The following are the problems identified related to elimination;

-High risk of developing urinary tract infection related to low immunity.

-Reduced urinary output related to plugging of the small blood vessels which supply the kidneys.

Control of body temperature

Problems related to body temperature are as follows;

-Need to avoid temperature extremes (exposure to extreme heat or cold can trigger the formation of sickle cells).

-Need to monitor temperature four (4) hourly.

Personal cleaning and dressing

The following are the problems related to personal hygiene;

- Needs assisted baths and oral care.
- Need assistance to dress up because he is in pain.

Mobilizing

The following are the problems related to mobility;

-Limited mobilisation related to long bone pain. Pain may vary in intensity and can last for a few hours to few weeks.

-Body weakness disturbs mobility.

-Inonge experiences unsteady gait thereby limiting mobility.

Working and playing

The following are the problems related to working and playing;

-Create time for playing, necessary to reduce stress and anxiety.

-Needs diversional therapy such as a toy car.

-Unfamiliar hospital environment and lack of usual contacts may affect working and playing.

-Confinement due to hospitalisation reduces time for playing.

Expressing sexuality

The following are the problem related to sexual expressing;

-Lack of privacy may lead to frustration.

Rest and sleeping

The following are the problems related to rest and sleeping;

-Severe pain may affect rest and sleep.
-Noise and nursing procedures may affect rest and sleep.

Dying

The following are is the problem related to dying;

-Need to give adequate information to the parent especially the mother about the condition.
-Need for spiritual support from their church elder or priest.

Problems identified:

- Joint pains
- Risk of injury
- Altered nutrition
- Anxiety

Table 2: Nursing care plan

Date/Time	Problem	Nursing Diagnosis	Goal	Implementation	Evaluation
	Joint Pains	Joint pains related to blockage of blood flow through blood vessels to the joints by sickle shaped red blood vessels evidenced by frowning and verbalization of pain.	The patient will have joint pains relieved within 1 hour of hospitalization	• Allow Inonge to assume the most comfortable position. • Encourage the patient to take a lot of fluids to promote adequate hydration for easy blood flow. • Offer diversional therapy to Inonge so as to keep her mind off the pain • Give prescribed analgesia to alleviate pain.	Joint pains have been relieved within 1 hour of hospitalization evidenced by verbalization and patient able to sleep comfortably.
	Risk of injury	Risk of injury related to restlessness due to joint pains	To prevent injury throughout hospitalization	• Nurse Inonge in a railed bed to prevent falls • The rails of the bed will be padded to prevent injury when patient hints the rails. • Offer bed pan to the patient so they do not walk to the toilet as they may fall.	Injury prevented throughout hospitalization evidenced by patient being free from injury during hospitalization.
	Anxiety	Anxiety related to knowledge deficit regarding the condition and unfamiliar ward routine and environment evidenced by asking repeated questions and irritability.	The patient will have anxiety relieved within 48 hours of hospitalization.	• Explain in simple terms the hospital environment to Inonge and orient her to the ward environment, staff and other kids in the ward. • As part of diversional therapy, her favorite toys were brought for him from home, so that she does not miss home so much. • The disease process was explained to the patient so as to increase knowledge base regarding the condition	Anxiety relieved during the first 48 hours of hospitalization evidenced by patient not asking any more questions and being less irritable.

4.4 The Nursing Process

The nursing process is a problem solving approach to nursing that involves interaction with the client, making decisions and carrying out nursing actions based on an assessment of individual patient situation.

It is a variation of scientific reasoning that allows nurses to organize and systematize nursing practice. The Nursing process is a systematic problem solving approach of giving individualized nursing care (Cravern & Hirnle, 1992).

This is the last nursing model you are looking at in this series of nursing models. The nursing process is a tool that you will be required to understand and you will be assessed on it. In your end of first year and Final GNC examination, you may be required to use Nursing Process in answering some of the questions.

Nursing Process is the common thread uniting different types of nurses who work in varied areas. It is the essential core of practice for the registered nurse to deliver holistic, patient-focused care.

The nurse follows the nursing process to organize and deliver nursing care. The use of the nursing process allows the nurse to integrate elements of critical thinking to make judgments and take actions based on reason. The nursing process is used to identify, diagnose and treat human responses to health and illness (American nurses Association, 2003).

Components of the Nursing Process

- Assessment
- Nursing diagnosis
- Planning
- Implementation
- Evaluation

a. **Assessment:** Refers to the systematic collection of subjective (what the patients feels and says) and objective (what you observe) data with the goal of making clinical nursing judgment about the patient or family. During assessment you have to consider the physical, psychological, emotional, socio-cultural and spiritual factors that may affect the health status.

This stage is characterized by data collection, grouping of data into meaningful categories, physical examinations, laboratory tests and observation skills.

Types of data

- Subjective data: This is the information that is only obvious to the patient. It is also known as covert data or symptoms for example pain.
- Objective data: This is information that is detected by the observer for example, pallor. It is also known as overt data or signs

Sources of data

- Primary data: This information is obtained from the patient. It is gathered through informal and formal interviews, physical examinations.
- Secondary data: This information is obtained from the support person, patient written records, diagnostic tests, reports.

Nursing Diagnosis

It is a combination of signs and symptoms that indicates an actual or potential health problem that nurses are licensed to treat and are capable of treating.

Nursing diagnosis can be formulated in 2 ways that is, for an actual problem and for a potential problem.

Actual problem: This is a problem that already exists. When the nurse interacts with the patient it can be elicited because the patient is experiencing it. The nursing diagnosis for an actual problem should have a problem, cause and manifestation. For example, if you identify dyspnea as a problem in a Pulmonary Tuberculosis patient, the nursing diagnosis could be 'Dyspnea related to reduced lung capacity evidenced by labored breathing'.

1. Potential or risk problem:
This is a problem that is likely to occur due to the condition of the patient if certain nursing measures are not observed. The problem is not actually there for example risk to developing pressure sores is a potential problem for a patient who is unconscious. The nursing diagnosis for a patient with a potential problem should have a problem and a cause. For example 'susceptibility to developing pressure sores related to immobility.'

Data analysis leads to formulation of the nursing diagnosis. The nurse uses elements of critical thinking and scientific methods to analyse data so that valid conclusions about the patient are reached and accurate diagnoses are made.

Selected Approved International Nursing Diagnoses (Nanda 2005- 2006)

- Knowledge deficit related to
- Impaired mobility related to
- Non compliance
- Self-care deficit related to bathing/dressing/grooming/feeding/toileting
- Ineffective airway clearance
- Anxiety
- Risk for aspiration
- Bowel incontinence
- Ineffective breastfeeding
- Ineffective breathing patterns
- Decreased cardiac output
- Impaired verbal communication
- Constipation
- Ineffective coping
- Delayed development
- Failure to thrive
- Ineffective feeding patterns
- Fluid volume deficit
- Fluid volume excess
- Impaired gas exchanged
- Unstable glucose levels
- Dysfunctional grieving
- Hyperthermia
- Hypothermia

- Disturbed personal identity
- Urinary incontinence
- Risk for infection
- Risk for injury
- Sedentary life style
- Nutritional deficit less than body requirement
- Acute pain related to
- Chronic pain related to
- Distorted self-concept
- Impaired skin integrity
- Risk for impaired skin integrity
- Disturbed sensory perception
- Sleep deprivation
- Impaired social interaction
- Risk for suicide
- Delayed surgical recovery
- Impaired swallowing
- Ineffective therapeutic regimen management
- Ineffective thermoregulation
- Disturbed thought processes
- Impaired tissue integrity
- Urinary retention

Planning:

Planning refers to creating an organized course of action designed to change negative health response to a more positive one. The nurse, patient and family must participate actively in this stage to set goals. The stage involves four (4) main activities:

- Setting priorities from among identified potential and actual problems
- Setting objectives that must be specific, measurable, achievable, and realistic and time bound.
- Select appropriate nursing interventions that should be done with scientific reasoning.
- Writing of the care plan

Now that you have gone through the nursing process, here is how it can be applied:

Question:
Mr Mutale is admitted to the male medical ward with Pulmonary Tuberculosis, has a wound on his right leg and has difficulties in breathing (dyspnoea). Identify two problems and plan his care using the nursing care plan

Table 3: Example of a nursing care plan

Date	Time	Problem	Nursing Diagnosis	Goal	Implementation	Evaluation
24th July	18 00 hours	Dyspnoea	Dyspnoea due to impaired gaseous exchange in the alveoli related to the inflammatory process evidenced by increased respiratory rate of 34 breathes per minute.	To relieve dyspnoea within 1 hour of admission and throughout hospitalisation.	-Position Mr Mutale in a semi fowler's position using a backrest to promote lung expansion and allow more air entry on inspiration. -Administer prescribed oxygen by mask with a flow of 4-8L/M. This is to provide concentrated oxygen and promote tissue perfusion. -Administer prescribed analgesic that will help in reducing chest pains hence allowing for deep breathing.	Dyspnoea relieved within 1 hour of hospitalization evidenced by normal respiratory rate of 22 breaths per minute.
		Risk of wound infection	Risk of wound infection related to poor wound hygiene	Patient will be free from infection throughout hospitalisation	I will do daily wound dressing using the prescribed antiseptic to promote wound healing Aseptic technique will be followed during wound dressing to prevent contaminating the wound encourage Mr Mutale to eat a lot of fruits and vegetable and meat products in order to promote wound healing	Patient is free from infection throughout hospitalisation evidenced by absence of pus and slough formation on the wound.

Implementation:
It is the actual initiation of the plan, evaluation of response to plan and recording of nursing actions and patient's response to these actions.
It involves therapeutic interaction between the nurse and the client. The nursing care plan is put into action. This requires technical competence and proper manual dexterity. The nursing actions focus on resolving, dissolving or diminishing patient's functional health status problem.

Evaluation:
It is a process of determining to what extent the established goals have been attained.
Evaluation involves analysing the outcome of the nursing action to see if the care given is effective. Observations are important in this stage and are widely used. Updating of the care plan is done in this stage. The outcome should be compared with the objective. Evaluation is an on-going and continuous process performed throughout the nursing process. It may be formative (continuous) or summative (done at the end).

Advantages of the nursing process

To client
- It is adaptable to every patient
- It contributes to individualized care.
- It contributes to high quality care.
- Client feels part of the care team.
- Help client to co-operate and be involved in his/her care.
- A response to continually changing needs of a client.

Disadvantages
- It may lead to frustration especially when the patient's priority is not given the first priority
- It subjects the patient to a lot of talking and thinking thereby disturbing rest and sleep.

To the Nurse
- It can be used in any situation in which a nurse gives care.
- It provides for constant evaluation
- A basis for improving care
- A logical, organized way of approaching a nursing care problem
- It allows for great creativity or innovation
- It is oriented to obtaining objectives.
- Helps to make wise decisions
- It prevents duplication of work
- Helps the nurse to diagnose and treat human response to actual or potential health Problems.
- It helps the nurse to help clients meet agreed upon outcomes.
- It provides a common language and process for nurses to think through client's clinical problems.
- It provides an organized structure and frame work for the delivery of nursing care.
- It helps to evaluate the problems of the client.
- It acts as a tool for providing excellent care to the client.
- A good care plan can serve time, energy and frustrations that is generated by client and staff.
- The nurse can feel a real sense of accomplishment and professional pride when goals in a care plan are met.
- If the plan fails, the nurse can explore reasons for the undesirable result.
- It creates a good relationship between clients and the nurse
- It provides the nurse room for critical thinking.
- Allows the nurse to organize and systematize the nursing practice.

- Encourages the nurse to have confidence about specific problems the client is experiencing and goals to be taken upon those problems.

Disadvantages

- It requires a lot of stationary
- It is time consuming
- It is difficult to implement due to shortage of manpower
- It requires use of observation skills such as cues on non-verbal communication

To the Community

- Participation of the relatives in the care of the patient helps the patient feel loved and supported.
- It helps the community participate in the care of the patient or the health care system.
- The community will be able to evaluate care provided to the client and try to improve on it.
- The community will be able to participate in identifying the problem in their community.

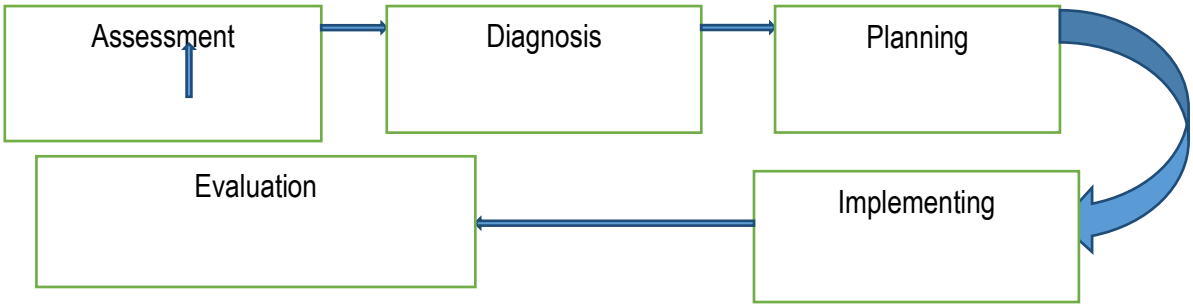
Disadvantages

- As the community is involved the nursing process is no longer client centered, because family members may put their own needs, fears in the nursing process, thus dictating the plan of care.
- The family members participating in the care of patient may lack the required skill, knowledge and resources needed to offer comprehensive care to the client.

Self -assessment Test

1. Define nursing process.
2. Can you list the main three nursing models that we have discussed?
3. Without referring to the notes: Fill in the boxes what constitutes each stage of the nursing process:

Assessing Diagnosis Planning



Answers

1. The nursing process is a problem solving approach to nursing that involves interaction with the client, making decisions and carrying out nursing actions based on an assessment of individual patient situation
2. Orem's model , Henderson model and Nancy, Roper and Logan model
3. **Assessment**: Gather information about the client (both subject and objective)
   Diagnosis: Identify the client's problem
   Planning: Set goals of care and desired outcomes and identify appropriate nursing action
   Implementation: Perform the nursing actions identified in planning
   Evaluation: Determine if goals met and outcomes achieved

4.5 Interactive Process

We are now going to look at the interactive processes in which the nurse is involved.
According to King (1981) 'the process of interactions between two or more individuals represents a sequence of verbal and non- verbal behaviors that are goal directed'.
In the interactive process two individuals mutually identify goals and the means to achieve them.

Helping and communicating with clients
The relationship between the nurse and the patient is referred by some as a therapeutic relationship, interpersonal relationship and still by others as a helping relationship.

Helping – is a growth- facilitating process in which one person assists another to solve problems and to face crises in the direction the assisted person chooses. In the nurse patient relationship the nurse is the helper while the patient/client is the one receiving help.
The helping relationship has got four sequential phases, each of which has identifiable tasks and skills
It is important to note that these stages must progress in succession as each stage builds on the one before it.
Now look at each of these stages one by one.

a. Pre-interaction phase

The pre-interactive phase is similar to the planning stage conducted before an interview. Usually the nurse has information has information about the client before the meeting with the client. Some of the information that the nurse may have is the client's name, age, sex, address and medical / social history. The pre-interactive phase can create some anxiety in the nurse but it is important for the nurse to recognize and accept these feelings so as to contain them. It is also important for the nurse to identify the specific information to be discussed in order achieve positive outcomes from the interaction.

b. Introductory / orientation phase

This phase is very important as it sets pace for all the other phases. The phase has three main stages namely; Opening the relationship, clarifying the problem, and structuring and formulating the contract. The other tasks in the introductory phase include getting to know each other and developing a degree of trust. You should be aware that in the initial stage the client may display some resistive and testing behaviors. Resistive behaviors are those that inhibit involvement, cooperation, or change for example not answering to questions or contributing to the discussion. This can be due to fear of exposing and facing ones feelings and weakness. The testing behaviors are aimed at examining the nurses' interest and sincerity in the discussion with the client.

Now look at the stages that are in the introductory phase

a) Opening the relationship
   The following activities take place during this stage
   - Both the nurse and the client identify each other by name
   - Both can initiate the relationship. When the nurse initiates the relationship it is important that
   - The nurse explains their role to the client so that they know what to expect. When the client initiates the relationship, the nurse needs to help the client express concerns and reasons for seeking help. The nurse can ask vague open ended questions like 'what is on your mind?'
   - The nurse should help the client to be at ease by having a relaxed attending attitude.
b) Clarifying the problem

- The major task for the nurse in is stage is to help clarify the problem to the client as the problem may not be so clear in the initial stage to the client. To do this the nurse needs to listen attentively to what the client will be saying and should also paraphrase the client's words and clarify with the client so as to get the actual meaning of what the client is saying
- Note: Do not ask too many questions

c) Structuring and formulating the contract

During this stage the nurse and the client develop some degree of trust and they agree on;

- location, duration and frequency of meetings
- overall purpose of the relationship
- how confidential material will be handled
- tasks to be accomplished
- duration and indications for termination of the relationship

c. Working phase

In the working phase the nurse and the client begin to view each other as unique individuals and begin to appreciate and care for each other. During the first stage of the working phase, the intensity of interaction increases and feelings of anger, shame or self-consciousness may be expressed. If the nurse is skilled in this stage and the patient is willing to do self –exploration the outcome is a beginning understanding on the part of the client about behavior and feelings.

The working phase has three successive stages which are;

Responding and exploring:
The nurse helps the client to explore thoughts, feelings and actions. In addition to having listening and attending skills the nurse has to show;

- Empathy- which is ability to share another person's feelings and emotions as if they were yours. The nurse must respond in ways that indicate they have listened to what the client has said and understand how they feel.
- Respect – the nurse must show respect for the client and should show willingness to be available and desire to work with the client
- Genuineness – personal statements can be helpful in solidifying the rapport between the nurse and the client. Although the nurse needs to exercise caution when making reference to themselves.
- Concreteness- it is important for the nurse to help the patient to be specific and not generalize issues.

Integrative understanding and dynamic self-understanding
In this second stage of the working phase the client achieves an objective understanding of themselves and their world. This understanding enables them to change and take action. The nurse needs to employ the following skill;

- Advanced- level empathy- this skill enables the nurse to respond in ways that indicate an understanding not only of what has been said but also of what is hinted at or implied nonverbally
- Self- disclosure- the nurse willing but discreetly shares personal experiences.
- Confrontation- this involves the nurse pointing out discrepancies between thoughts, feelings and actions that inhibit the client's self- understanding or exploration of specific areas. This should be done empathetically and not being judgmental.

Facilitating and taking action
During this stage, the nurse plans programs within the clients' capabilities and considers long and short-term goals. The client needs to learn to take risks. The nurse needs to reinforce successes and help the client recognize failures realistically. The nurse and the client both need to have decision marking and goal setting skills.

d. **Termination phase**

The nurse and client accept feelings of loss. The client accepts the end of the relationship without feelings of anxiety or dependence. The nurse needs to have summarizing skills and the client should be able to handle problems independently.

Communication - is a process of sending and receiving verbal and non -verbal messages

It is clear that at the core of nursing are caring relationships formed between the nurse and those affected by the nurse's practice. These relationships can only be established by means of communication
You should be aware that all behavior communicates and all communication influences behavior.

Levels of communication

The nursing profession offers nurses with an opportunity to communicate at different levels. Some of the levels at which nurses communicate are as follows:

Intrapersonal communication

This form of communication occurs within an individual and is also known as self-talk, self-verbalization and inner thought (Balzer Riley 2000). A person's thoughts influence perception, feelings, behavior and self concept. The nurse should be aware of the nature and content of their thoughts and try to replace negative, self-defeating thought with positive assertions which will help improve either the nurse's or client's self - esteem and health.

Interpersonal Communication

This is one on one interaction between the nurse and another person and often occurs face to face. This is the most frequently used in nursing situations and lies at the heart of nursing practice. It takes place within a social context and includes all the symbols and cues used to give and receive meaning.
Meaningful interpersonal communication results in exchange of ideals, problem solving, and expression of feelings, decision making, team building, personal growth and goal accomplishment

Small- Group Communication

Small group communication is interaction that occurs when a small number of people meet together. It is usually goal directed and requires understanding of group dynamics. According to Hybels and Weaver, (1998) small groups are most effective when they are a workable size, have an appropriate meeting place, suitable seating arrangements, cohesiveness and commitment of team members. In this type of communication it is important to listen to others and also have respect for others as partners.

Public Communication

This involves communication with an audience. Public communication requires adaptations in eye contact, gestures, voice projection and use of media materials to communicate messages effectively. Nurses do have opportunities to speak with groups of consumers about health related topics, lead classroom discussions as well as presenting scholarly articles to colleagues at conferences.

Basic Elements of Communication

The basic elements of communication are six and are as follows:

- Referent
- Sender
- Message
- Channel
- Receiver

- Feedback

Referent

A referent is anything that motivates a person to communicate with another. In the health care setting referents can be things like odours, sounds, time schedules, objects, ideas and emotions. The nurse can better develop and organize messages efficiently and be able to perceive meaning in another's message if they know the stimulus that initiated communication.

Sender

The sender is the originator of the message and. He formulates, encodes and transmits the information which he/she wants to communicate. The accuracy and impact of the message will depend on the sender's communication skill

Message

The message is the content of the communication. It may be in the form of words, pictures or signs. Messages are interpreted by those who receive them through personal perception that may or may not distort the meaning intended by the sender. Nurses can send effective messages by expressing themselves clearly, directly and in a manner familiar to the receiver. It is important to lookout for nonverbal cues which suggests confusion or misunderstanding from the listener.

Channels of Communication

Channels are means of conveying and receiving messages through visual, auditory and tactile senses between sender and the receiver. The more channels the sender uses to convey a message, the more clearly it is understood. For example, when teaching about insulin self-injection, the nurse talks about and demonstrates the technique, gives the client printed information and encourages hands-on practice with the vial and syringe. Nurses use verbal, nonverbal and mediated (technological) communication.

Receiver

The receiver is one who receives and decodes the message from the sender. The receiver is responsible for attending to, translating and responding to the sender's message.

Feedback

It is the flow of information from receiver to the sender, the reaction to the message. Feedback is the indicator as to whether the message was understood or not. For communication to be effective both the sender and receiver must be sensitive and open to each other's messages, clarify the message and modify behaviour accordingly.

Forms of communication

Messages are conveyed verbally and nonverbally, concretely and symbolically. When communicating, people express themselves through, words, movements, voice inflection, facial expression and use of pace. These elements can work in harmony to enhance a message or conflict with one another to contradict and confuse it.

Verbal Communication

Verbal communication uses verbal or written worlds. When using verbal communication the nurse should be conversant with the necessary techniques needed to make verbal communication effective. These techniques include;

Vocabulary- for communication to be effective both the sender and receiver must understand each other's words and phrases. If there is a barrier in language, an interpreter should then be used. Nurses should desist from using medical jargon as this can lead to a break in communication as the lay person is not familiar with medical terminologies.

Denotative and Connotative Meaning- The connotative meaning is the interpretation of a word's meaning influenced by the thoughts, feelings or ideas people have about word. Nurses should ensure that they carefully select words to avoid misinterpretation, especially when explaining client's medical condition or therapy.

Pacing- Nurses should speak slowly enough for conversation to be successful. An appropriate speed and pace of speech should be maintained throughout.

Intonation- the tone of voice affects a message's meaning. Depending on intonation a simple statement can express anger, indifference or concern. It is necessary for the nurse to maintain a reasonable voice tone to avoid sending unintended messages.

Timing and Relevance- timing is very important in communication. Even when the message is clear, poor timing can prevent it from being effective. For example the nurse should not start teaching when the patient is in pain.

Clarity and Brevity- Effective communication is simple, brief and direct. Clarity is achieved by speaking slowly, clearly and using examples to make explanations easier to understand

Brevity- is achieved by using short sentences and words that express ideas simply and directly. For example asking questions such as 'where is your pain?' is much better than 'I would like you to describe for me the location of your discomfort.

Non -verbal Communication

Nonverbal communication is also known as body language. Nonverbal communication often tells more about what a person is feeling than what is said.

This is because nonverbal behaviour is controlled less consciously than verbal behaviour and majority of communication is non- verbal. As a health care provider you will learn more from observing a patient's nonverbal cues than from listening to a patient's verbal communication.

Nonverbal communication includes the following;

Physical appearance – (Such as grooming, manner of dressing). These factors help communicate ones physical well-being, personality, social status, occupation, religion, culture, and self-concept. The nurses develop a general impression of a client's health and emotional status through appearance and clients as well develop a general impression of the nurse's professionalism and caring in the same way.

Facial expressions- facial expressions convey emotions such as fear, anger, surprise, happiness and sadness. It is important though to note that some people do not reflect their emotions on their faces. They are said to have a flat affect. An inappropriate affect is a facial expression that does not match the content of a verbal message, for example, smiling when describing a sad situation. These expressions must be interpreted when communicating with a patient. The ability to interpret facial expressions leads to a better understanding of your patient's condition.

Posture and Gait – this refers to the way one walks, stands or sit which can reflect emotions, attitudes, health status and self-concept. For example, an erect posture and a quick, purposeful gait communicate a sense of well -being and confidence.

Eye Contact – readiness to communicate can be signalled by eye contact. Maintaining eye contact during conversation shows respect and willingness to listen. Lack of eye contact may indicate discomfort, lack of confidence in communicating, anxiety or defensiveness. However culture also plays a role on ones perception on eye contact and so others may avoid maintenance of eye contact.

Sounds – Some sounds such as sighs, groans, sobs communicate thoughts and feelings. When combined with verbal communication, sounds can send clear messages.

Gestures – these help to emphasise clarify and punctuate spoken words. For example, pointing to an area of pain can be more accurate than describing the location of pain.

As the nurse you must explore further if the patient's nonverbal message does not match with their verbal message.

Caregiver's Body Language

Smiling, leaning forward, eye gazing and touching are elements of body language that the nurse can use to improve her relationship with the patient. Be aware that your body language communicates messages to your patient and ensure that you are respectful and considerate in speech and movement. Use your body language to communicate effectively with the patient and their family.

Factors influencing communication:

- Perceptions
- Values
- Socio-cultural background
- Knowledge
- Environment
- Space and territoriality

Documenting and Reporting: Documentation is anything written or printed that is relied on as record or proof for authorized persons (Potter-Perry, 2005). Reports are oral, written or audiotaped exchange of information between caregivers. Reports include, change-of-shift reports, telephone reports, transfer reports, and incident reports, (Potter-Perry, 2005).

Importance of communicating among the health care team members
Written and verbal communication among health team members is vital to the quality of client's care. Generally, the health team communicates through discussions, reports, and records. A discussion is an informal oral consideration of a subject by two or more members of the health team, often leading to a decision. A report is an oral or written account by one member to others in the health team; for instance, nurses always report on clients at the end of a hospital work shift. A record is always written; it is a formal, legal documentation of a client's progress and treatment.

Accurate, complete communication serves several purposes:

- It helps co-ordinate care given by several people
- It prevents the client from having to repeat information to each health team member.
- It promotes accuracy in the provision of care and lessens the possibility of error.
- It helps health personnel make the best use of their time by avoiding overlapping of activities.

Attitude towards other team members
Nurses function in roles that require interaction with multiple health team members. Many elements of the nurse-client relationship are also applied in these collegial relationships, which are focused on accomplishing

the work and the goals of the clinical setting. Communication in such relationships may be geared toward team building, facilitating group process, collaboration, consultation, delegation, supervision, leadership, and management. A variety of communication skills are needed, including presentational speaking, persuasion, group problem solving, ,providing performance reviews and writing business reports. Both social and therapeutic interactions are needed between the nurse and health team members to build morale and strengthen relationships within the work setting. Nurses need friendship, to cope with many stressors imposed by the nursing role and must extend the same caring communication used with clients to build positive relationships with colleagues and co-workers.

Hospital policies and regulation

- Policies and regulations pertaining to channels of communication vary from hospital to hospital. Never the less, nurses should become familiar with the type of recording done in their hospital.
- Nurses' entries on the patient's record are important because they show that medical orders were carried out and independent assessments and interventions were performed and the exact dates and times of care and progress are documented.

Purpose of clients' records

A record is a valuable source of data that is used by all members of the health care team. Its care includes communication, legal documentation, financial billing, education, research, and auditing-monitoring;

i) Communication

The record is a mean by which health care team members communicate client's needs and progress, individual therapies, client education and discharge planning. The plan of care needs to be clear to anyone reading the chart. The record should be the most current and accurate source of information about a client's health care status.

ii).Legal documentation

Accurate documentation is one of the best defenses for legal claims associated with nursing care. To limit nursing liability, nursing documentation must clearly indicate that individualized, goal-directed nursing care was provided to a client based on the nursing assessment. The record needs to describe exactly what happened to a client. This is best achieved then the nurse charts immediately after care was provided. Even though nursing care may have been excellent, in court of 'care not documented is care not given'.

Four common issues in malpractice caused by inadequate documentation are:

i. Not charting the correct time when events occurred
ii. Failing to record verbal orders or failing to have them signed
iii. Charting action in advance to save time
iv. Documenting incorrect data

iii).Financial Billing

Medical records are also audited to review financial charges used in the clients care. Private insurance carriers and auditors from federal agencies review records to determine the reimbursement that a client or a health care agency receives. Accurate documentation of supplies and equipment used assist in accurate and timely reimbursement.

iv). Education

The effective way to learn the nature of an illness and the individual client's response to it is to read the client's care record. No two clients have identical records' and patient's information can be identified in records of clients who have similar health problems. With this information, students identify patterns for various health problems and can begin to anticipate the type of care required for a client.

v).Research
A nurse may use client's record during a clinical research study with statistical data relating to the frequency of clinical disorders, complications, use of specific medical and nursing therapies, recover from illness, and death to investigate a new nursing intervention.

vi). Auditing –Monitoring
Nurses monitor or review records throughout the year to determine the degree to which quality improvement standard are met. Deficiencies identified during monitoring are shared with all members of the nursing so that corrections in policy or practice can be made. Quality improvement programs keep nurses informed of standards of nursing practice to maintain excellence in nursing care.

Types of records

a. Admission Nursing History Forms
This form is completed when a client is admitted to a nursing care unity. The history form guides the nurse through a complete assessment to identify relevant nursing diagnosis or problems. It contains data that can be used as baseline to compare with changes in the clients condition. Each institution designs a history form differently based on the standard of practice and philosophy of nursing care.

b. Flow Sheets and Graphic Records
Flow sheets are forms that allow nurses to quickly and easily enter assessment data about the client, including vital signs and routine repetitive care, such as hygiene measures, ambulation, meals, weights, and safety and restraint checks. It provides a quick, easy reference for the healthcare team members in assessment client's status.

c. Kardex and Nursing Care Plan.
kardex is widely used, concise method of organizing and recording data about a client, making information quickly accessible to all members of the health team. The system consists of a series of cards kept in a portable index file. The card for a particular client can be quickly turned up to reveal specific data. Often kardex data are recorded in pencil so that they can be changed and kept up to date. The information on kardexes may be organized into sections, for example:

- Pertinent information about the client, such as name, room number, age, religion, marital status, admission date, occupation, and next of kin.
- List of medications, with the date of order and time of administration for each.
- List of intravenous fluids, with dates of infusions.
- List of daily treatment and procedures, such as irrigations, dressing changes, postural drainage, or measurement of vital signs.
- List of diagnostic procedures ordered, such as endoscopic or laboratory tests.
- Allergies.
- Specific data on how the client's physical needs are to be met, such as type of diet, assistance needed with feeding, elimination devices, activity, hygiene needs, and precautions (use of side rails, among others.)
- A problem list, stated goals, and a list of nursing approaches to meet the goals and relieve the problems.

When caring for the clients, a nurse has the best opportunity to assess and reassess with the client the accuracy of the information and the effectiveness of treatment.

d. Computer Records:

A well designed database system can make the entry and retrieval of information a relatively easy task for the nurse who uses it. Changes can be made easily to update this record. Later as the needs of the nurse dictate, information about a particular client, diagnosis, or physician can be recalled to the screen.

In addition to facilitating individualized clients care, computerized records can also be beneficial to nurse-managers who may use stored data to generate reports on the acuity levels of clients on each unit.

Four components of a progress note

- Subjective
- Objective
- Assessment
- Plan

Format for writing progress reports

The systematic format for writing progress notes can be done using the following mnemonics:

- SOAP
- SOAPIER
- APIE
- Flow sheet can also be used

SOAP

Progress Notes: Subjective (S)

-History and symptoms of the present complaint or past problem
-what the patient or family tells you

Progress Notes: Objective (O)

-Physical examination
-Physiologic data
-X-ray
-Lab results

Progress Note: Assessment (A)

Diagnosis or present state of the problem

Progress Note: Plan (P) (actions to be taken to relieve client's problem)

-Therapy (treatment: medicines and procedures)
-Investigation (diagnostic)
-Education (patient. education.)
-Referrals
-Follow up

1. S – Subjective data.

O – Objective data
A- Assessment
P - Plan

I – Interventions

E - Evaluation – Based on the patient's response to the interventions

R – Revision. Revision to the plan or changes that must be made

2. A – Assessment. Combines subjective and objective data with nursing diagnosis
   P – Plan. Combines nursing actions with expected outcomes
   I – Implementation
   E – Evaluation

Table 4 : Example of soap format

Problem	Date/Time	SOAP NOTES
No 1	2-11-15 14:30	S – 'My head hurts right in the back of my eyes. It is worse when bending over' O – Eyes closed, lights dim, hesitant to move head when questioned A – Migraine headache probable secondary to intracranial pressure P – Drink a lot of water • Warm compresses to eyes • Monitor temperature 4 hourly • Analgesics • Assess pain after medication and contact doctor

Guidelines for recording

High quality documentation and reporting are necessary to enhance efficient, individualized client care. Quality documentation and reporting have five important characteristics: they are factual, accurate, complete, current, and organized.

a. Factual

A factual record contains descriptive, objective information about what a nurse sees, hears, and smells. An objective description is the result of direct observation and measurement. For example, 'B/P 80/50, client diaphoretic, heart rate 102 and regular'. The use of inference (for example, 'client appear to be in shock') without supporting factual data is not acceptable because it can be misunderstood.

The use of vague terms, such as *appears, seems, or apparently*, is not acceptable because these words suggest that you are stating an opinion. For example, 'the client seems anxious', does not accurately communicate facts and does not inform other caregiver of the details regarding the behaviors exhibited by the client that lead to the use of the word *anxious.* When recording subject data, document the client's exact words using quotation marks. For example, when a client exhibit anxiety you record, 'client states, 'I feel nervous'

b. Accurate

The use of exact measurements establishes accuracy for example description such as 'intake, 360 ml of water' is more accurate than, 'client drank an adequate amount of fluid.' These measurements can later determine whether a client's condition has changed. Charting that an abdominal wound is

'5cm in length without redness, drainage, or edema' is more descriptive than 'large wound healing well.'
Always use accepted abbreviations, symbols and system measures that can be translated and understood the members of the health team.
Correct spelling demonstrates a level of competency and attention to details. Many terms can easily be misinterpreted (for example *dysphagia* or *dysphasia* and *dram* or *gram*). Some spelling error can result in serious treatment error; for example, the names of certain medications such as digitoxin and digoxin or morphine and numorpan are similar. Transcribe such terms carefully to ensure that the client receives the correct medication.

Records need to reflect the accountability during the time frame of entry. This is accomplished when nurses chart only their observations and actions. The signature holds that nurse responsible of the information recorded. If information was inadvertently omitted, it is acceptable for a nurse to ask colleagues to chart information after they leave work.

c. Complete

The information to within a recorded entry or report needs to be complete, containing appropriate and essential information. Your written entries in the client's medical record describe the nursing care you administer and the client's response.

d. Current

Timely entry is essential in the client's ongoing care. To increase accuracy and decrease unnecessary duplication, many health care agencies keep records near the client's bed side to facilitate immediate documentation of information as it is collected from the client. Flow sheets offer a mean to enter current information quickly. Activities or findings to communicate at the time of occurrence include:

- Vital signs
- Administration of medications and treatments
- Preparation for diagnostic test or surgery
- Change in client's status and who was notified, (for example physician, manager, client's family)
- Admission, transfer, discharge, or death of a client
- Treatment for a sudden change in client's status
- Client's response to treatment or intervention

e. Organized

As a nurse, you need to communicate information in a logical order. For example, an organized note describes the client's pain, your assessment and interventions, and the client's response. To write notes about complex situation and make notes of what to include before beginning to write in the permanent legal record. Applying critical thinking skills and the nursing process gives logical and order to nursing documentation.

Report writing

Reporting is the verbal communication of data regarding the client's health status, needs, treatments, outcomes and responses (Eggland and Heinemann, 1994).

Now look at the principles of report writing

Principles

i. Relevant information must be given about the patient or ward situation
ii. Report must be clear and concise.

iii. The receiver of the report must ask questions and clarify any questions or issues she does not understand.
iv. Receiver should be familiar with the information and instructions contained in a written report (including abbreviations used).
v. Written reports must be signed in a recognized signature by people who compile them.

Note that: Reports differ according to:

- Ward where patient is admitted
- Age of patient
- Condition of patient
- Department where patient is admitted for example an ICU report is different from Maternity report
- Person

Examples of reports

There are several types of reports written and reported by health workers including the following;

- Summary (end of shift) report written and given during the exchange of shift or transfer of a patient.
- Walking rounds for example nurses round, physicians rounds among others
- Telephone reporting and orders
- Incident reports for example an accident during the shift, patient falling or fire

A Written Report

A written report is written on admission and twice daily that is, in the morning by the night staff and in the evening by the day staff. The purpose of the written report is to provide a permanent and accurate record of relevant data.

A report is a legal document and has to be kept for a period of 5 years and should readily be available for reference even when needed at short notice.

Content of the Report

- The report must have correct spellings particularly on drugs.
- Only use universally accepted abbreviations.

Report Writing on Admission or Transfer of Patient

On admission, a ward report should be written noting the time of admission, where the patient has come from, reasons for admission or transfer to your ward.

Record all social details, condition of the patient on admission and the general appearance which include the following:

- Clean or dirty
- Nutritional status
- Anxiety and restlessness
- skin condition for example rash, scars, jaundice, cyanosis
- Dyspnoea
- Gait
- Any other abnormalities

The report should also include whether the patient has been seen by the Doctor or not. If not inform the Doctor. It should also include vital signs observations for base line date and weight. Include whether a specimen of urine was collected and tested or not (record results) if not indicate reasons.

Method of Hand Over

The nurse taking over the ward must give her undivided attention to her work and this procedure should be conducted in a quite manner without unnecessary interruptions.

The nurse must remain on the ward to facilitate the following:

- Signing of the report and counter signed by the ward manager, receiving and handing over nurse.
- Any mistakes must be corrected and clarifications made right there and then.
- Reports should be given from bed to bed starting with acutely ill patients.

Self-assessment questions

1. What is communication?
2. What are the basic elements of communication?
3. List the factors influencing communication

Answers

1. Communication is a process of sending receiving verbal and non -verbal messages.
2.
    - Referent
    - Sender
    - Message
    - Channel
    - Receiver
    - Feedback
3.
    - Perceptions
    - Values
    - Socio-cultural background
    - Knowledge
    - Environment
    - Space and territoriality

4.6 Summary

Well, you have come to the end the most interesting concepts that have helped the nursing profession find ways of how to provide organized nursing care to clients. The theories and models can only be summed up in the one statement that clients know what they need and should therefore be involved in planning their care. You also covered that effective communication, documentation and reporting is vital to ensure that the patient receives holistic care. As a nurse you must ensure that clients are assisted to gain self-independence as quickly as possible.

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UNIT 5: PROVISION OF A SAFE ENVIRONMENT

5.1 Introduction

Welcome to this unit. In the previous unit you learnt about theories and models, how to use a nursing care plan in solving patients problem as well as communicating effectively with patients and documenting your work. In this unit you will learn how to make the environment for your patient safe to stay. A safe and comfortable environment is important to the recovery of the patient and all efforts should be directed at maintaining such an environment.

The floors should not be too slippery to avoid slipping and falling.

Dangerous objects like broken windows, chairs, tables among others should also be removed to avoid unnecessary accidents.

You will be able to protect patients from acquiring other infections in the hospital. You will further cover bed making which will equip you with techniques in making various beds. We are going to learn about the body mechanics which involves correct body alignment during moving, positioning and lifting of clients.

5.2 Objectives

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

1. Describe the hospital and the community

5.3 Hospital and community

Physical structures

The client's Unit

Activity

In your own understanding what is a client's unit? Write down your answer in your note book.

Now that you have completed the activity compare your responses with the content that follow.

Client's unit is the immediate environment of the patient; where he/she is accommodated while in hospital. Usually includes a bed, linen, bedside locker and a cardiac table.

You will start by looking at the physical structure and how it can be made safe for the client/patient. :
Remember in our definition, we mentioned the immediate environment

Safety Measures

Maybe you want to try to define safety measures? We say that, these are ways that are put in place in order to reduce hazards to the patient.

Safe

Do you want to try and define safe? Ok we can say that term refers to a state of being free from danger, harm, injury or damage.

Safety

Since we have defined safe, we can as well define safety which is simply freedom from danger or risk of harm or injury.

Environment
The term environment encompasses all the external factors that influence the lives and activities of people, plants and animals**.**

- **Maintenance of safe environment**

Having looked at the terms above, we can now go on to look at how to make the environment of the patient safe to stay.

You should make patient's environment safe and comfortable because it is important to the recovery of the patient and all your efforts should be directed to maintaining such an environment. You should avoid slipping and falling by ensuring that the floors are not too slippery. Remove dangerous objects like broken windows, chairs, tables among others. to avoid unnecessary accidents.

- **Safety Measures**

For you to be able to provide a safe environment you need to involve the patient, visitors and other health care providers. It is unreal to assume that you will be able to eliminate all hazards. However, there are measures you can take to prevent these hazards. The preventive measures would be based on the types of injury you want to avoid. These are as follows:

A. Mechanical injury
The most common types of mechanical injuries are falls from beds, wheel chairs, stretchers, falls on slippery floors and wheel walking or tangled cords. You can prevent mechanical injury as follows;

i. Adjust bed heights to lower levels when you are not in the patient's room.
ii. Tell patients who are weak to seek help when getting out of bed.
iii. Avoid debris on the floors and wipe split water or any liquids on the floors. You must fix firmly Floor covers or mats.
iv. Put signs for slippery areas.
v. Put all patients' articles within reach.
vi. Lock wheel chairs and stretchers, they should also be in a good condition.
vii. Have periodic checks of equipment to ensure safety.
viii. Keep bed side rails up for confused, unconscious, elderly and surgical patients.
ix. Avoid Over polishing of floors, all spills of fluids or solutions should be mopped out immediately to avoid slipping off.

B. Thermal injury
This is another type of injury which is anticipated in patient's unit. This type of injury may be caused by fires or burns. Fire may occur when a patient is smoking in bed or near the oxygen apparatus. Burns may occur from application of the heat, for instance, hot water bottles, giving hot drinks especially to the elderly and the young and hot baths. How then can we prevent thermal injury?

The following are the ways in which you can prevent thermal injury

i. Evacuate patients during a fire by following hospital policy and also be familiar on the use of fire extinguishers.
ii. Check all electrical appliances routinely.
iii. No smoking should be allowed in the hospital due to the presence of oxygen cylinders in the wards.
iv. If you use hot water bottles make sure you wrap them in towels for protection and regularly check on the patients on hot water bottles for burns.
v. As a member of Staff including other employees you must be aware of how to act in case of fire – you know the fire drills.

C. Chemical Injury

Chemical injury is another type of injury the patient may face in his/her unit which may be caused by use of too much or strong chemicals on the skin. This may be due to the fact that you may wrongly or poorly dilute the chemicals used for disinfection or treatment of wounds. The only good news that, you can equally prevent chemical burns by doing the following;

i. Keep all medicines locked up.
ii. You should label all drug bottles; therefore you have to keep topical and oral drugs separately.
iii. Calculate dosage of drugs before administration as well as disinfectants before use.
iv. Keep poisons labelled and separate from medicines.
v. Keep all medicines and reagents locked in the cupboards and keys should be kept by the in-charge.

D. Bacteriological Injury

In patient's environment there a lot of bacterial which can bring problems to the patient which is referred as bacteriological injury. It is caused by disease causing micro-organisms. Micro-organisms cause all diseases that can be spread from person to person and also all infections. The hospital infection is caused by staphylococcus, which is normally found on the skin and mucus membranes. It may be transmitted by body contact or discharge. Organisms are spread more by hands than any other method. You learn more about micro-organisms in microbiology however, some of the ways you can prevent bacteriological injury as follows;

i. Practice Hand washing
ii. Ensure that you Wear protective clothing's like masks, gloves,
iii. Practice Barrier nursing
iv. Cover all pillows and mattresses with plastics.
v. Dump dust all surfaces daily.
vi. Disinfection and sterilizing of all equipment used by patients should be a must so as to prevent bio-hazards

Other rare injures

Electrical injury

These results in burns form electric current for example by defective wiring or defective equipment. Touching electrical equipment with wet hands may produce a burn or a shock. You can prevent this type of injuries by;

i. Not overloading sockets.
ii. Reporting all defective wiring and never use equipment without plugs.
iii. Switch off electricity when dusting with a dump cloth or changing bulbs.

Radiation Injury

This is another rare injury which occurs from over exposure to rays of x-rays or radium.

You can prevent radiation injury by having trained operators in-charge of the machines or drives used for administering these x-rays.

Noise

In the patient's unit there can be noise which you need to take into consideration as well and all of us at one time have been found in a noise environment. Well we can say noise is a sound that is loud, unnecessary and irritating or unwanted.

- **Elimination of Noise**

Persistent noise which is unnecessary can retard the patient's recovery by causing irritation and sleeplessness. In a hospital noise comes from the following sources:

Hospital personnel, visitors, hospital activities, talking, noisy shoes like high heels, slumming doors, equipment such as telephones ringing and movement of trolleys. Having known the sources of noise, how then do we eliminate noise from the patient's environment?

We can eliminate noise from the patients' unit as follows:

i) You should ensure proper maintenance of equipment by oiling trolley wheels and door hinges.
ii) Ensure that you prepare your trolleys in the treatment room.
iii) If you are the Nurse on duty you should be wearing flat rubber heeled shoes.
iv) As a nurse you should work quietly and control noise from visitors.
v) Place Television sets or radios in day rooms or side wards

Odour

Equally in the patient's environment there are some odours' which can be defined as smells which are pleasant or unpleasant to an individual.

- **Control of Odours**

The odours may come from the environment or equipment used in hospitals like bed pans. Unpleasant odours sometimes cause nausea and vomiting. You can prevent these odours by identifying the source and then remove the source after identifying it. Also you require proper ventilation remove the odours.

Temperature

Temperature is another term you need to define because in the patient's environment temperature varies. Temperature can be defined as the degree of hotness or coldness of a substance or body.

- **Maintenance of Room Temperature**

If you remember very well we defined temperature when we started this unit, now we are looking at room temperature and we can say that Room temperature is a degree of warmth which is comfortable for the patient. The ward temperature depends upon the time of the year; condition of individual patients; amount of ventilation. Ideally ward temperature should range from **18.3 - 24 degrees** Celsius depending on environmental factors. A temperature that is too high causes perspiration and fatigue.

For better understanding we should talk about Humidity which is the amount of moisture in the air. When humidity is high less moisture evaporates from the skin and sensations of cold and heat are intensified because water is a good conductor of heat. When humidity is low evaporation from the skin is more rapid and a person feels chilly.

When it cold, you should find ways of making the environment warm. The following are the ways of making the environment warm.

Methods of Heating in Hospital

i. The sun provides natural heat.
ii. Convector heaters or air/ wall heaters.
iii. Central heating system.

- **Roles of a nurse in providing adequate heat**

The following are measures to ensure that there is adequate heat in the hospital

i. Always switch off lights when not required.
ii. In climates where temperatures are high and humid, sun blinds and funs are essential.
iii. Polanski (translucent) glass can be used to avoid direct strong sunlight.

Now that you managed to keep the environment warm, you need to control the unpleasant odours so that the patient is comfortable

Lighting

Another term you need to know is lighting. In your own understanding, how can you define lighting?

Well we can say lighting is the energy producing brightness that makes seeing possible or a source of illumination to the environment which could be natural or artificial such as the sun, electric bulb, candle and so on. Do you have any other example you can give on lighting?

Types of light

As we all know that Good lighting is necessary for the sake of comfort and safety. We have different types as follow

(i) Natural: The source is the sun and light can only come in the patient's unit when curtains are drawn. The following are the advantages:

- It is cheap
- Source of vitamin D (makes bones strong)
- Less side effects
- Kills germs (the ultra violet rays)

The second source of light is:

(ii) Artificial light which we get from

- Electricity
- Paraffin lamps
- Fire, candles

The advantage of artificial light is that it is available at any time and can be adjusted.

Even if it is always available, it has the following advantages;

- Expensive
- Risky
- Pollution (in some types for example, paraffin fumes)

Windows are usually arranged in relation to beds to ensure maximum lighting. Artificial lights are provided by central lights while individual lights should be available over individual beds. 'During night time when you switch off most lights you should leave enough lights so that you are able to observe the critically ill patients.

One thing you should know is that bright lights can prevent patients from sleeping.

Patient need to rest most of the times therefore, you should ensure that there is no noise in the patient's environment.

- **Ventilation**

You should know that a well-ventilated room should contain a comfortable amount of moisture. The environment should be free from odours and have tolerable temperatures. Adequate ventilation is important when there is more than one person in the room.

Importance of Ventilation

We are now going to look at the importance of ventilation because if you know the importance of ventilation you will strive to ensure that there is good ventilation in the patient's unit. The following are the importance of ventilation;

i. Foul air is replaced by fresh pure air.
ii. Moisture laden air is replaced by air containing less moisture.
iii. Movement of air on the skin stimulates nerve endings.

You should keep the ward airy by opening windows as necessary possible but avoid draughts you should also avoid stuffy environment because predisposes to multiplication of bacteria and respiratory infections. Stuffy environment also makes patients to be less alert.

How then can we provide ventilation? This question leads us to the next subheading which is

Methods of providing ventilation

We can provide ventilation by:

- Natural ventilation from wind or breeze through doors and windows.
- Artificial ventilation from air conditioners and fans.
- Good ventilation reduces air borne contaminants by regulating air movements.

Remember we have also defined lighting, how then can we ensure good lighting?

Care of Ward Equipment and Linen

We are now going to describe how to care for and maintain equipment and linen used in the wards (Hospital).

Cleaning and Maintenance of Equipment

Cleaning and maintenance of all the ward equipment after use or when a patient is discharged is your duty as a care giver. You should do the cleaning and closely supervise the cleaning and know the time it should be done in order to plan for other procedures. The following are the ways you can clean and maintain ward equipment:

i. Walls in the wards are usually washable either oil paint or tiles; otherwise dust with wall brush. Theatre walls are washed daily and usually in between procedures. To prevent microbes, Theatre staff change shoes in theatre.
ii. Electric lights-turn off electricity and dust lamps or stands.
iii. Woodwork; scrub with soap and water; rinse and dry well.
iv. Stainless steel: wash with soap and water; rinse and dry.
v. Glass – wash with soapy water; rinse in warm water and dry.
vi. Trolley and screen wheels – clean and oil periodically.
vii. Ward bathroom, sterilizing room, lavatory and sluice room should be cleaned daily with soap, scouring powder and rinsed. Disinfectant should be used after rinsing. Wash baths and sinks after use of each pt.
viii. Washing bowls and emesis bowls - clean after each use with soap and water.
ix. Bedpans, urinals – flush with cold water after use to remove all contents of the equipment then mop with hot water and rinse. Leave to dry. Use disinfectant savlon 1:100 or 0.5% chlorine solution if no hot water is available.
x. Toilets – sprinkle with harpic or suitable disinfectant; leave at least half an hour then scrub with brush and flash. Lavatory pans should be washed with disinfectant.
xi. Sputum mugs – empty and flush with cold water. Wash in hot soapy water using mop and boil for five minutes in special sterilizer or place in disinfectant 1:100 for 20-30 minutes or jik 1:6 for 20 minutes.
xii. Dirty sluice room bins – wash after emptying and you should disinfect them.
xiii. Ward kitchen – the environment should be maintained in a high standard of cleanliness. Stoves, hot plates, should be cleaned after each use. Food spilt should be wiped up immediately and soiled equipment washed to prevent flies.
xiv. Soak pots after use in cold water. Clear crockery thoroughly before offering it to pts. Crockery used by infected patients should be separated from the rest of the ward equipment.
xv. Ward refrigerator – should be washed frequently to prevent growth of microbes.
xvi. Cupboards (lockers) and shelves – scrub and replace articles. Cover all foods. Return unwanted foods to the main kitchen. All waste foods should be placed in a closed bin.
xvii. Maintenance –carry out general repairs for example dripping taps, broken beds, chairs, machinery; report to the ward in charge for it to be dealt with by the appropriate department.

Care of Linen

It is your responsibility to take care of hospital linen. Linen refers to all materials used by the patient in hospital. It includes clothing materials such as pyjamas but mostly refers to bed linen that is, counterpanes, sheets and draw sheets. The following measures should be taken as you care for hospital linen.

- Mend all Patients' uniforms that need to be mended immediately to avoid extensive damage.
- Freed carefully Bed linen caught in bed wire to avoid tearing.
- Take all soiled linen to the laundry. Wet linen should be washed immediately to prevent growth of fungi. Stained linen should be sluiced immediately to avoid growth of microbes. Before linen is taken to laundry, count it and record on a laundry form or in the book for accountability. Ensure that all hospital linen is labelled to so that it is not sent to a different ward or department after being washed.
- **Blood and stool stains-** You should sluice with cold water before taking to the laundry.
- **Fruit stains** – rub salt in the linen and sock in cold water.
- **Ink stains** – soak in cold water or use bleach.
- **Tea, coffee or cocoa stains** – wash in cold water then pour boiling water on the stain. Also use linen only for its intended purpose. Infected linen should be soaked in disinfectant for 1 hour and taken to the laundry in a bucket or double bag labelled 'infectious'.

Supply of clean linen is supposed to be on a daily basis. This will also depend on how often linen is sent to laundry from your ward. Pack linen according to types for instance, Blankets, bed sheets, pillowslips and so on. Tidy the shelves daily before and after bed making. Lock the linen room at all times for security of linen. You should cover all Mattresses and pillows with plastics for easy washing and drying after they are used by each patient.

Rational Use of Materials and Supplies (Hospital Economy)

Now that you have covered how to care of the ward and linen then you can move to talk about. Rational use of materials and supplies, just like in a home you need to be economical in use of hospital materials and supplies.

What do you understand by hospital economy? Hospital economy refers to avoidance of waste with regards to materials, time, money and equipment on the ward.

Cotton materials which include lint, cotton wool, gauze and bandages are very expensive and it is important that you use them only where necessary. You should avoid wasting of resources, use the materials only for the purpose of which they are meant for. Furthermore you should do the following for you to use the materials in a rational manner:

- Turn off electricity and steam whenever possible.
- You should handle Drugs with care, you should return left over drugs to the pharmacy after patient is discharged.
- You should handle Drugs with care, avoid spilling or dropping. Stock piling is expensive and you should avoid it.

Principles of Infection Prevention

You have looked at the patient's unit, at this moment you will look at how to prevent infection in the patient's environment, before going any further, it is important to define infection prevention so that as we proceed, you know what it means. It can be defined it in so many ways:

i. Infection prevention is defined as standards provided or measures used to avoid or prevent infection and promote quality services
ii. Other writers have defined Infection prevention as Prevention of cross infection between patients, staff and patients and vice versa.

Lastly Infection prevention can also be defined as series of activities done to control or limit the transfer of micro-organisms from one point to another or from person to person.

DEFINITION OF TERMS

Infection: This is the invasion of the body by pathogenic microorganisms that reproduce and multiply causing disease by local, cellular injury, circulation of toxins or antigen antibody reaction.

Infection prevention: This is the process of putting up barriers between the susceptible host and pathogenic micro organism

Nosocomial infections are hospital acquired infection

Decontamination: This is the process that renders the inanimate objects safer to handle by staff before cleaning

Cleaning: This is the process that physically removes all physical dust, soil, blood and other body fluids from inanimate objects as well as removing sufficient number of microorganisms to reduce risks of infection

Asepsis/Aseptic technique: It is the combination of efforts made to prevent entry of microorganisms into any area of the body where they are likely to cause infection

High level disinfection: This is the process that eliminates all microorganisms except some spore forming bacteria from inanimate objects by boiling, steaming or use of chemical disinfectant.

Purpose of infection Prevention

The purpose of infection prevention is to

- Prevent the transmission of communicable diseases in the health care settings.
- Protect those who might be vulnerable to acquiring an infection both in the general community and while receiving care due to health problems.

Mode of spread of Infection

Now that you know what infection prevention is, what are some of the modes of spread of infection? Here are some of the modes of spread of infection. Or we can say infection can spread through the following ways:

a) **Airborne:** through the air for example mumps, chicken pox.
b) **Blood or fluids:** if blood or body fluids are contaminated with hepatitis B virus (HBV) or HIV and comes in contact with another person such as through a needle stick injury.
c) **Contact**: this can be either direct (touching an open wound or draining pustule) or indirect (touching an object contaminated with blood or other body fluids).
d) **Faecal Oral:** swallowing food contaminated by human or animal faeces.
e) **Food borne:** eating or drinking contaminated food or liquid that contains microorganisms.
f) **Animal or insect borne:** contact with infected animals or insects through bites, scratches, secretions or waste.

In summary, the modes of spread of infection mainly are in four ways, that is:

- **Alimentary** (food borne) by infected food or drink.
- **Contact** (direct or indirect) for example, contact with diseased tissue or handling of soiled dressings, hospital equipment and linen if not properly cleaned, dried or sterilized.
- **Air borne** - by contaminated dust or droplets.
- **Inoculation** – by certain insects for example flies and mosquitoes or innominate objects.

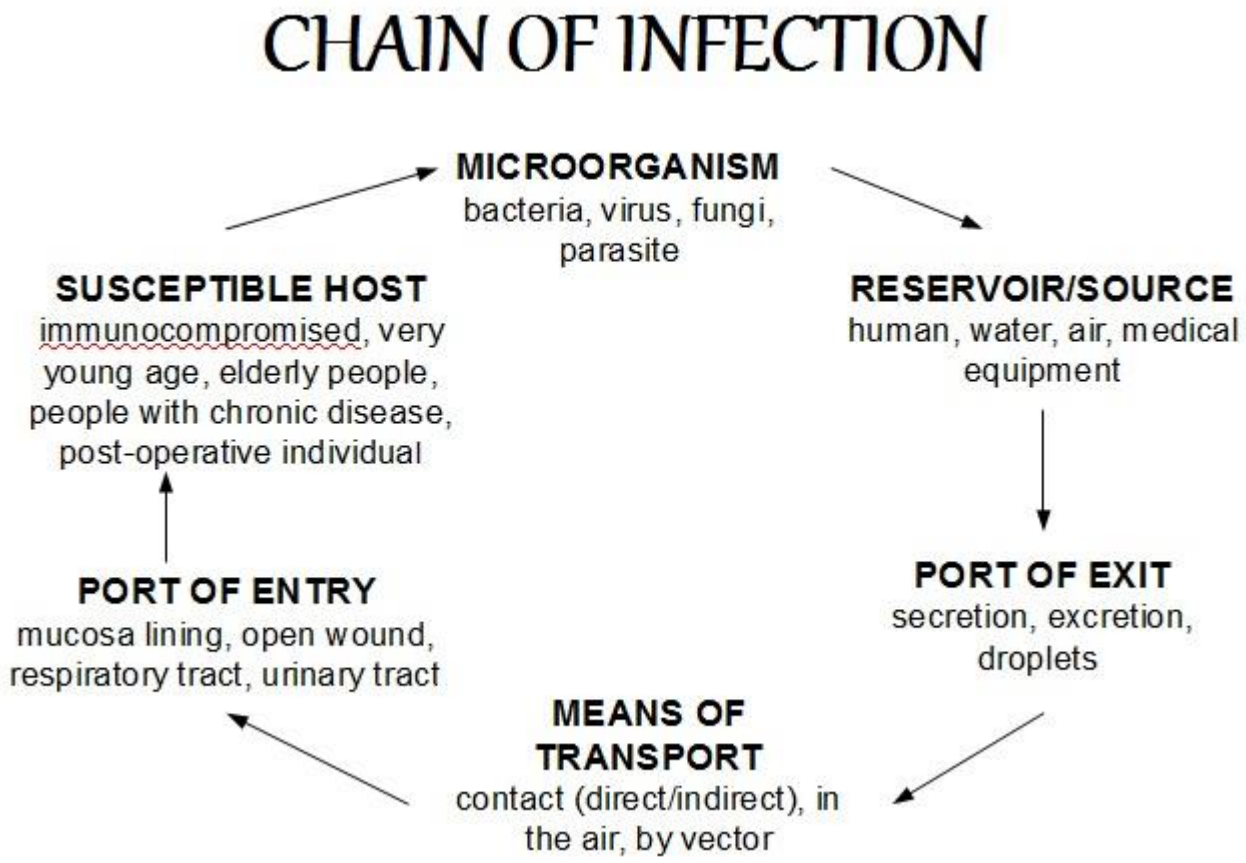

Figure 1: Chain of Infection

Diagram from Bing.com/images

Antiseptic Solutions

There are several types of antiseptic solutions that are used for infection prevention but some of the common ones are:

- Chlorine
- Formaldehyde
- Gluteralhyde

Sometimes you can use hydrogen peroxide.

Now look at the advantages and disadvantages of commonly used disinfectants as follows:

Chlorine solution

What do you think are the advantages of chlorine solution?

Here are some of the advantages

- Fast acting
- Cheaper
- Effective against HIV and Hepatitis B
- Chlorine solutions are readily available

How about the disadvantages, would you like to mention any?

The main disadvantage is that of discoloration. This problem can be reduced if items are rinsed with previously boiled water and dried promptly.
The others are as follows:

Formaldehyde solution 8%

Advantages

- Less expensive
- Readily available
- Very effective

Disadvantages

- It has a very irritating vapour
- Potentially carcinogenic

Take Note

Do not dilute formaldehyde with chlorinated water because a dangerous gas can be formed. The staff handling formaldehyde should wear gloves and avoid skin contact. The eyes should be highly protected from splashes. Limit exposure time to formaldehyde and use solution only in well ventilated rooms.

Gluteralhyde

Advantages

- Less irritating than formaldehyde

Disadvantages

- Produces some fumes when mixing
- Leaves a residue on the instruments. This should be rinsed off by previously boiled water 3 times in order to prevent skin irritation

Hydrogen peroxide 6%

Advantages

- Less expensive
- Available locally
- 3% solution can be used as an antiseptic

Disadvantages

- Hydrogen peroxide is very corrosive
- Loses potency rapidly when exposed to heat and light. Therefore, it is not recommended to use hydrogen peroxide in hot climate because of its instability in the presence of heat and light

Universal Precautions
The recommended infection prevention practices are based on the following principles:

- Consider every person (client or staff) and every specimen as potentially infectious (MoH, 2009).
- Wash hands with soap before and after every intervention, the most practical way of preventing cross-contamination (person to person).
- Wear gloves before touching anything wet broken skin, mucous membranes, blood, body fluids, secretions or excretions – or soiled instruments and other items.

- Use physical barriers including personal protective equipment (protective goggles, face masks and aprons) if splashes or spills of any blood, body fluids, secretions or excretions are anticipated.
- Use safe work practices, such as not recapping or bending needles, safely passing sharp instruments, and disposing of sharps in puncture proof containers.
- properly Process instruments and other items that come in contact with blood, body fluids, secretions or excretions (decontaminate, clean, and sterilize or high-level disinfect them according to infection prevention protocols.
- Dispose contaminated instruments and contaminated waste thoroughly and safely.
- Isolate patients only if secretions (mucus, saliva, and vomitus) or excretions (urine or faeces) cannot be decontaminated.
- Cover all cuts and bruises which offer portal of entry for infections.

Measures to Prevent Infection

A. Hand Washing

What exactly do you need to do to prevent infection?

You need to do hand washing mechanically to remove soil and debris from the skin and also to reduce the number of transient microorganisms.

You should regard hand washing as the most important infection prevention procedure to maintain an infection free environment in every health facility.

You should wash your hands **before:**

i. You start the day's work.
ii. Putting on gloves.
iii. You examine the patient and in general, any dealings with a sick person.
iv. Giving injections.
v. Drawing blood.
vi. Handling sterilized equipment/instruments.
vii. Eating or drinking.
viii. Writing of reports or handling patient's files.
ix. Going home.

You should also wash hands **after:**

i. Examination each patient.
ii. Touching any part of the body or mucus membranes excretions.
iii. Removal of gloves
iv. Personal use of the bathroom/toilet.
v. Cleaning the nose, coughing or sneezing.
vi. Touching any of the instruments that have been used in medical procedures.

Hand Hygiene Techniques

A. Hand washing

Hand washing using ordinary soap and water is able to remove soil and debris from the skin and also to reduce the number of transient microorganisms.

1. How can you wash your hands? For Hand washing procedure-Refer to procedure manual.
2. Remove all jewellery, watches and nail polish (jewellery and nail polish harbour microorganisms).
3. Thoroughly wet hands in running water, if running water is not available, use a cup to pour water (hands lower than the elbow).
4. Apply a hand washing agent (plain soap or detergent) if bar soap is used, rinse the bar before lathering and rinse bar before retaining it to the dish.
5. Thoroughly rub all areas of the hands and fingers for 10 – 15 seconds, paying particular attention to finger nails and in between the fingers. Interlace fingers and thumbs moving hands back and forth.

6. Return the soap directly to the soap dish to prevent it touching the water basin, which may be contaminated.
7. Use fine orange wool sticks to clean finger nails.
8. Rinse hands thoroughly with clean personal running water from a tap or
9. Bucket.
10. Dry hands with a paper towel or a dry clean personal towel or hair dry them. When turning off the tap if there is no foot control or automatic shut off, use your elbow.

(If you use bar soap, use small bars and soap racks which drain use running water and avoid dipping hands in a basin) (GNC, 2010).

B. Hand Antisepsis

Apart from hand washing, hand hygiene can be maintained by the use of Hand antisepsis to remove soil and debris and reduce both transient and resident flora on the hands.

It important to make you understand what antisepsis means: Antisepsis is the process of reducing the number of microorganisms on the skin, mucous membranes or other body tissue by applying an antimicrobial (antiseptic) agent.

Technique

The technique is similar to plain hand washing except that you use an antimicrobial agent instead of plain soap or detergent.

You should use Hand antisepsis before:

i. Examining or caring for highly susceptible patients' for example premature babies, elderly patients or those with advanced AIDS.
ii. Performing an invasive procedure such as placement of an intravascular device.
iii. Leaving the room of patients on contact precautions for example, hepatitis A or E.

Antiseptic Hand Rub

You can also use Antiseptic hand rub to inhibit or kill transient and resident flora which you can achieve by use of a waterless, alcohol based hand rub. It is quicker and easier to perform and can give you a greater initial reduction in hand flora. How can you use the Antiseptic hand rub?

Technique

i. Apply enough alcohol-based hand rub to cover the entire surface of hands and fingers about a teaspoonful.
ii. Rub the solution vigorously into hands, especially between fingers and under nails until dry.
iii. If hands are visibly soiled or contaminated with blood or body fluids, hand washing with soap and water should be done first since alcohol-based hand rub does not remove soil or organic matter.
iv. To reduce the build-up of emollients on hands, after repeated use of alcohol-based hand rub, wash hands with soap and water every 5 – 10 minutes.

Surgical Hand Scrub

You can use Surgical hand scrub when mechanically removing soil, debris and transient organisms and to reduce resident flora prior to performing any invasive surgical procedure. Your goal is to prevent wound contamination by microorganisms from the hands and arms of the surgeon and assistants.

Technique

The technique is simple as follows:

i. Remove watches, rings and bracelets.
ii. Thoroughly wash hands and forearms to the elbow with soap and water.
iii. Clean nails with nail cleaner.

iv. Rinse with clean running water thoroughly.
v. Apply an antiseptic agent.
vi. Vigorously scrub all surfaces of hands, fingers and forearms for at least 2 minutes. If a brush is used, it should be cleaned or sterilized or high-level disinfected before use, sponges if used should be discarded.
vii. Rinse hands and arms thoroughly, holding hands higher than the elbows.

Use of protective clothing

Clients and health workers are major sources of microorganisms that cause infection. The microorganism can be from people's hair, skin, nose, mouth, hands, blood and body fluids. In addition, actions such as touching unclean items can spread microorganisms.

Placing a physical barrier for example gloves or antiseptic solution between the microorganism and the person either the client or you as a health worker is an effective means of preventing the spread of infection from person to person and or from the equipment and the environment to a person. The protective barrier and clothing are commonly known as Personal Protective Equipment (PPE). These include gloves, masks, gowns, goggles or glasses, aprons, coats, respirators and sterile drapes. Caps, masks or drapes made from papers should never be reused. If it cannot be washed, do not reuse it.

Types of protective clothing

Gloves

Gloves protect your hands from infectious materials and protect patients from microorganism from your hands. They are the most important physical barrier for preventing the spread of infection. You should use Gloves appropriately. You should change gloves in between each patient to avoid cross infection. You should wear gloves every time there is a likelihood of you coming into contact with the mucus membranes, blood and other body fluids. You should also wear gloves when handling contaminated waste or when cleaning, disinfecting instruments, equipment and surfaces. Ensure that you:

i. Wear appropriate gloves prior to contact with blood, body fluids and secretions or excretions from any client.
ii. Use a separate pair of gloves for each client to avoid cross contamination.
iii. It is preferable that you to use new and single use (disposable) gloves.

Types of Gloves

The following are the types of gloves:

i. Disposable examination gloves used anytime there may be contact with mucus membranes or non-intact skin.
ii. Sterile gloves: can use them when performing surgical procedures.
iii. High-level disinfected surgical gloves: only acceptable alternative if you don't have sterile surgical gloves when performing surgical procedures.
iv. Clean, heavy duty households (utility) gloves: This can be used for cleaning instruments and equipment, contaminated surfaces and handling or disposing of contaminated waste.

Key Points

i. Use gloves only once in order to avoid infection transmission.
ii. Do not use any medical gloves that are expired.
iii. Do not use any gloves that are worn out, peeling or have holes or tears.
iv. Do not touch the exterior of the gloves when putting on.
v. Change gloves, if by mistake, they have been contaminated.
vi. Wash hands before putting on gloves and after taking them off.

Mackintosh or plastic aprons
You can use mackintosh or plastic aprons to protect clothing or surfaces from contamination. They provide a water proof barrier along the front of the health care worker's body. You should wear them during procedures where splashing or spillage of blood, body fluids, secretions or excretions is likely for example when you are conducting a delivery. They also prevent microorganisms from reaching your uniform. You must wash them after each shift.

Masks
Masks should be large enough to cover your nose, lower face, jaw and all facial hair. You need to wear them to contain moisture droplets expelled as health workers or surgical staff speak, cough or sneeze as well as to prevent accidental splashes of blood and other contaminated fluids from entering your mouth or nose.

Respirators
These are specialized types of masks called PARTICULATE RESPIRATORS that are recommended in situations where filtering inhaled air is dimmed important for example, when you caring for PTB patients. They contain multiple layers of filter materials and fit the face tightly.

Eye Wear
They protect you in the event of accidental splashes of blood or other contaminated fluids by covering the eyes. Eye wear include clear plastic goggles, Safety glasses and face shields. Prescription glasses with pain lenses are also accepted. You should wear Eye wears when performing any task where accidental splashes in the eyes could occur for example when performing caesarean section, vaginal deliveries or when cleaning instruments. If eye shields are not available, you can use goggles or glasses and a mask together.

Scrub Suits or Cover Gowns
The main use of the cover gown is to protect your clothing. Scrub suits usually consists of draw string pants and a shirt

Foot Wear
You can wear foot wear to protect your feet from injury by sharps or heavy items or fluids that may accidentally fall or drip on you. For this reason, shoes or sandals made of soft cloth are accepted. Rubber boots and leather shoes are also accepted but you must keep them clean and free from contamination from blood or other body spills.

Sterile Drapes
They are made of cloth and you can place it around a prepared surgical site to create a working area. Although this is often called a sterile field, it is not sterile because cloth drapes allow moisture to soak through and can help spreading microorganisms from the skin into the incision even after surgical cleaning with antiseptic agents. Therefore, neither your gloved hands nor sterile instruments should touch the drapes once you put them in place.

Head Wear
You can wear a head wear to protect the client from the microorganisms from your hair. An example of a head wear is surgical cap.

Table 5 : Types of Personal Protective Equipment

TYPE OF PPE	USAGE	BENEFICIARY
Mackintosh or Apron	Situations where splashing or spillage of blood, body fluids, secretions or excretions is likely.	Service Provider and client
Closed boots or shoes (open	Situations involving sharp instruments or	

sandals are not acceptable)	where spillage of infectious agents is likely (for example Deliveries, surgical procedures)	Service Provider
Caps, Gowns/Scrub suits, Masks, Aprons, Drapers	Invasive procedures where tissue beneath the skin is exposed (for example Surgical procedures)	Service Provider and Client
Goggles or Glasses, Masks, Aprons or Mackintosh	Situations where splashing of blood, body fluids, secretions or excretions is likely.	Service Provider
Masks	Situations which call for airborne or droplet transmission precautions.	Service Provider and Client
Sterile Drapes	Major or Minor surgical procedures.	Client (note: limited protection, as even sterile drapes do **NOT** create a sterile field)

Source: MoH, 2005)

Safe handling of needles and sharps

Several studies have shown that unsafe injection practices such as using same needles, syringes for more than one patient or improperly processed needles and syringes are responsible for transmitting HIV and Hepatitis viruses. Therefore, after each use, the assembled needle and syringe you should safely place them in a sharp container for disposal. What you have in mind is that the principle of sharp disposal is to prevent potential injury and transmission of disease through injury with the contaminated sharp object.

This is how you go about safe handling of needles and sharp

Needles and syringes

- Use each needle and syringe only once
- Do not disassemble the needle and syringe
- Do not recap, bend or break needle prior disposal
- Dispose of the needle and syringe in a puncture resistant container which should be readily available and placed within arm's reach.

Other sharps

This refers to anything capable of puncturing a glove or skin for example a surgical blade which you should dispose of after use. Also you observe the following:

- Do not overfill the sharp container above ¾ full
- Do not place the sharp containers in high traffic areas where people could bump into them or accidentally knock them off.

Processing of soiled items

Soiled items whether metal or not require special handling and processing to minimize the risks of spreading infection. You should note the key steps involved in the processing of soiled instruments which include:

- Decontamination: This renders the instruments safer to handle by staff before they are cleaned
- Cleaning: It removes visible blood, body fluids and dirty.
- Sterilization: It destroys all microorganisms including endospores. In cases where facilities for sterilization are not available, high level disinfection can be used. It destroys all microbes except endospores

Note that for soiled thermometers, decontamination is not necessary. Simply wipe with disinfectant and rinse with clean water (GNC, 2010)

Decontamination

This is the first step you do in processing soiled items. It is important for you to disinfect items which you can do by placing them in 0.5% solution of jik for ten minutes. Decontamination with cleaning is very effective

infection prevention control practice that can minimize transmission of blood borne infections like HIV to health care provider.

Decontaminating products

Chlorine solutions made from sodium hypo chloride are the least expensive and rapid acting and effective product to use for decontamination

NOTE: Chlorine solutions come in different concentrations. To determine the total part of water needed, use the following formula:

TOTAL PARTS OF WATER = % Concentration – 1% dilute

EXAMPLE
Make a dilute solution 0.5% from 3.5% concentrated solution
TPW = 3.5% * 10
0.5% * 10
= 35/5 – 1
= 7 – 1
= 6 parts of water
1:6

POWDER CONCENTRATION

$$\text{Grams/ Litters of water} = \frac{\%\ \text{Dilute solution} \times 1000}{\%\ \text{Concentrate}}$$

Mix measured amount of bleach powder with 1litter of water, for example, to make 0.5% chlorine solution from 35% concentrated chlorine powder.

$$\text{Grams/L of water} = \frac{0.5\%\ \text{Dilute solution} \times 1000}{35\%\ \text{concentrated powder}}$$

$$= \underline{14.2\text{g/L}}$$

Mix 14.2grams of 35% concentrated chlorine powder with one litter of water to make a 0.5% chlorine solution

Tips for decontamination

1. Use plastic containers to help prevent the following:
2. Dulling of sharps for example pairs of scissors due to contact with metal containers
3. Rusting of instruments due to some chemical reaction
4. Do not soak instruments that are electroplated (Instruments that are not 100% stainless) for more than 1 hour because rusting can occur
5. Once instruments and other items are being decontaminated, they can further be processed by cleaning and finally sterilizing or high level disinfecting them

Table 6 : Effectiveness of Methods When Processing Instruments

METHOD	EFFECTIVENESS	END POINT
Decontamination	Kill Hepatitis B, HIV and most micro organisms	10 minutes soaking
Cleaning without soap	Up to 50%	Until visibly clean
Cleaning with soap	Up to 50%	Until visibly clean
Sterilization	100%	Recommended time for autoclaving
HLD	95%	Boiling/steaming/Chemical – 20 minutes

Cleaning

This is an important process because it is an effective way of reducing a number of microorganisms especially endospores that cause tetanus and gangrene. Neither sterilization nor high level disinfection is effective without prior thorough cleaning. Cleaning and washing with water will visibly remove organic material such as blood and body fluids. This is important because dry organic material entrap microorganisms including endospores in the residue that protect them against sterilization or disinfection. You can use soap; the use of soap is very effective because water alone cannot remove proteins, grease and oil. Most of the microorganisms (up to 80%) are removed in blood and organic material by the use of soap and water.

Take Note

When wearing heavy utility gloves, precautions should be taken to prevent pricks from sharp instruments.

- Wear protective eye wears if available
- To prevent splashing, keep the items being washed under the surface of water.
- Instruments (especially those that have teeth and joints) should preferably be washed with used tooth brush. Attention should be paid to the joints and in between the teeth where organic material may be difficult to remove.
- Syringes (glass or plastic) when reused should be disassembled only after decontamination and when being cleaned with soapy water, ensure that they are rinsed at least 3 times with water and remove soap by expelling the water through the syringe into the container
- Do not use abrasive cleaners because they can scratch the instruments creating hiding or resting places for microorganisms. Scratched instruments are difficult to clean.

Sweeping, mopping and dusting

You should know the proper methods of cleaning so that you may be may be competent in maintaining the patients unit in a clean manner. It is important for you to have the knowledge on how to keep the ward clean so that you supervise the members of staff doing the cleaning on the ward. The following are the rules you should follow when sweeping, mopping and dusting.

i. Ensure that all items needed for cleaning are present before commencing work and that they are clean that is, brooms, dusters, polishers and water.
ii. Mop first, sweep, then dust. When sweeping dirty must be collected regularly using a dust pan. Use a dust pan if available.
iii. Dusting should be done from top to bottom of any article. Use a dump duster and polished surfaces should be dried afterwards with a soft duster. Scrub and tidy inside lockers weekly for long term pts.
iv. Furniture should be polished at least once a week. Return all furniture to their rightful places after cleaning.
v. Paint work should be washed with soapy water. Scoring powder should only be used to remove stains.
vi. Use all cleaning materials with care and economy.

vii. All cleaning should be done quietly and with as little disturbances to patients as possible.
viii. Sweeping of the ward should be done whenever necessary but not to disturb the ward routine.
ix. Sweeping of the ward can also be done after bed making, after lunch and visiting hours.

For the actual procedure on dump dusting patients unit- refer to procedure manual

High Level Disinfection (HLD)

Although sterilization is the most preferred and safest method for final processing of instruments, often sterilization equipment may not always be available and suitable. In such cases HLD is the only acceptable method as it destroys all the microorganisms including vegetative bacteria, yeast, tubercle bacilli, and fungi except for bacteria endospores. HLD can be achieved by boiling in water, steaming and soaking instruments in chemical disinfectant. For HLD to be effective, all steps in performing each method must be monitored carefully. Now look at types of High Level Disinfection (HLD)

Types of HLD

Boiling

Tell me any type of high level disinfection (HLD) you know? Well I will start by mentioning one of them; one of them is boiling in water which is an effective practical way of HLD to disinfect instruments and other items. A gentle rolling boil is sufficient as it will prevent instruments and other items from sticking to each other causing damages. You should consider the following steps when using high level disinfecting using boiling:

1. Start timing when water begins to boil
2. Instruments should be properly immersed in water during boiling
3. Do not add anything to the pot after timing begins
4. After boiling, remove objects with previously HL disinfected forceps. Never leave instruments in water that has stopped boiling
5. Use the instruments immediately or place instruments in a previously high level disinfected container with a tightly fitting cover

Take Note

To avoid lime deposits on the items boil water for 10 minutes before use and use the same water throughout the day adding only enough to keep the instruments immersed in water fully. Drain and clean the boiler at the end of each day to remove lime deposits

Steaming

This is another type you can use; basically this process has several distinct advantages over the boiling method for final processing of surgical gloves and other items such as syringes as it is less destructive. It also uses less fuel compared to the boiling method

Chemicals

This is another type where you can use several chemicals, the common disinfectants that you use are:

- Chlorine
- Formadehyde
- Gluteralhyde

Sometimes you can use hydrogen peroxide.
Now look at advantages and disadvantages of commonly used disinfectants as follows

Chlorine Solution

What do you think are the advantages of chlorine solution?
Here are some of the advantages

- Fast acting
- Cheaper
- Effective against HIV and Hepatitis B
- Chlorine solutions are readily available
- How about the disadvantages, would you like to mention any?
- The main disadvantage is that of discoloration. This problem can be reduced if items are rinsed with previously boiled water and dried promptly.

The others are as follows:

Formaldehyde solution 8%
Advantages

- Less expensive
- Readily available
- Very effective

Disadvantages

- It has a very irritating vapor
- Potentially carcinogenic

Take Note

Do not dilute formaldehyde with chlorinated water because a dangerous gas can be formed. The staff handling formaldehyde should wear gloves and avoid skin contact. The eyes should be highly protected from splashes. Limit exposure time to formaldehyde and use solution only in well ventilated rooms.

Gluteraldehyde
Advantages

- Less irritating than formaldehyde

Disadvantages

- Produces some fumes when mixing
- Leaves a residue on the instruments. This should be rinsed off by previously boiled water 3 times in order to prevent skin irritation

Hydrogen peroxide 6%
Advantages

- Less expensive
- Available locally
- 3% solution can be used as an antiseptic

Disadvantages

- Hydrogen peroxide is very corrosive
- Loses potency rapidly when exposed to heat and light (Therefore it is not recommended to use hydrogen peroxide in hot climate because of its instability in the presence of heat and light

Steps for HLD with Chemicals

1. Decontaminate and thoroughly clean the instruments before putting them in the chemical for HLD
2. Prepare fresh solution of chemicals and check to ensure that the solution is not expired
3. Ensure that the instruments are completely immersed in the disinfectant solution to achieve good results

4. Soak for about 20 minutes in a covered container
5. Remove items using previously high level disinfected forceps
6. Rinse well with previously boiled water and air dry
7. Use the items that have been high level disinfected promptly or store in a high level disinfected container with a lid

Take Note

Fresh solution for HLD should be made and changed every 14 days or sooner if the solution is cloudy. Many antiseptics are used incorrectly as disinfectants although they are not appropriate for disinfecting items and do not reliably kill bacteria, viruses and endospores for example, savlon and Dettol

Sterilization

Now move on to sterilization. This is the process that destroys all microorganisms including bacteria endospores. Sterilization can be used for instruments, surgical gloves and other items that come into direct contact with blood or body fluids. You can achieve Sterilization by high pressure steam (autoclaving), dry heat (oven), chemicals and radiation. For sterilization to be effective it requires time, contact, and temperature and for autoclave you also require high pressure. You should follow all the steps that are used in processing soiled items for sterilization to be effective.

You should note that effectiveness of sterilization also depends on other factors as follows:

a) The type of microorganisms present. Some may be very difficult where as others can be killed easily.
b) The number of microorganisms present. It is much easier to kill one microbe than a lot
c) The amount and type of organic material that protect the microorganisms for example wool or tissue remaining on poorly cleaned instruments. This is likely to shield the microorganism and sterilization will not be effective.

Methods of Sterilization

Now that we looked at sterilization and autoclaving as one of the methods of sterilization, we need to look at how this autoclaving is done.

1. Autoclaving

Autoclaving basically involves the use of high pressure steaming. Using an autoclave is an effective method. When you are using an autoclave, ensure that steam reaches all surfaces. You cannot sterilize Plastics and rubbers using this method. Ensure that temperature is 121^{o} c during autoclaving. For the unwrapped items, autoclave for 20 minutes and 30 minutes for wrapped items.

2. Dry Heat

You can also Sterilize using dry heat which you can achieve by the use of oven is recommended in humid climate but needs a continuous supply of electricity making it unpractical in the rural settings. Only metal objects can be sterilized using an oven. Ensure that temperature is 170^{o}c for 1 hour or 160^{o}c for 2 hours

Points to remember on sterilization

a) Exposure time begins after the sterilizer has reached the target time
b) Do not overload the sterilizer because it will not be effective and time required to complete the process has to be more
c) Sterilized instruments should be used immediately unless wrapped in a double layer of paper or appropriate material or stored in a sterile container with a fitting lid

Waste Disposal

Safe disposal of wastes and sharps is also one of the principles you are to prevent infection.

Therefore you need to handle waste properly before it is taken for incineration, burial or other disposal, to protect the client, yourself, and the community. Waste from health care facilities may be non-contaminated or contaminated.

A. Uncontaminated waste

These pose no infectious risks to people who handle them as they do not come into contact with body fluids and blood. For instance, paper, boxes, bottles, plastic containers.

B. Contaminated waste

i. These are infectious or toxic if not disposed of properly, for instance, Blood, body fluids, secretions and excretions and items that have come in contact with them, such as sharps and used dressings, as well as other chemicals that may be toxic.
ii. You should separate Contaminated and uncontaminated waste at original site to reduce the volume of contaminated waste and minimize the cost to the institution for more expensive procedures required to manage and dispose of contaminated wastes properly.
iii. Use separate containers for contaminated and non-contaminated wastes. Never sort through contaminated wastes, that is, do not try to separate uncontaminated from contaminated wastes after they have been combined.
iv. Dispose of contaminated wastes separately from uncontaminated wastes because contaminated wastes need special handling.
v. You should dispose of contaminated wastes immediately after a procedure.
vi. Ensure that there is sufficient number of waste containers in convenient locations, to minimize carrying contaminated wastes from place to place.
vii. Ensure that you wash Waste containers with 0.5% chlorine solution and rinse them with water between each use.
viii. Ensure that anyone handling waste containers wear heavy duty gloves and appropriate personal protective clothing to prevent contamination.
ix. Proper disposal of waste minimizes the spread of infection to health personal and to local community. You should burry or incinerate (burn).Ensure that disposal sites are fenced with a gate and lock to prevent scavenging by both animals and people.

Sharps Disposal

The principle for sharps disposal is to prevent potential injury and transmission of disease through injury with a contaminated sharp object. Ensure that you observe the following:

i. Sharps should always be disposed of in a puncture-resistant container.
ii. Dispose of sharps directly without manipulation, for instance, do not recap, disconnect or bend needles. Only use one hand if there is need to recap to avoid needle prick.
iii. Ensure that Sharps containers are readily available and conveniently located so that workers do not have to carry sharp items any distance before disposal.
iv. Do not over-fill the sharps containers to prevent needle stick injuries; they should only be three quarters full.

Isolation

Activity
Before you proceed to the next topic, write down in your note book the definition of Isolation

Well done for completing your activity. Now compare your answer with the following content.

Isolation is the practice of establishing a barrier around the client to contain offending and threatening microorganisms. This is called isolation or barrier nursing. When isolation is meant to protect a patient from catching infection on account of his low immunity, the practice is called 'protective or reverse isolation'. Isolation requirement will vary depending on the nature of the organism found in the facility.

You isolate a patient suffering from a communicable disease like pulmonary tuberculosis. The reason for isolation is to prevent the movement of microorganisms. You decide to institute barrier nursing for the safety of the patient, visitors and the caretaker. The decision is usually based on confirmed clinical diagnosis.

Now look at the types of isolation.

There are two types of isolation, these are as follows:

Strict Isolation/Barrier Nursing
You can use it when you want to prevent the transmission of pathogens spread by contact and droplet. You need to use a private room with its door kept closed. The use of gowns, gloves and masks by staff is essential. You should wash your hands upon entering and leaving the room. If you remember very well I said hand washing is very important in infection prevention. All used items must be double bagged before disposal or processing. If you are to re-use items must be decontaminated them before you do routine cleaning and sterilization.

You should isolate patients who are frequently the source. You can do this in single rooms within the wards.
You can take Barrier nursing measures to prevent the health care provider from acquiring germs accidentally on the hands and on the uniform. You should wear plastic aprons over your uniform.
You should use Protective clothing to prevent contact with body fluids or other sources of contamination.

Protective/Reverse Isolation
You can use it to prevent transmission of infection to a client who is immune compromised. You require a private room. Wear Clean or sterile gloves, you require Masks as well. Again here we are emphasizing on washing hands upon entering, during care and when leaving the room. You can see that hand washing is very important and it is a basic procedure you can do in infection prevention. Use sterile items because you are protecting the patient from any form of contamination that may result in infection (Brookside Associates 2008).

If you put patients with profuse diarrhoea at the last bay nearest to the toilet facilities is a classic example of reverse isolation in the form of intelligent geographical ward demarcation since these patients are mostly immuno-compromised. In this way you will protect them from the other patients as well as guaranteeing easy access to the toilets.

Indications for Isolation
Somehow we have already mentioned when we need to isolate patients but there is no harm we can still mention them as follows;

i. Immune suppression where the client's blood neutrophil count is very low like in HIV infected clients. Immune suppression may occur for a variety of reasons for instance, organ transplants, extensive burns, some genetic disorders like sickle cell anaemia and cancer clients who are being treated with high doses of chemotherapy.

Micro-organisms may be acquired from the hands of hospital staff, equipment or food.

Self-Test Questions

Having looked at the care of equipment and infection prevention, mention the order of instrument processing?

ANSWER
Decontamination ⇨ Cleaning ⇨ High Level Disinfection or Sterilization

Bed Making

In your own understanding, what is bed making? Well we can define bed making as preparation of the bed with a new set of linens.

Principles of Bed Making

Before looking at the principle you need to know what a principle is, basically a **Principle** is an established rule of action which is to be followed in a given situation. It serves as a guide to action.
You need to be conscious about **Cross Infection** which is the transfer of micro-organisms from one individual to another or one surface to another.

General principles of bed making
Here are some of the principles in bed making:

- Have everything ready before commencing.
- Strip the bed neatly – bed clothes and linen should not touch the floor.
- Avoid flapping of bed clothes to minimize the risk of cross infection.
- Have a chair or bed stripper at the foot end of the bed for placing bed linen and accessories on.
- Have the patient in a comfortable position for the procedure.
- Support the patient when necessary. One nurse supports the patient while the other makes the bed.
- Strip bed from top to bottom.
- Turn the mattress from head to feet if patient is able to get out of bed.
- Remove debris and wrinkles from the bed to prevent pressure sore formation.
- Change sheets to ensure patient comfort if patient is sweating.
- Observe patient throughout the procedure.
- Shake pillow at each bed making.
- Allow room for patient feet when replacing the bed covers.
- Call for help if necessary when moving heavy or very ill patients
- Don't mix soiled linen with articles such as dentures as they will get lost and damage laundry machine.

Methods of Bed Making
The method of bed making depends on the type of bed being made.
The foundation of the bed is the only part which is the same for all the types of beds.
The foundation is made by spreading the bottom blanket b first, followed by a bottom bed sheet.

Types of beds
Having covered the general principles now look at the types of beds as follows:

Empty bed (unoccupied)
This is the bed you make - upon discharge of the patient and you make it in readiness for the next patient.
For you to make this type of a bed you require the following:

- pillow case
- sheets
- blankets
- cotton draw sheets

- Counterpane.

This is how you go about making the bed which is referred to as the method:

1. Place blanket to create foundation.
2. Fix top sheet with mitred corners.
3. Open bottom sheet with right side uppermost and place evenly.
4. Fix the top sheet with mitred corners.
5. Tuck sheet and blanket to make firm foundation.
6. Place mackintosh where it will be under patients buttocks.
7. Place draw sheet over mackintosh.
8. Place the top sheet right side downwards with 30 – 40 cm half way up the pillow.
9. Tuck in top sheet with mitred corner.
10. Place top blanket, tuck in and mitred corners at the foot end.
11. Tuck the blanket at the edges.
12. Open the counterpane and place centrally allowing sufficient to tuck in and mitre corners at the bottom.
13. Place pillow at the head; covering completely and facing away from the door.
14. Replace chair in the ward and align in proper position.

Figure 2: Picture of a bed

Occupied Bed

This is another type of a bed you can make it is the bed you can make with patient still in it.
What you require to make this type of the bed is just like the Requirements for empty bed
This is how you go about making the bed which is referred to as Method:

1. Strip counterpane and blanket leaving patient covered in top sheet.
2. Remove pillow – place patient in supine position depending on patient's condition.
3. Strip and replace bottom sheet; draw sheet and mackintosh either side to side method or head to toe method. Mitre corners as required.
4. Change top sheet by placing clean sheet on top of soiled sheet and draw the soiled sheet out. Never expose the patient.

5. Replace blanket and counterpane.
6. Leave patient comfortable.

Figure 3 Picture of Occupied bed

Post – Operative Bed

This is another type of a bed you can make, this is a bed made ready for a patient who has undergone surgery.

What you require to make this type of the bed is just like the Requirements for empty bed

With modified requirements depending on the type of surgery.

This is how you go about making the bed which is referred to as Method:

1. Place pillow on chair at the bed side or at the foot end.
2. Make foundation as for empty bed.
3. Place mackintosh and draw sheet at the head end and where the patient's buttocks will be.
4. Place top sheet, blanket and counterpane without tucking in, and fold in a pack to the centre of the bed.

Figure 4: Picture of Post- operative bed

Divided Bed

This bed you can make for patients who have undergone amputation of lower limbs, for selected fractures and for drying of plaster of Paris.

For you to make this type of a bed you require the following:

- Two sets of bed clothes
- Mackintosh
- Covered sand bags
- Tourniquet
- Blanket
- Bed cradle
- This is how you go about making the bed which is referred to as Method:
- Make foundation as in ordinary bed.
- Place mackintosh and draw sheet.
- Wrap inside blanket loosely around pt.
- Place set of bed clothes in position over sound leg up to groin.
- Drape towel around the stump and fit with sand bags to prevent involuntary movements.
- Place second set of bed clothes over the patient so that the stump is exposed.

Figure 5: Picture of divided bed

FRACTURE BED

This is the bed used in patients with fractures such as spine, pelvis and lower limbs.

For you to make this type of a bed you require the following apart from usual requirement for an empty bed**:**

- Fracture board
- Sand bags
- Bed cradle
- Air ring

Additionally you need to do the following as you prepare the fracture bed

- Place fracture board under the mattress to provide firm support and prevent sagging.
- Place sand bags to immobilize the fracture.
- Place cradle and top beddings.

Figure 6: Picture of fracture bed

PLASTER BED

This is the bed you can make for drying wet plasters of Paris.

In addition to the requirement in making fracture bed you add a mackintosh.

- You can prepare a plaster bed just like the way you prepare a fracture bed but ensure that you:
- Cover patient with inside blanket leaving plaster exposed.
- Put a bed cradle over the patient and make the bed in a usual way.
- Turn back the lower end of the bed clothes to the edge of the cradle.
- The long mackintosh is put under the limbs when necessary to protect the bottom beddings.

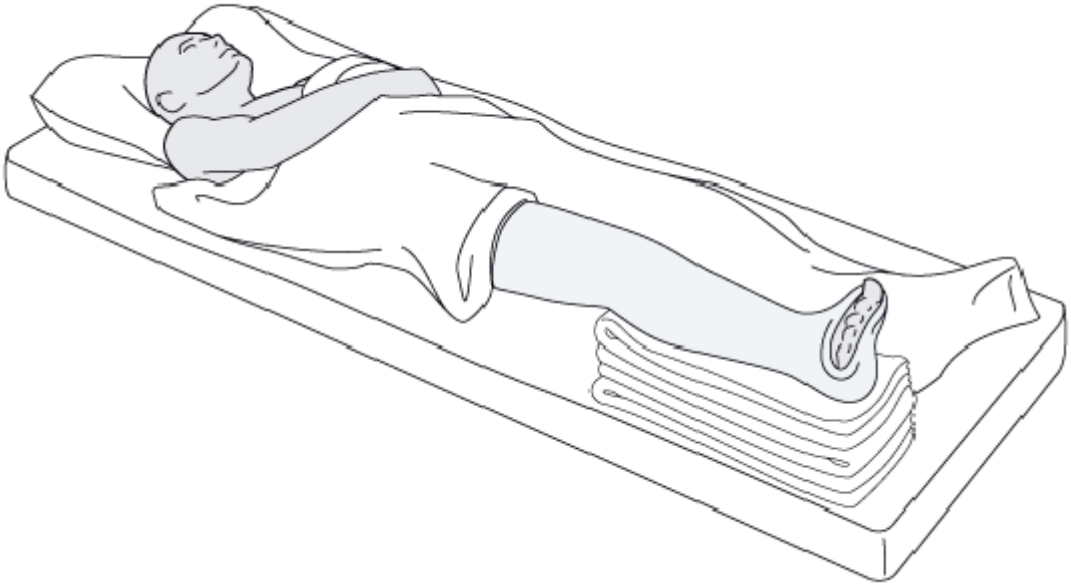

Figure 7: Picture of Plaster bed

Admission Bed

You can make an admission bed mainly to receive newly admitted patient.
What you require to make this type of the bed is just like the Requirements for empty bed
This is how you go about making the bed which is referred to as Method:

- Make bed as for empty bed
- Turn down 30 – 40 cm top sheet, blanket and counterpane.
- When patient arrives place him in bed and cover for warmth.

Figure 8: Picture for Admission bed

Cardiac Bed

You can Use it for patients with cardiac conditions, patients with dyspnoea, asthmatic patients or patients with pneumonia. Patients who have undergone abdominal operations or chest operations.

For you to make this type of a bed you require the following**:**

- 4-5 pillows
- Back rest
- Inside blanket
- Sand bags or foot rest
- Air ring
- Cardiac table
- Bed cradle

For you to succeed in making this type of a bed you need to do the following**:**

1. Make the foundation as for ordinary bed/empty bed
2. Arrange inside blanket loosely
3. Place sand bags at the foot end
4. Position air ring on sacrum
5. Place back rest and pillows to support patient
6. Place cradle over the limbs.
7. Make top of bed for ordinary bed.

Figure 9: Picture of Cardiac bed

Bed Accessories in the Clients'/Patient's Unit
Previously when we looked at the patient's unit, it was mentioned that the bed is found in the patient's unit and it goes with other bed accessories which you will cover as well. The first one is the bed

1. The bed: Usually made of steel and painted white. It is movable and has levers to raise or lower the head or foot end. It is normally high (at least 1 metre off the floor) to prevent attendants from straining their backs when assisting the patient.
You can use Cots for children; while you can use beds with side rails for patients in danger of falling from the bed. Ensure that Beds are 1.5 – 2 metres apart on the ward. As you know that the bed has a mattress we will now look at the mattress

2. The mattress: Ideally hospital mattresses should be covered with plastic to enable effective carbolization and avoid soiling. The mattress should be thick to ensure good body alignment.

3. Bed linen: There should be an under blanket that forms the foundation of the bed. Then there is a bottom sheet, mackintosh and draw sheet, top sheet, blanket and counterpane.

4. Cardiac table: you can use it for placing patients' food during meals; you can also use it for writing and for positioning patients with breathing problems.

5. Bed side locker: you can use it to keep patients' belongings. Lockers are made of steel and painted white to make it easy for you to clean.

6. Bed cradle: Used to raise bed linen from patients' body especially in burns or injuries of the chest.

7. Back rest: This is made of metal and is placed behind the patient's back with pillow so that the patient is in a sitting position. You can use it to patients with dyspnoea that is difficulties in breathing.

8. Air Rings: It is a hollow rubber ring. It can be blown up to form a cushion on which the client sits or sleeps to prevent pressure sores.

9. Fracture Board: They are usually made of wood or metal. These are placed under the mattress to prevent sagging when a client has a fracture, spinal injury.

10. Sand bag: This is made of sand covered with durable material. These are used to support or immobilize part of the body such as fractured pelvis.

11. Bed elevator: Made of metal or wood, you can use it to raise the foot end of the bed.

Am sure you are now familiar with the bed accessories that are used in bed making.
Now go through bed making.

The aim of bed making is to make the patient comfortable and leave him/her relaxed and provides an opportunity for communication with the patients. Before and during bed making ensure that you:

i. Explain procedure to the patient and get patients consent.
ii. Collect all required items.
iii. Always wash hands before and after the procedure to prevent cross infection.
iv. Interact with the patient during the procedure.
v. Practice hospital economy.

Other Bed Accessories

- Drip stand
- Walker
- Hot water bottle
- Pulleys

You have covered different types of beds, what you need when you want to make such beds and when and how to make such beds; we will now look at body mechanic, but before that let us see how much you can remember from the previous lesson.

Self -Test Questions

1. Mention four types of beds.

2. Match the bed accessories in column 1 with their use in column 2

Column 1	Column 2
a) Cardiac table	1. used to position patients in sitting position to aid alleviate breathin difficulties
b) Bedside locker	2. used to prevent sagging of the mattress when the patient has a fracture
c) Bed elevator	3. cushion on which the patient sits or sleeps to prevent pressure sores
d) .Back rest	4. used to store patients belongings
	5. used to raise the foot end of the bed
	6. Used to save patients meals, writing and positioning patients wit breathing problems.

Answers

1. Cardiac bed, post-operative bed, divided bed, admission bed, empty bed, occupied bed.

2. A-6
B-4
C-5
D-1

Body Mechanics

Activity

What do you understand by the term body mechanics? Write down your answer in your note book.

Congratulations for completing the activity now compare your answer the following;

We can define body mechanics as the term used to describe the physical co-ordination of all parts of the body to promote correct posture and balanced effective movement.
If you practice of good mechanics you will have minimal efforts resulting in less fatigue and it will reduces the risk of muscle and joint injury.

Principles of Body Mechanics

The following are some of the principles of body mechanics:
1. Avoid unnecessary bending, stretching and twisting.
2. Face the direction in which movements is to occur.
3. Use both of your arms and hands.
4. Turn the whole body when the direction of movement is changed.
5. Move with smooth even actions and avoid sudden jerking movements.
6. Squat to lift heavy objects from a low level and (keeping a straight back) push against the strong hip and thigh muscles to raise in a standing position.
7. Obtain adequate assistance to move a heavy person or object, either from other personnel or a lifting aid.
8. Stand directly in front of the person or object to be moved with the knees flexed to minimize back strain.

A. Lifting of Patients
The aspects related to lifting people involve your preparation and team work. When lifting patients consider the following:

a) To start with plan the lift: before an individual is lifted or moved you need to consider his weight, the need for assistance and the most appropriate method of lifting.
b) Secondly, work as a team: when more than one person is required to move a patient, one person should control the lift and give directions. Ideally both lifters should be of similar height.
c) Use a safe grip: when lifting a person you should grip the palms and base of the fingers; keep arms close to your body and elbows tucked in.
d) Consider the individual needs of the patient. Know the limitations of movements, and the degree to which he/she is able to assist the presence of any apparatus such as Intravenous Fluids and wound drainage tubes.
e) Prepare the individual and environment. Inform the patient, adjust the bed as necessary.

Lifting Techniques
You can use the following lifting techniques when lifting a patient.

1. The shoulder lift (Australian)
This technique requires two people and can be used to lift a person in bed and when transferring a patient between a bed and a chair. This is how you lift a patient using the shoulder lift techniques.

a) One nurse stands on each side of the bed facing its head, feet should point towards the head of the bed.
b) Assist the patient to lean forward, bend his knees and place chin on chest.
c) Each nurse places her near shoulder under the patient's axilla and he is requested to rest his arms lightly on the nurses back.

d) The nurses join hands under the individual's upper thighs and their outer arms remain free and may be pushed into the mattress to provide extra leverage.
e) At a count of three, the nurses lift the patient; the patient may assist by digging their feet against the mattress.

Picture of nurses lifting patient using shoulder lift technique

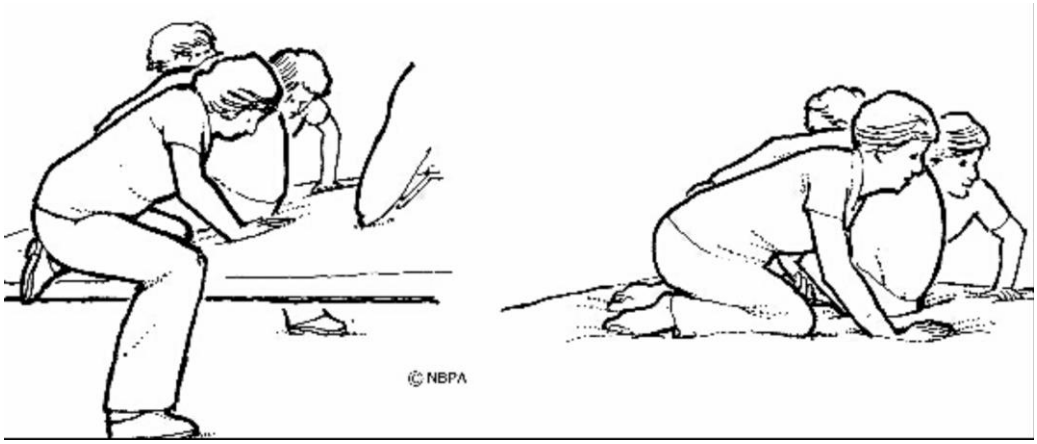

Figure 10: Lifting patient using shoulder lift technique

2. The Orthodox (Or Cradle Lift)

Also requires two people and you can use it when the shoulder lift cannot be used for example injury of the arm.

a) A nurse stands on each side facing the patient. The nurses' feet should be apart and point towards the head of the bed.
b) Assist the patient to lean forward, bend knees and place chin on chest. He may place an arm around the neck of the nurse or fold his arms across his chest.
c) Each nurse places one arm behind the patient's lower back and one arm under his upper thighs. The nurses join hands under the thighs.
d) At a given signal each nurse lifts the patient.
e) The patient assists by pressing his feet against the mattress.

Picture of nurses lifting patient using orthodox lifting technique

Figure 11: Orthodox lifting technique

3. The Through – Arm Lift

You can use this technique to assist a person who requires minimal help to move in bed. One or two people may be required.

i. The nurse stands on the side of the bed facing the head.
ii. Assist the patient to lean forward, bend his knees and place his chin on the chest.
iii. The nurse places her near arm under the individuals' upper arm. The patient places his arm through the nurses and holds the back of her shoulder.
iv. At a given signal the nurse assists the individual to move and the patient assists by pressing his feet into the mattress.

Picture of nurses lifting patient using arm lift technique

Figure 12: Arm lift technique

B. Moving Patients

In addition to lifting the patient, you may be required to assist the patient in changing positions or to transfer him from the bed to a chair.

a) Moving of a patient in bed – The nurse stands facing the patient and on the side of the bed to which he will be moved.
b) With fingers facing up one arm is placed under the patient's neck and far shoulder held. The other arm is placed mid back.
c) The patient's upper body is drawn to the side of the bed and the nurse withdraws her arms.
d) Then the nurse places one arm under the lower back, and the other under his thighs; then draws the lower body to the side of the bed.
e) To move his legs over the nurse places one arm under his thighs and the other under his lower legs.

C) Repositioning to the Side

This is how you repositioning the patient to side

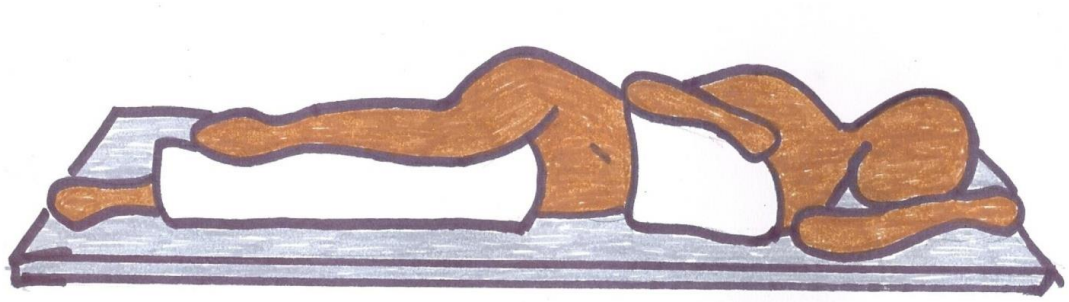

Figure 13: Positioning the patient to the side

i) The nurse stands facing the patient on the side of the bed to which he is to be turned.
ii) The patients arm is positioned across the chest and legs crossed.
iii) The nurse places one hand on the patients shoulder and the other on the hip and rolls the patient towards her.

D. Log - Roll Technique

You can use this technique to turn a person from his back to the side when it is essential to keep the spine perfectly straight. Three people are required.
This is how you go about log roll technique

i. Standing on the side to which patient is to be turned, one nurse supports his head, another
ii. Supports his trunk while a third supports his legs.
iii. Place a pillow between the legs.
iv. At a given signal the patient is rolled in one movement towards the nurses.

Figure 14: Picture of nurse using log roll

E. From Bed to Trolley

Techniques used are transfer board and transfer sheet.

a) Place the sheet or board under the patient.
b) Place the trolley next to the bed.
c) Three or more nurses are required to transfer the patient.
d) One nurse at the head side and two nurses on the side of trolley.
e) At a given signal the sheet is pulled taut and raised slightly in order to slide patient on the bed.

Positions Used in Nursing Clients

It is important for you to know positions used in nursing in order for you to nurse patients correctly. A firm mattress is needed for the correct posture. The position of the patient, depend on the disease or condition, treatment or procedure to be carried out on the patient.
When positioning patients for examination purposes, you should provide adequate warmth and drape the patient to avoid unnecessary exposure.

These are some of the positions used in nursing:

1. Recumbent or Supine Position
Allow the patient lies flat on his back, head supported by one pillow, arms placed on the sides or folded, legs extended. When can this position be used?

- Patients on complete bed rest
- Patients with fractures
- For examination of front trunk

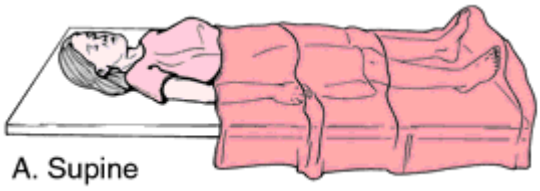

Figure 15: Picture of patient in recumbent or supine position

2. Semi-recumbent position
Patient is half-propped up with several pillows.
Indications

- Suitable for patients confined to bed
- Used in medical and surgical conditions for example Gastric ulcers and convalescent patients.

Picture of patient in semi-recumbent position

Figure 16: Semi-Recumbent Position

3. Prone Position
Allow Patient to lie flat on abdomen, one pillow under the head which is turned to one side. Place a small pillow under the ankles to prevent toes pressing on the bed.

Indications

- To relieve pressure on areas likely to become sore

- Burns of the back
- Abdominal pains.
- Picture of patient in prone position

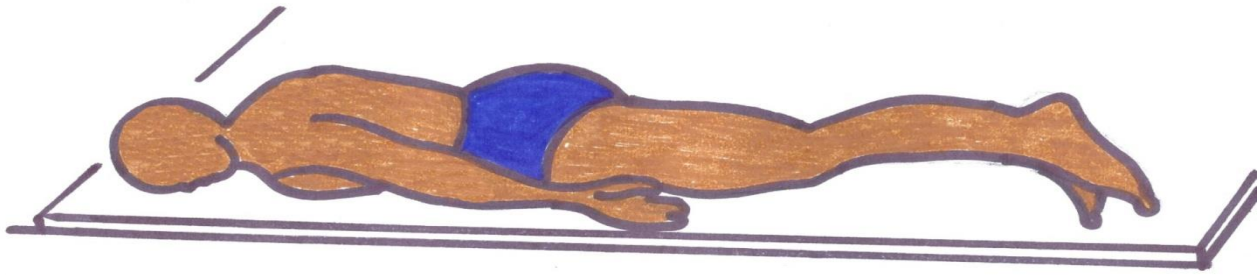

Figure 17: prone position

4. Semi-Prone (Recovery Position)

This position is between lateral and prone positions. Turn the patients head to one side on a pillow, the upper arm lying in front of the patient; while the lower hand behind him with both hands resting on the bed. Both knees are flexed with the upper knee more flexed than the lower knee. Use this position to

- post-operative patients
- unconscious patients

Picture of patient in semi- prone /recovery position

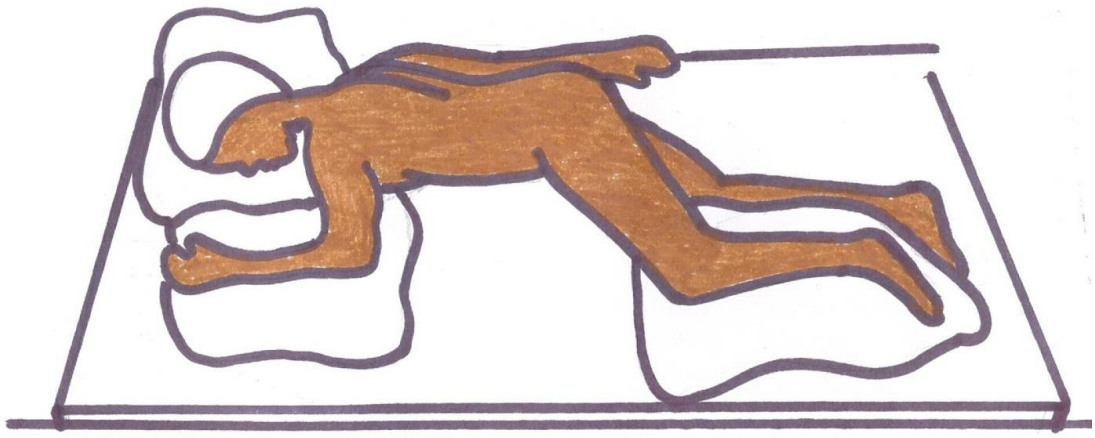

Figure 18: semi prone position

5. Dorsal Position

The patient lies on his back; one pillow under the head, thighs flexed and knees abducted.
You can use this position in the following times

a) Vaginal delivery
b) Abdominal and vaginal examinations
c) Bi-manual examination
d) Catheterisation

e) Picture of patient in dorsal position

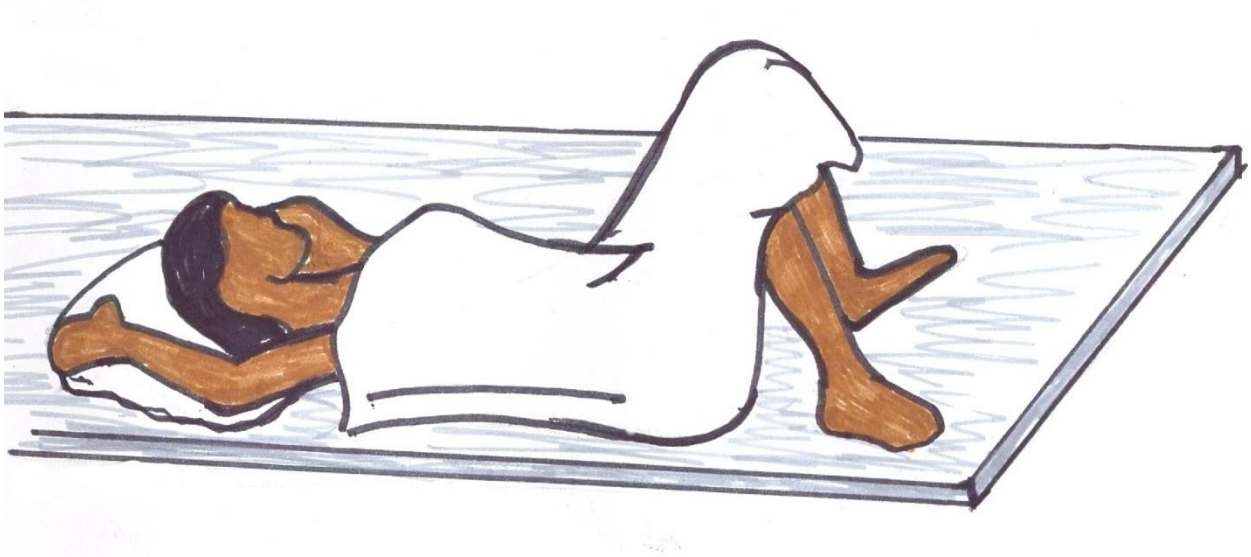

Figure 19: dorsal position

6. Lateral Position

Patient lies on left side, buttocks to the edge of bed; head forward on one pillow, thighs and knees flexed.

Indications

- Rectal, vaginal and peri-anal examination
- Administration of enema and suppositories
- Changing position in bed ridden patients to relieve pressure.

Picture of patient in lateral position

Figure 20: Picture of lateral

7. Sim's Position

Exaggerated lateral position: Patient lies more towards prone; chest and head resting on one pillow, upper arm lying behind back or hanging over the edge of bed, both knees drawn up right more than left.

Indications

- Vaginal examinations

Picture of patient in sim's position

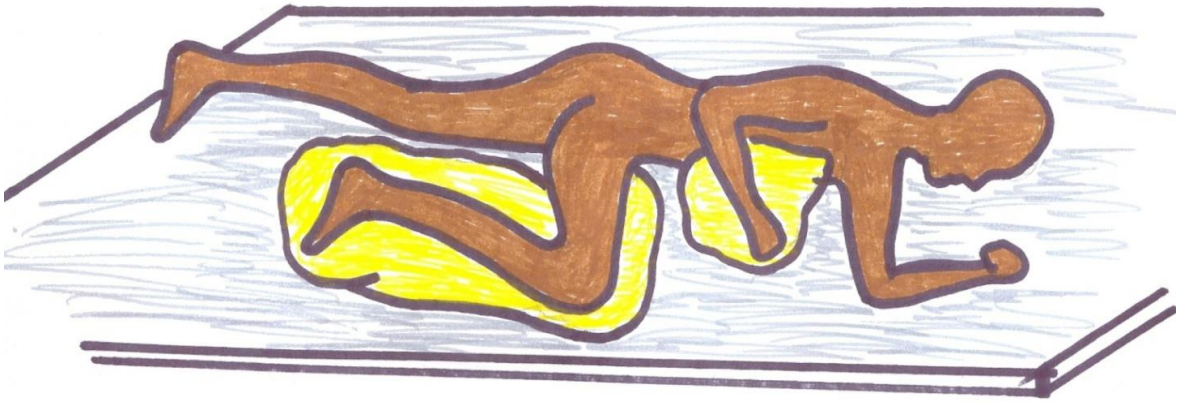

Figure 21: Sim's position

8. Upright Position / Fowlers Position

The patient is propped up in a sitting position supported approximately by 4-6 pillows, may have cardiac table if dysphonic; may also require air ring.

Indications

- patients with chronic cardiac disease
- dyspnoea
- post-op chest and cardiac conditions
- drainage of abdominal cavity

Picture of patient in upright position

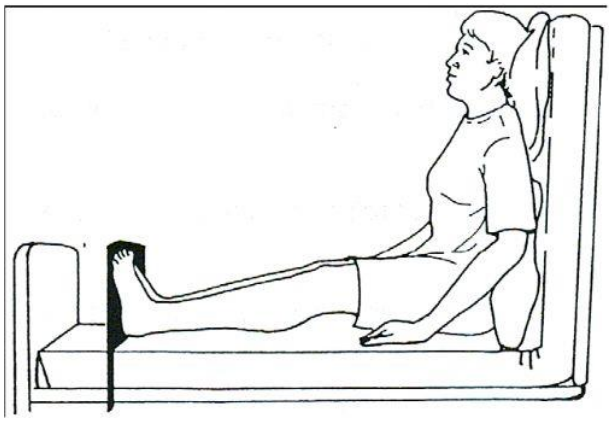

Figure 22: Fowlers position

9. Orthopnoeic Position

Similar to upright; but patient is given a back rest. Place air ring on sacrum to prevent pressure sore formation, sand bags on the feet to prevent plantar flexion or foot drop. Soft pillow is placed on cardiac table for patient to lean on.

Indications

- Chest conditions for example Asthmatic attacks
- Major abdominal surgery
- Patients with cardiac conditions
- Patients with fractured ribs

Picture of patient in orthoponoeic position

Figure 23: Orthoponoeic position

10. Semi Fowlers Position

This position is between recumbent and upright. Patient is given a back rest and back is tilted backwards resting at an angle of 45 degrees.

Indications: as for fowlers or upright position

Picture of patient in semi fowlers position

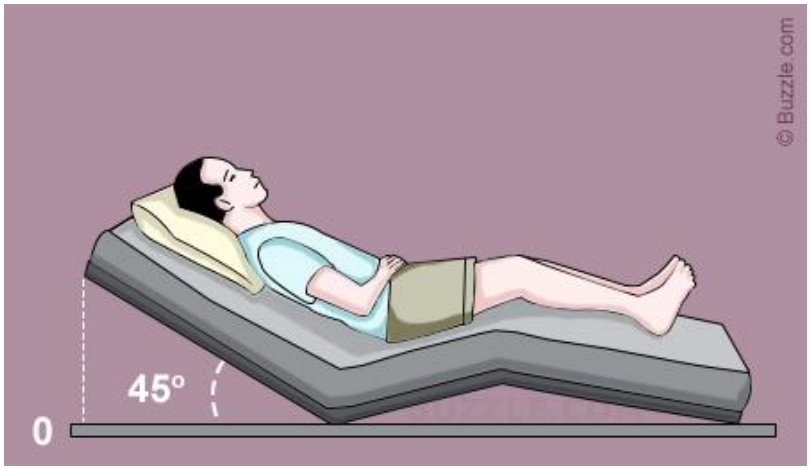

Figure 24: Semi fowlers position

11. Lithotomy Position

Patient lies on the back with one or two pillows, buttocks placed on the edge on the bed, legs widely abducted and knees flexed. The feet are usually tied to stirrups to maintain position.

Indications

- Operations of the gall and urinary bladder
- Gynaecological examinations
- Instrumental deliveries

Picture of patient in lithotomy position

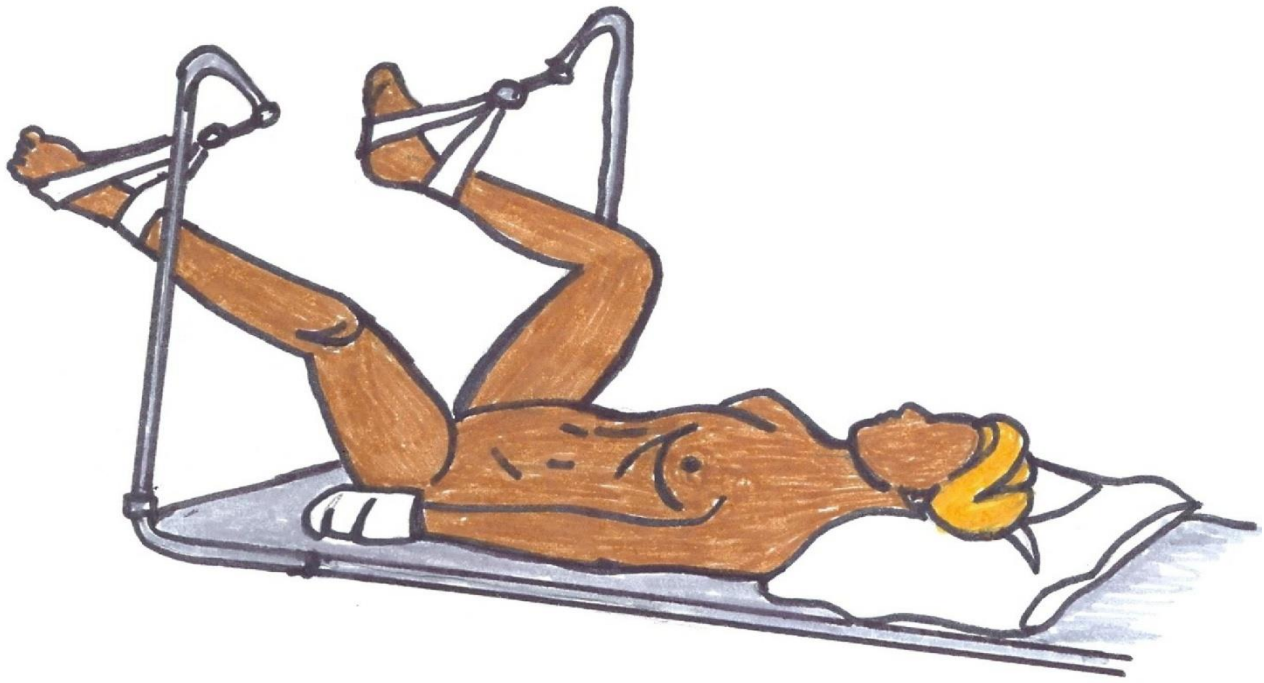

Figure 25: Lithotomy position

12. Genu-Pectoral (Knee Chest) Position

Patient rests on the knees and chest with head placed upon pillows. Thighs are vertical and arms just beyond the head.

Indications

- Gynae operations
- To relieve pressure on the cord in cord prolapse
- Used when pelvic organs prolapse

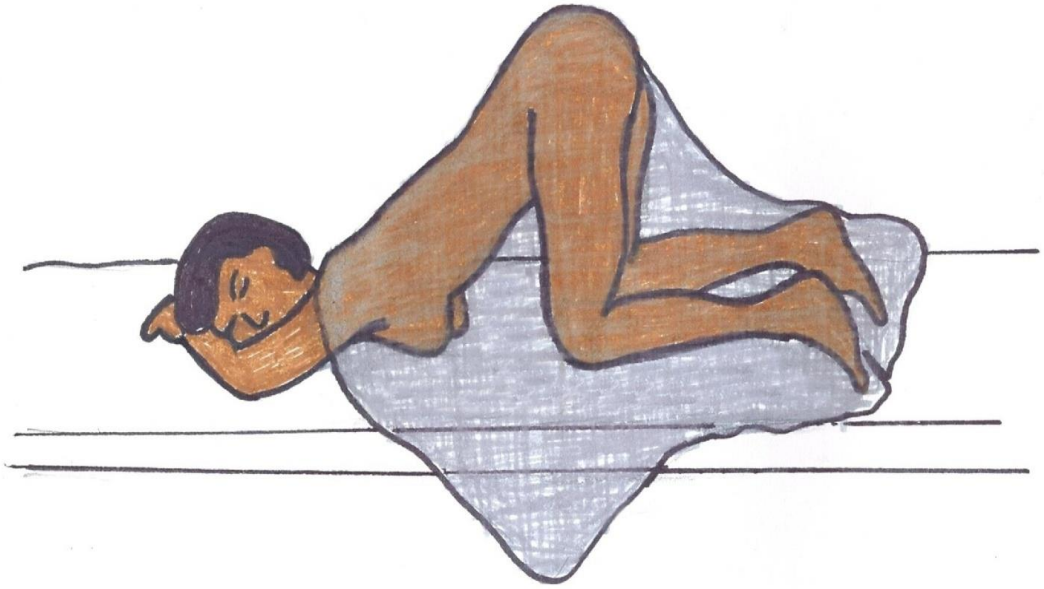

Figure 26: Genu pectoral (chest knee) position

13. Trendelenburg Position

The patient lies with head tilted downwards on the bed or operating table. In this position intestines are displaced from the pelvic cavity

Indications

- gynae operations
- In cord prolapse to prevent pressure of foetal head on cord.

Picture of patient in Trendelenburg position

Figure 27: Trendelenburg position

14. Jack Knife Position

Make the patient to stand on the floor and bends over the table or bed.

Use this position in the following situation

- Rectal examinations

- Pelvic surgery in females

Picture of patient in jack knife position

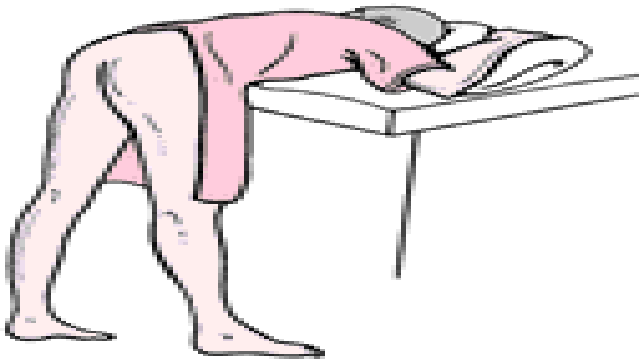

Figure 28: Jack knife position

15. Erect or Standing Position

Allow Patient is to stand upright or ask the patient to walk around

Indications

- Detection of inguinal hernia
- Posture or gait examination
- Examination of male genital organs

Picture of patient in erect or standing position

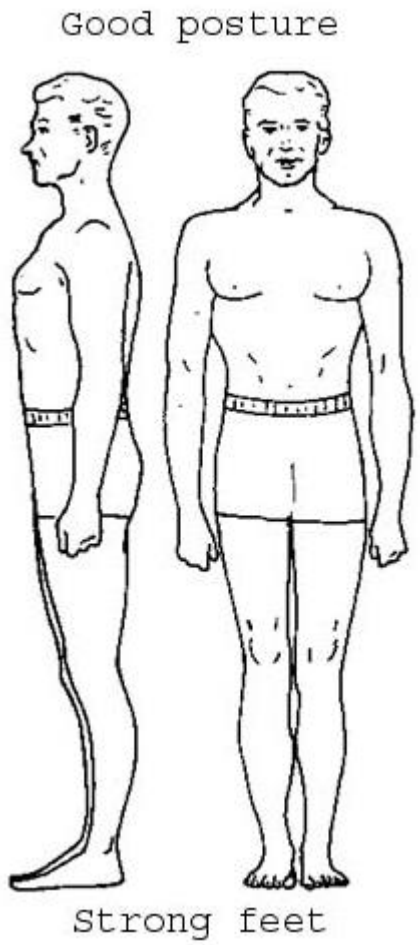

Figure 29: Erect or standing position

Self Test Questions

1. Which of the following infection prevention measures is indicated when a client has an infectious condition:

a. Decontamination
b. waste disposal
c. Isolation
d. None of the above

2. The efficient use of the body as a machine and a means of locomotion is termed as;

a. Mobility
b. Body mechanics
c. Balance
d. Tonus

3. The most effective method of sterilization is

A. autoclaving
B. steaming
C. boiling
D. high level disinfection

4. The type of bed for a patient with leg amputation is called?

a. Open bed

B. Divided bed
C. Post-operative bed
D Fractured bed

5. Genu pectoral or knee chest position is used in the following procedures, except?
A. Suturing an episiotomy
B. Vagina examination
C. High colonic irrigation
D. Cord prolapsed

Now you can check for the right answers.

Answers to the Self-Assessment Test

1. c
2. b
3. a
4. b
5. c

5.4 Summary

You have come to the end of the unit and now go through the summary

You covered provision of safe environment where you saw that you should provide a safe and comfortable environment because it contributes to the recovery of the patient. You provide a comfortable environment by ensuring that the lighting is good for both you and the patient visualize the things properly, also mentioned that ensure that there is good ventilation so that there is fresh air so that our patients are kept alert. Eliminate the noise and odours so that patients are able to rest. Ensure that temperature are within normal range of 18 – 24 degrees, Iinfection prevention is very important, so ensure that you wash your hands before and after each procedure because hand washing is among the most important infection prevention measures. Other infection prevention measures we looked at are safe disposal of wastes, sterilization. Chemical disinfection and many more. It was further mentioned that you need to make the beds of patient so that patients are comfortable

You also looked at different types of beds like an occupied bed where you need to make the bed while the patient is still in bed because we don't expect some patient to go out of the bed for you to do the bed making. Other types of beds are divided beds which you can make for patients with burns, plaster bed – which you can make when drying the cast,

You also covered body mechanics which is the term used to describe the physical co-ordination of all parts of the body to promote correct posture and balanced effective movement.

If you practice good mechanics you will have minimal efforts resulting in less fatigue and it will reduces the risk of muscle and joint injury.

You also covered positions used in nursing. It is important for you to know positions used in nursing in order for you to nurse patients correctly. A firm mattress is needed for the correct posture. The position of the patient depends on the disease or condition, treatment or procedure to be carried out on the patient.

When positioning patients for examination purposes, you should provide adequate warmth and drape the patient to avoid unnecessary exposure.

5.5 References

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UNIT 6: RECEPTION AND NEEDS OF THE CLIENT

6.1 Introduction

Welcome to unit 6. In the previous unit you learnt how to make the environment safe for your patient to stay. You should ensure a safe and comfortable environment because it is important to the recovery of the patient and all your efforts should be directed at maintaining such an environment. You should ensure that the floors are not slippery to avoid slipping and falling. Remove dangerous objects like broken windows, chairs, tables among others. to avoid unnecessary accidents. We also looked at how to protect patients from acquiring other infections in the hospital which is very important, you covered some universal precaution in infection prevention which you should remember always, these are consider every person (client or staff) and every specimen as potentially infectious, Wash hands with soap before and after every intervention, the most practical way of preventing cross-contamination (person to person).

You also looked at different types of beds like an occupied bed where you need to make the bed while the patient is still in bed because we don't expect some patients to go out of the bed for you to make the bed. Other types of beds are divided beds which you can make for patients with burns.

You went on to study body mechanics which is the term used to describe the physical co-ordination of all parts of the body to promote correct posture and balanced effective movement. If you practice good mechanics you will have minimal efforts resulting in less fatigue and it will reduce the risk of muscle and joint injury.

You also covered positions used in nursing. It is important for you to know positions used in nursing in order for you to nurse patients correctly. A firm mattress is needed for the correct posture. The position of the patient depends on the disease or condition, treatment or procedure to be carried out on the patient. It is an easy unit to understand.

In this unit you will look at the admission procedure of the patient. You can admit a patient in three ways; namely **non-emergency**, **emergency** and **planned** admission. You are also going to assess the health status. You will also cover the basic needs of the patient like bathing, oral care, hair care and nail care. These basic needs you can encourage the patient to do them if he is able to or you can do them for them if the patient is not able to. Furthermore we will go through mobility and immobility. If patient is not able to move freely you need to assist them because a patient who is not able to move can develop complications. Fluid therapy is another aspect you will cover where you will learn how to administer fluids to patients who have lost some fluids. After fluid therapy we will go through elimination and we will also assess and manage selected signs and symptoms like fever and hypothermia. You will further study the transfer, discharge and referral plan of a patient.

6.2 Objectives

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

1. Describe admission procedures
2. Describe assessment of client's health status
3. Describe the basic needs of a client
4. Explain the assessments and management of selected signs and symptoms
5. Explain the transfer, discharge and referral plan of a patient

6.3 Admission Procedures

The people you admit to hospital feel anxious and unsure of a lot of things. You being the first health worker to meet the patient, you should put the patient at ease. Greet the patient, introduce yourself. It is important

for you to appear pleasant and friendly as this will reassure the patient. It is also the beginning of your relationship with the patient (nurse/patient relationship).

We can define admission in either of the two ways as different writers define it differently

i. Admission is when the patient comes to the hospital and the doctor decides that he/she should stay in the hospital.
ii. Admission is an act of accepting the patient for in-patient service in a hospital. (Mosby, 2006: 46)

Hope these two definitions are clear to you. Next we will look at how you can receive the patient.

Reception

- Observe gait and facial expression of the patient-in observing the patient you can be able to detect any abnormalities
- Greet patient/client and welcome him/her – a smile makes patient relax and feel at home.
- Make patient comfortable – put him/her in bed.
- From here you need to establish the relationship between you and the patient. This is how you can start the relationship with the patient.

Interpersonal relationship

- Introduce yourself to build rapport.
- Orient patient to the environment for example where toilets are and how to use them.
- Introduce patient to fellow patients and staff.

Now check

- -Temperature
- -Pulse
- -Respiration
- -Blood Pressure

General condition of patient

- Collect urine and carry out urinalysis.
- Take care of patient's belongings.
- Record your findings on charts.
- After relatives have gone, ask patient again on illness – may not have revealed some of the problems in the presence of relatives.
- All times provide privacy to patient.
- Explain whatever you do to patient to allay anxiety.

For method and procedure refer to the procedure manual.

We will now go through the types of admission. There are three types of admissions, these are as follows:

- Planned Admission
- Unplanned or non-emergency admission
- Emergency admission

We will now go through each one of them in turn.

Types of admission

Planned admission is where they have been informed as the ward nurse about a client who has been booked for admission. The client may have been seen in the Out Patient Department (OPD) and booked to be admitted in a specific ward. As a nurse from that particular ward you will have all the information about the patient and this information should include the demographic characteristics and treatment. This type of admission is ideal for patients coming for special investigations or procedures for example endoscopy. The

patient may also be booked for elective surgery. You may also book Post-operative patients for example for removal of screws from the fractured limb.

Unplanned or non-emergency admission -When we say unplanned admission we are referring to patients who come to hospital hoping to be treated as out patients and end up being admitted. As ward staff you can be informed about the patient a few minutes or hours before the patient is brought to the ward. They will tell you the patient's name, age, diagnosis and the condition of the patient. This type of admission is ideal for sudden illnesses that is non-life threatening.

Emergency admission is the third type of admission where the patient is brought to the ward with a life threatening condition which needs prompt nursing action and medical intervention. The patient may either be ambulant or non-ambulant.

The patient may need urgent surgery or critical care attention in the intensive care unit (ICU). This type of admission is ideal for patients with trauma resulting from Road Traffic Accidents (RTA) or those with conditions that may need emergency abdominal surgery for example acute intestinal obstruction, ruptured ectopic pregnancy.

The other Examples of emergencies include:

- Fainting
- Sudden severe pain anywhere in the body
- Sudden or persistent vomiting
- Suicidal or homicidal feeling
- Chest pain or upper abdominal pain
- Difficulty in breathing
- Poisoning
- Asthmatic attack

Upon receiving the message that there is an emergency coming, you should prepare the resuscitative equipment and emergency drugs for example, oxygen cylinders, suction machine, airway, ambubag, mouth gag or spatula.

- Bed should be made in the acute room (ICU).
- Should be near nurses' bay for easy observation.

When patient arrive first, do observations for example,

- Quick observations – from head to toes.
- Vital signs – temperature, pulse, respirations, blood pressure.

After observations, inform doctor.
Whilst waiting for the doctor, get brief history from relatives and/or friends among others.

Self -Test Questions

1. Define the term admission.

2. List the three main types of admissions.

ANSWERS

1. Admission is the term used when a patient comes to the hospital and the doctor decides that he /she should stay in hospital.
2. Planned admission, unplanned or non-emergency admission, and emergency admission.

6.4 Assessing Health Status

After admitting our patient whom we are assuming to be comfortable in well-made admission bed, we are now going to assess the health status of our patient.

Probably we can start by mentioning reasons why we do patient assessment.
Comprehensive assessment of a patient health status is valuable in the following ways:

- It maximizes the amount and quality of information that you can obtain from a client.
- It provides you with a decision making basis with regard to the planning of nursing care
- It individualizes the nursing care because you will render the nursing care according to the problems you noticed after history taking
- It provides a framework which ensures that data gathering is consistent
- It provides baseline data with regard to the patient's condition that can be used later to evaluate the patient's progress.

History taking

Now start the assessment with history taking which is the first step you need to take as you are assessing the client.

History taking involves a verbal interaction with the client with the goal of acquiring information through questions and answers. You should interview the client in a systematic way to obtain a health history. This interview is called 'nursing history' and it is designed to collect information that is pertinent for developing nursing treatment goals and actions.

Types of history

a. Complete comprehensive history: This is usually obtained during an initial visit. It is detailed and it is meant for providing continuous care for the patient (for all new patients)
b. Interval health history: This is taken at subsequent visits. It may be a way of topping up information to update current needs
c. Problem focused or chief complaint focused: This involves collecting data about specific problem, system or region

Types of data/sources

1. Subjective data- what the patient tells you (primary source) (recorded in the history)

2. Objective data- what is detected during the physical examination (secondary source) (represents all physical examination findings)

History taking involves the following:

Personal history: For example**,** name, age, marital status, habits and hobbies among others.
Family history: find out if there has been an occurrence of any illness and history for example, asthma, hypertension and TB.
Case history: find out the patients complaints for example onset of illness that is, when it started, precipitating factors, past illness, medical and surgical and nature of illness.
General observation: posture and gait, nutritional status, nature of speech, mental reaction, emotional state, texture of skin and texture and distribution of hair.
After taking history you can go ahead and do the physical examination.

Physical Examination

There are basically five methods you can use namely:

- Inspection
- Palpation
- Percussion
- Auscultation
- Olfaction

You will now cover each of in turn.

Inspection

As an examiner you utilize the sense of sight.

- This is the first technique or process you make at the first moment you come into contact with patient.
- The general appearance of patient, you can be able to observe it even as the patient walks in the ward.
- **Movement**-You observe the movement of the patient as he/she walks into the ward. Is the patient limping or cannot walk because of the illness?
- **Skin**-Observe whether patient is cyanotic; the bluish colour on the lips and the face due to insufficient oxygen, jaundiced which is yellow discolouration of the skin and mucus membrane or has he got oedema that is, swelling on the limbs or has lost weight.
- You can also observe if patient is dyspnoeic that is, is the patient having difficulties in breathing.
- You can also be able to observe the mood or behaviour of patient by this technique.
- The quality of inspection depends on your intelligence to carry out the examination skilfully and thoroughly.
- A good lighting and exposure are necessary for you during this examination so that you can see properly and be able to detect any abnormalities.

What is palpation? Think about it for 1 minute and complete the following activity

Activity
Write down the meaning of palpation in your notebook

Congratulations for completing this activity now compare your answer with the following;

Palpation

This is the process of examining the patient by application of hands and fingers to the external surface of the body to detect any abnormalities in the various organs. This is the type of examination where you utilize the sense of touch when examining the abdominal organs.

- It involves the use of hands and the sense of touch to detect tenderness, temperature and calcification in the body structures.
- You can use this technique to examine all accessible parts of the body.
- Tell the client or the patient to be relaxed either in sitting or lying down position.
- When palpating, your hands should be warm and the finger nails should be short to avoid causing discomfort to the client.
- You can do light palpation of abdomen to detect areas of tenderness.
- After light palpation, you can do deep palpation to examine the condition of the organs such as those in the abdomen. You can depress an area of 2.5cm in order to examine these organs.
- As student nurse you should not do this procedure alone unless in the presence of a qualified nurse or doctor.

What is percussion? Think about it for 1 minute and complete the following activity

Activity

Write down the meaning of percussion in your note book

Well done you have completed your activity. Hope in your definition you mentioned that

Percussion

This is the tapping of the body lightly but sharply to determine the position, size and consistence of the underlying structure. This is done by striking a particular area of the body either by finger tips or using percussion hammer. If you hear a dull sound it often signifies presence of fluid whereas the hollow sound signifies absence of fluid.

- You can establish the presence of fluid by resonance and pitch of sound emitted.
- To percuss is to tap parts of the body to aid in diagnosis through the sound being produced on tapping.

The following are the areas you can do percussion:

- Abdomen
- Bladder
- Chest
- Kidney
- Liver
- Ovaries
- Spleen
- Uterus

Percussion can help you to verify abnormalities assessed through palpation and auscultation.
When you strike the body structure with the finger, vibration in sound is produced.
Abnormal sound is a sign of presence of mass or fluid within an organ or body cavity.

Types of Percussion

There are two types of percussion. These are:

- *Direct Percussion* – This is where fingers strike on the skin directly.
- *Indirect Percussion* –This is when the two hands are used. One hand (non- dominant) placed against the body surface, with palms and fingers remaining on the skin.

-A quick sharp stroke is used with the four arm kept stationary.
-There are five types of sound produced:

a). Timpani– Drum like sound produced by percussing the air filled stomach.
b). Resonance – Sound elicited over air filled lines.
c). Hyper-resonance – is audible while percussing over inflated lung tissue of the patient with emphysema (condition in which there is abnormal increase in the size of the air spaces or alveoli) it is common among smokers.
d). Dullness – This sound is heard when percussing the liver.
e). Flatness – This sound is heard when percussing the thigh.

Auscultation

This is the process of listening to sounds produced in some body cavities especially the chest and abdomen in order to detect some abnormal conditions. The examiner makes use of the sense of hearing with the aid of the stethoscope.

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Figure 30 : Stethoscope

In this process a stethoscope is used and must be well fitted to produce a good sound. Before doing this procedure, you should be aware of the normal sound, such as the normal heart sounds, movement of air through the lungs and bile sounds. For effective results you need:

- Good sense of hearing (good auditory acuity)
- Good working stethoscope
- Knowledge on how to use a stethoscope.

There are four main characteristics of sound and these are:

- Frequency or pitch
- Intensity or loudness
- Quality
- Duration

Now go through the equipment used during physical examination

Equipment used in Physical Examination

The following are the equipment used during physical examination;

a. Stethoscope – It is used to detect the heart and respiratory sounds.
b. Sphygmomanometer – It is used for checking (measuring) for blood pressure and used in conjunction with stethoscope.
c. Patella Hammer (Reflex Hammer) – It is used to detect the reflexes.
d. Spatula– It is used to examine the tongue, throat and palatal movements. A spot light or touch is needed to provide good light source.
e. Auto scope– It is used to examine the ear drum.
f. Thermometer – It is used to check the temperature.
g. Pins – It is used to test the sensation.
h. Weighing scale– you can use it to check weight of patient.
i. Diagnostic set – you can use it for ear, nose and throat examination
j. Cotton wool swabs– you can use it to detect the light touch and corneal reflexes.
k. Height measure (tape measure), you can use it to measure the circumference for example of the head, abdomen and height.
l. Spot light– you can use it to provide good light source.
m. Case History charts– for doctor to observe findings.
n. Tuning Forks– you can use this for hearing the vibration.
o. Ophthalmoscope- you can use it to examine the optic disc.
p. Visual Acuity charts (alphabetic charts) – you can use charts for sight detection.

Olfaction is a type of physical examination where you can use the sense of smell.

- It enables you to observe and report any unpleasant or pleasant odour on the patient.
- Unpleasant odour will tell you that patient has not bathed or patient's mouth is dirty and this is detected by the halitosis. It can also tell you that patient is incontinent of urine.

Measurement
Now that we have looked at the equipment needed for physical examination, we are going to cover measurements.

Measurement of Patients Height
The measurement of the patient's height is routinely done for antenatal mothers on first visit and for medical examination. For the antenatal mothers it helps medical personnel to a certain mode of delivery the mother will have. Usually mothers below 150 cm are said to have a contracted pelvis and a normal delivery is difficult.

Measuring the Weight
Weight is also routinely done during admission into hospital. You may delay Weighing if patient's condition is poor, unless weight should be known for drug dosage calculations.

Procedure (preparation of the patient)
- Wash hands
- Explain the procedure to the patient
- Ensure that patient has voided
- Check that the clothing will not interfere with the examination

Examination of Head and Neck
You can do the contours of the skull, measurement of the head circumference at times. You can also observe the Physical characteristics and expressions. You can examine the scalp and hair, and then the head is palpated for nodules.

On the neck you check for the thyroid gland palpate it for any enlargement, lymph nodes, larynx and trachea.

Examination of Eyes
Eye lids and eye brows, pupil reaction to light are checked for. You can also examine the interior of the eye ball using the ophthalmoscope. Examine sight and field vision using the reading test charts (Snellen's Chart).

Examination of the Ears
You can examine the external auditory canal using the otoscope. You can also use the tuning fork for examining the activity of hearing. An audiometer can also be used to test the sense and accuracy of hearing.

Examination of the Nose
You can inspect and palpate the nose using a flash light head mirror and nasal speculum to inspect the interior or part of the nasal cavity. The sense of smell is tested by using commonly recognized substances for example, Onions.

Examination of the Lips, Mouth and Throat
These are inspected for abnormalities with the use of light and the tongue depressor. You check the tongue, teeth, tonsils, gums, larynx, pharynx, hard palate and soft palate

Examination of the Chest

***Breasts*:** Check for the symmetry of breasts, size, and position. Palpate the whole breast checking for nodes, lamps and tumours. When there are tumours blood comes out when the breast is squeezed.
Rest of the chest: Examine the contours, size, and shape of the chest. The other methods used on the chest are:

- Palpation and percussion
- Chest x-ray can be taken for observations of chest organs for example lungs, bronchioles.

Examination of the Cardiovascular System
In here you use inspection, palpation, percussion and auscultation. A chest X-ray is taken in order to reveal the size of the heart, apex, beat, pulse rate and blood pressure

Examination of the Abdomen
Check the shape, (whether distended or not) Check the skin of the abdomen. Palpate the abdomen where you detect any masses of any enlarged abdominal organs. Percussion can be done to determine air contained masses. Auscultation can be used to listen to bowel sounds. All quadrants of the abdomen should be examined as well as the pelvic area.

Examination of the Back
Use palpation to determine contours and shapes of the spine. An inspection is done to check the colour of the skin or condition of the skin. X-rays of the spine can also be taken.

Examination of the Genitalia, Perineum, Anus and Rectum
These are normally done by inspection and palpation. On inspection you can see the pubic hair distribution and its healthiness. For vaginal and rectal examination, palpate for abnormalities for example You can do palpation of tumours. In females you can also check for abnormal vagina discharge, warts, bruises, and pubic lice infestation. In males, a rectal examination is performed in order to palpate for enlarged prostate glands; you can also do scrotal examination in order to elicit swellings on the testis and pubic hair examination to inspect for lice infestation.

Neurological Examination
These refer to the central nervous system examination. You can test patient's reflexes as well as senses. You can test the reflexes using a patella hammer. You also test the sense of touch, pain and sensations where you can use hot or cold water to test heat receptors. Use sugar or salt to test the tasting receptors. You can use a pin or needle to test response to stimuli.

Examination of the Muscular-Skeletal System
You can use inspection and palpation method. By inspection, check for the status of the limbs, muscles and the length of the bones. Make use of X-rays to identify any pathological changes. Check the muscle tone as well.

After the procedure leave the patient comfortable by attending to his needs. Clear off the equipment and send any specimens which should be well labelled to the laboratory. Inform the ward sister of the procedure and document the findings.

You have now completed history taking and physical examination. Next we will go through assessing vital signs

Assessing Vital Signs

The most frequent measurements you may obtain as a health practitioners are those of temperature, pulse, respirations and blood pressure. These indicate the general health status of a person. Because of their importance, we refer to them as vital signs.

If you note a change in vital signs, it may indicate a change in physiological function. This may warrant both medical and nursing interventions. Through checking Vital signs you can quickly and efficiently monitor a client's condition or identify problems and evaluate the client's response to an intervention.

Think for 1 minute and complete the following activity.

Activity

In your own words write down the meaning of vital signs in your note book

The following are the vital signs;

- Temperature
- Pulse
- Respirations
- Blood Pressure.

We will look at them one by one in the following sequence:

Body temperature

Body temperature is the balance between the heat produced and heat lost. The degree of heat lost is expressed in Fahrenheit, Celsius or centigrade. The normal range of the body temperature is 36 - 37.2 degrees Celsius. The body tissues and cells function best within a relatively narrow temperature range

Temperature regulation

Before we proceed, now review how temperature is regulated. Hope you still remember your anatomy and physiology, Anyway there is no harm we can go through it together.

There should be a balance between heat lost and heat produced. This is known as thermoregulation. Thermoregulation is achieved by the physiological and behavioural mechanisms. The hypothalamus, located between the cerebral hemispheres controls the body temperature in the same way the thermostat works in electrical appliances. The hypothalamus senses changes in temperature. The anterior hypothalamus controls heat loss, whereas the posterior part controls heat production.

How then is heat produced in the body? Think about it for 2 minutes and complete the following activity.

Activity

In your words write how heat is produced in your note book

Well done!! Now compare your answer with the explanation that follows;

Heat production

Heat is produced in the body as a by-product of metabolism which is a chemical reaction in all body cells. When metabolism is high, heat production is also high and the opposite is true.

Heat production occurs during rest (BMR), voluntary movements and involuntary shivering. Since we have looked at how heat is produced we can as well look at heat loss.

How do you think heat is lost? Think about it for 1 minute and complete the following activity

Activity

Write down how heat is lost in your note book

You have completed the activity now compare your answer with the following explanation:

Heat loss

Heat loss and production occurs at the same time. This is so because for heat to be lost it has to be produced and vice versa. Heat loss is achieved by:

i. Exposure to cold environment-because there is heat production to keep the individual
ii. Body excretion- as the body contents are being lost they come out with some heat.
iii. Vasodilatation- because there is increased blood flow which carries along some heat.
iv. Respiration-as a person breathes out heat is lost.

What then is the process for heat to be lost; if you remember at your secondary school you looked at the terms like conduction, radiation, convection and evaporation. This is still the same way heat is lost. Let me explain one by one to you in case you have forgotten.

Processes of heat loss

1. *Conduction* is transfer of heat between 2 organs or bodies in contact. Heat conducts through contact with solids, liquids and gases. When a warm skin touches a cooler object, heat is lost

2. *Radiation* is transfer of heat from the surface of one object to the surface of another without direct contact between the two. Peripheral vaso- dilatation increases blood flow from the internal organs to the skin to increase radiant heat loss

3. *Convection* is when heat is carried away by air currents that pass over the body for example a fan promotes heat loss through convection

4. *Evaporation*: is transfer of heat energy when a liquid is changed to a gas. The body continuously loses heat by evaporation

We are now going to look at factors that can affect normal temperature.

Factors that affect normal temperature

1. Time of the day: Am sure you have noticed that late afternoon temperatures rise due to the increased activity of the day and it will be reduced at night due to reduced activity.

2. Age: Infants and young children have a slightly raised temperature due to activities. There is also insufficient ability to regulate heat loss in their bodies.

3. Exercises: If you are exercising, you will find that your body will lose heat during exercises.

4. Menstrual cycle: Also in females there are variations in temperatures due to various phases. You notice that - after ovulation there is a rise in temp which is maintained until a day or two after menstruation has occurred.

5. Pregnancy: When you look at pregnant women there is slight rise in temperatures because pregnancy causes a slight rise in temperature especially in the first 3-4 months. It then falls by 0.5 degrees Celsius until delivery occurs. This may be attributed to hormonal changes.

You are expected to check the temperature of the patient but as you do so bear in mind what you have just studied as factors that can affect body temperature.

Taking body temperature

You can use a clinical thermometer to check the patient's temperature. A clinical thermometer is the instrument used to take body temperature. The clinical thermometer can also be in Fahrenheit or Celsius. The clinical thermometer is made of thick-walled glass tubing with a fine bore; and has a constriction just above the bulb to prevent mercury falling as it cools until shaken. An electronic or digital thermometer can also be used in taking the body temperature.

Figure 31: Oral Prismatic Thermometer

Figure 32 : Oval flat Clinical Thermometer

Figure 33 : A Gibson digital clinical thermometer

Conversion of Temperature
Earlier on we mentioned that the clinical thermometer can also be in Fahrenheit or Celsius, therefore you should be able to convert from Fahrenheit to Celsius and vice versa. Now let us go through Conversion from Fahrenheit to Celsius

Conversion from Fahrenheit to Celsius
Subtract 32 from the Fahrenheit reading and multiply the result by 5/9
For example convert 104^{o}F to Celsius
C = (F – 32^{o}F)
C = (104^{o}F – 32^{o}F) * 5/9
C = 72 * 5/9
C = 40^{o}C

Conversion of Celsius to Fahrenheit
Degree Celsius X 9 + 32 = Fahrenheit
Degrees Fahrenheit = degrees Celsius X 9 +32

Now that you know what you use to check the temperature, where exactly can you obtain the temperature? Think about it and complete the following activity.

Activity
In your own word write down the places you can obtain the temperature

You have completed this activity now compare your answers with the following content:

Sites for obtaining body temperature
Axilla is the commonly used site. You can also use it when you cannot take temperature by mouth. It is convenient and hygienic. You can leave the Thermometer in the arm pit for 3-5 minutes.

Groin: this is the site you can use to obtain temperature in infants and is less accurate than the axillary temperature. Leave the thermometer in the groin for 3-6 minutes. Never place a thermometer if there's a wound or inflammation because the temperature can be affected.

Mouth: This is another site where you can obtain temperature. You can take Oral temperature after 3 minutes of keeping a thermometer in the mouth under the patient tongue. In case of patients you need to provide individual thermometers. Ensure that patient does not eat anything 15 minutes before checking

temperature because the temperature can be affected. There are instances when you cannot check the temperature orally and we say oral temperature is contra indicated, so oral temperature is contra indicated in the following patients/situations:

- Unconscious patients because these patients cannot open their mouth for you to push in the thermometer, if you manage to open the patient's mouth, patient will close the mouth and break the thermometer
- Children and irrational patients because children are not cooperative while irrational patients can break the thermometer.
- Nose and mouth surgery because you can hurt the patient as you push in your thermometer.
- Mouth ulcers because you can hurt the patient as you push in your thermometer.

Rectal temperature

The rectum is another site where you can obtain temperature. You can take rectal temperature in babies and very ill patients. You can only obtain rectal temperature when it is really necessary as the method requires you to expose the anal area and is distressful to the patient. You can record rectal temperature after 3 minutes. You can now look at another vital sign which is pulse.

Pulse

What do you understand by the term pulse? Think about it for 1 minute and complete the following activity

Activity
In your own words write down the meaning of pulse in your note book

Hope in your definition you mentioned that pulse is the wave of distension felt in an artery when the left ventricle of the heart contracts and forces blood in the aorta.

Pulse rate is constant but varies with age and in individuals. In adults the average is 72 beats per minute, for a baby it is **120-160** beats per minute. Just like temperature pulse also can be affected by certain factors.

Factors affecting pulse rate

- Age-pulse is high in children and low in adults. children
- Emotional stress-if you are under stress your pulse will be high.
- Exercises- If you are having exercises your pulse will be high
- Sleep-when you are sleeping the pulse is low because the heart is not pumping fast, remember we said pulse is a wave of distension felt in an artery when the left ventricle of the heart contracts and forces blood in the aorta
- Rest- when you are resting the pulse is low because the heat is not pumping. You need to observe certain factors when taking pulse.

The following are the factors you need to observe when obtaining pulse:

- The rate
- The rhythm
- Volume

We will now go through them one by one:

The Rate: This is the frequency at which the left ventricles contract to push blood into the arteries. Normal range of pulse rate is 70 – 80 beats per minute. In other words you need to count the pulse so that you know whether it is fast or slow.

Rhythm: This is the regularity or irregularity of the heart contraction. Equally you need to note whether the pulse is regular or irregular. Normal pulse is regular. If you find that pulse is irregular it may signal a problem with the pumping system of the heart.

Volume: This is the strength of the beat. It signifies the amount of blood distending an artery with each contraction. You should note the volume as well, is it strong or not. Now look at some of the terms you can use in relation to pulse.

Terminologies associated with pulse rate

When there is increased pulse, we say that there is Tachycardia

Tachycardia is rapid pulse rate usually above 120 beats per minutes in an adult. This can be due to infection, shock, dehydration.

If pulse rate is low it is referred to as bradycardia,

Bradycardia is pulse rate that is lower than normal (lower than 60b/m) – can be due to drugs like morphine. Diseases like hypothyroidism, and brain tumours.

Extra systole is the term we use when there are extra beat followed by a long pause.

Pulsus paradoxus: This is a condition where the pulse rate slows on inspiration and quickens during expiration for example in constrictive pericarditis.

Sinus Arrhythmias: It refers to abnormal pulse rhythm due to disturbances of the sinoatrial node causing quickening of the heart on inspiration and slowing on expiration.

Now we will look at sites where you can record pulse. Pulse can be recorded in six sites, these are:

- Radial Artery
- Temporal Artery
- Carotid Artery
- Facial Artery
- Brachial Artery
- Femoral Artery

We will look at each one of the in turn.

Sites where you can record pulse

a. Radial Artery: at the wrist. It is the most convenient point for recording pulse.
b. Temporal Artery: just in front of the earlobe.
c. Carotid Artery: you can F feel it alongside the anterior border of the steno mastoid muscle. The steno mastoid muscle is used in shock and in severe haemorrhage. Facial Artery: you can palpate it in front of the angle of the jaw.
d. Brachial Artery: you can use it when taking blood pressure located at the elbow.
e. Femoral Artery: you can feel it in the groin.

Having looked at what pulse is, the sites to record pulse and factors that affect pulse we can now go to another vital sign which is respirations.

Respirations

Activity
In your own words write down the meaning of respiration in your note book.

Now that you have completed the activity compare your answer with the following.

Respiration can be defined as the process of taking in oxygen and breathing out carbon dioxide. Respirations consist of inspiration, expiration and a pause. During respiration, interchange of gases takes place in the lungs between air and circulating blood. Now we will look at the normal range of respirations.

Normal respiration rates
The normal range is as follows:
Adult: 16 – 20 breaths per minute
New born: 30 – 60 breaths per minute
Changes in respiration occur due to fear, excitement and exercises and disease. These can bring about abnormalities in respiration as follows:

Abnormalities of respirations
The following are the abnormalities

- Dyspnoea*:* This refers to difficulties in breathing, really when you have difficulties in breathing it is a very big abnormalities which can send a person rushing to the hospital.
- Apnea*:* It is Temporal cessation of breath
- Hyperpnoea*:* This is deep breathing with marked use of abdominal muscles
- Sighing (Air hunger): long deep inspiration.
- Stertorous: Noisy snoring inspirations.
- Stridor: Harsh shrill Noisy inspiration due to obstruction of the upper airway passages.
- Wheezing: whistling sounds made during expiration.
- Cheyne-stokes: a form of irregular but rhythmic breathing; alternate periods of hyperpnoea and apnea. Equally all these abnormalities you need to be concerned when you notice that the patient is experiencing one of them We now will go through the terms used to describe respirations

Terms used to describe respirations
You may need to describe respirations and you may also find that some of the terms used in abnormal respiration can also be used to describe respiration for example dyspnoea

- Dyspnoea: It is laboured breathing.
- Orthopnoea is difficulties in breathing except when in a sitting position.
- Apnoea: ceasation or absence of respirations.
- Hyperpnoea: raised rate of breathing usually deep breathing.

Take Note

Patients should be at rest. Allow any effect of exhaustion or excitement to subside as it can increase respiratory rate. The essence of being observed also changes the patient's breaths, therefore count respirations without patient's knowledge.

You can count respirations immediately after counting pulse rate; with fingers still on patient's wrist, watch the rise and fall of patient's chest and count for half a minute and multiply by two. In babies watch the abdomen

We can move on to the last vital sign which is blood pressure, start by defining it.

Blood pressure
What is blood pressure? Think about it for 1 minute and complete the following activity.

Activity

In your own words write down the meaning of blood pressure in your note book

Well done!! You have now completed this activity

Hope in your definition you mentioned that blood pressure is the force exerted by the blood upon the walls of blood vessels. You can measure blood pressure in millimetres of mercury. You can obtain the highest reading when the ventricles contract (systolic) and send more blood to the arteries and you can as well obtain the lowest (diastolic) when the ventricles relax.

Normal range of systolic pressure is 100-130mmHg and diastolic 70-90 mmHg. However, normal range may vary from individual to individual.

If you obtain a figure like 120/80, the top figure is the systolic and the bottom figure is the diastolic pressure. The difference between systolic and diastolic pressure is pulse pressure. Now we are going to look at the factors responsible for maintenance of normal blood.

Factors responsible for maintenance of normal blood pressure

- Venous return –We can say that venous return is the amount of blood returning to the right side of the heart. This means that when venous return is low blood pressure is low and when it is high the will also be high. This brings us to peripheral resistance.
- Peripheral resistance __This is when there is resistance in the arterioles when the muscle layer contracts the calibre of the vessel decreases, the resistance to blood flow increases and so does the arterial blood pressure.
- Cardiac output: When we look at cardiac output we are referring to the amount of blood ejected from the heart by each contraction. The greater the cardiac output the higher the blood pressure.
- Viscosity of Blood: The thickness of the blood affects the easy with which blood flows and the amount of blood circulating in the vessels maintains blood pressure
- Elasticity*:* The walls of an artery are elastic and easily distensible. As pressure within the arteries increases, the diameter of the vessel walls increases to accommodate pressure change.

We are done with the vital signs and you may have noticed that these are really vital signs and any change in vital signs signifies that there is something wrong and we need to get concerned. If vital signs are normal, well and good, you can comfortably say the patient is making progress or patient is stable.

Self -Test Questions

1. All of the following are cardinal signs EXCEPT:
   a .Temperature
   b .Weight
   c .Blood pressure
   d .Pulse
2. Mention any four factors responsible for maintaining normal blood pressure

ANSWERS
1 .B
2 .cardiac output, elasticity, blood viscosity, peripheral resistance

After admitting the patient, remember you did assess the health status of the patient and you went on to check the vital signs, now that you checked the vital signs you need to collect some specimen on your patient lets switch on to Collection, examination and disposal of specimens

Collection, examination and disposal of specimens

What is a specimen?

A specimen is a sample or part of a thing intended to show quality and kind of a whole. Now let us look at the reasons for collecting specimen. The following are the Reasons for collecting specimen.

Reasons for collecting specimen

- To aid in diagnosis –depending the results after examining the specimen you can make a diagnosis basing on the results
- To determine treatment-After examining and making the diagnosis the patient can be put on treatment basing on the results
- To check the patient's condition before administering certain drugs especially anaesthesia to know whether the patient is fit or not.
- To monitor the effect of treatment-the doctor can prescribe treatment after discovering that there is an abnormality, after treatment a specimen can be collected if no abnormality found then the treatment is effective.

There are four types of specimens you can collect. These are:

- Urine
- Stool
- Sputum
- Vomitus(emesis)
- Blood

We will look at them one by one starting with urine specimen. What is urine? Think about it for 1 minute and complete the following activity.

Activity

In your own words write down the meaning of urine in your note book

Well done!! You have completed this activity. Now compare your answer with the following definition.

Urine

Urine is a clear amber fluid secreted from the kidneys, transported by the ureters, stored in the urinary bladder and voided through the urethra. It consists mainly of water in which waste products are dissolved.
For you to note any abnormalities in urine specimen, you should do urinalysis

Urinalysis

When we say urinalysis, we are referring to the testing and examination of urine which is done physically and chemically. The following are the aims of urinalysis:

Aims of urinalysis

- To detect abnormalities in newly admitted patients
- To detect abnormalities in patients preoperatively
- To determine progress of the patient with conditions like Diabetes mellitus
- For diagnostic purposes

These aims are straight forward and self-explanatory. Now let us go through the characteristics of urine

Characteristics of urine

You need to note the colour, smell, ph., specific gravity and amount. Here are the normal ranges of the mentioned characteristics**.**

- Normal colour of urine is amber.
- Normal smell is aromatic (fresh green grass).
- Normal PH is slightly acidic. PH is 5-6
- Normal specific gravity of urine (density) is 1010 – 1030. The instrument used to measure the specific gravity is the urinometer.

- Usual amount of urine output for a normal adult is 1100 – 1500mls, for children its 350 – 900mls in 24 hours.

When testing urine you need to observe the following principles;

Principles of urine testing

- Test fresh urine
- Use clean containers or instruments during the procedure
- Do not use disinfectants to clean the containers, test tubes just before doing urine testing
- Follow the stipulated times when reading the results
- Ensure that you do not handle the test end of the strip to prevent false readings.
- Cover all reagents containers after use to prevent the reagents from losing potency
- Record results promptly
- You should only touch on non-impregnated ends of the strip.

Take Note

If you do not follow these principles you can end up having false results

Now we look at which patients we can do urinalysis. You can test urine on the following patients/clients:

- All newly admitted patient as routine measure.
- All diabetic patients to monitor sugar and ketone levels
- All patients preoperatively to know if there are any abnormalities.

You can use Reagents for urinalysis

- Glucostix – you can use to detect glucose
- Acetex – you can use it to detect acetone
- Multistix – you can use for everything which you can be able to detect

For requirements and method in urinalysis, check procedure manual

As you are testing urine you may find the following abnormalities in urine

Abnormalities in urine

The first abnormality is the one you may find in the output as outlined:
Out put

- Polyuria*:* this refers to increased urine output. Commonly seen in patients with diabetes mellitus.
- Oliguria*:* this refers to decrease urinary output of less than 500 mls in 24 hours. It can be seen in dehydration shock.
- Anuria*:* refers to urine output of less than 250 mls in 24 hours. It is a very serious sign, can be caused by many factors including shock or severe dehydration of renal infection.
  Another area where you find abnormalities is colour.

Colour

Normal urine is straw coloured or clear amber. Deep amber is mostly present early in the morning when the urine is most concentrated. The colour of the urine may be altered in certain circumstances as listed:

Smokey: this could be due to minimal bleeding and if you see that urine is red, it may be due to heavy bleeding or certain drugs like Rifinah. In some instances you find that its green/yellow which may be due

presence of bile for example in jaundice and if it is milky/opaque/cloudy: may indicate the presence of pus cells. You should also note the smell of urine.

Smells
You may note the following as you smell the urine, move the container of urine near your nose, you can be able to note either Fishy Smell or Sweetish smell.

If you smell fishy urine, it may indicate presence of urinary tract infection. You can find sweet smell in diabetes mellitus which may indicate presence of acetone.

We need to note the specific gravity as well.

Specific gravity
This is the density of urine in relation to that of water. Specific gravity depends on the amount of solvent dissolved in a solution. It is measured using a urinometer. The normal specific gravity is 1010 – 1030.
If you find that specific gravity is High, bear in mind that it occurs in glucosuria-there is sugar in urine.

But where you find that it is low you suspect renal failure that is, kidney not functioning well.

Now look at the abnormal constituents in urine

- Albumin: Presence of proteins in urine is called proteinuria. You can find Proteins in urine in Nephrotic syndrome and also toxaemia of pregnancy. Don't worry about these conditions even if you do not understand them now in your training.
- The other one is sugar which is the presence of sugar in urine which is known as glucosuria. It may be present in urine after a heavy carbohydrate meal and in Diabetes Mellitus.
- Ketones are another abnormality found in urine in diabetic keto -acidosis and in someone who is starving so when you find it you suspect either of the two.
- Blood may also be found in urine as you are testing, this may indicate schistosomiasis, benign prostatic hypertrophy, and injuries to the urinary bladder and as a contaminant in a woman during her periods.
- If you find pus- in urine you may think of urinary tract infections and sexually transmitted illnesses.

We have looked at urine that is the definition, principles of urine testing, characteristics of urine and abnormal constituents in urine. Now look at stool

Stool

What comes into your mind when you hear someone mentioning stool? Think about it for 1 minute and complete the following activity.

Activity
In your own words write down the meaning of stool in your note book

Congratulations for completing this activity

Hope in your definition you mentioned that stool is the waste from the food that has been consumed after digestive processes are completed (wikipedia.com). Stool can also be defined as a motion of discharge from the bowels which contain indigestible cellulose, bacteria, bile pigments, water and food which has escaped digestion.

Stool is removed through the lower end of the digestive tract, referred to as the anus.

The process of expelling the faeces from the body is referred to as defecation or having a bowel movement.

When you look at stool it appears as normal semi solid body excreta which are expelled through the bowel via the rectum.

In the same way you observed urine you should as well observe stool even though it has an unpleasant site.

It is important for you to know the normal characteristics of stool for you to be able to detect some abnormalities.

Now we will look at the normal characteristics of stool.

Normal characteristics of stool

Normal stool in health people vary according to the age of an individual and the diet he takes. It is better to ask or observe for the following:

- Number of bowel movements in 24 hours
- Any accompanying pain or straining
- Consistency
- Shape
- Colour
- Odour of the stool
- Presence of unusual matter
- Note expulsion of gas or flatus

You will now cover each normal characteristics of stool in detail as follows:

Frequency: you should bear that number of bowel movements varies in adults from two per day of 100 – 200g, others 2 – 3 times per week. For infants, if breast fed 4 – 6 times daily and 1 – 3 times daily if bottle fed. The normal quantity in adult is 100 – 200g per motion and the stool should be well formed, not hard and moulded to the shape and size of the rectum which we refer to as consistency.

Normal colour is greenish brown. The bile pigments give it the brownish colour. The colour may change with the diet and drugs taken for example vegetables give stool a green colour due to chlorophyll while iron gives it a black colour.

It has a characteristic offensive **odour** which is recognizable by everyone and yourself as well you are able to recognize it. As earlier mentioned stool follows the shape of the rectum. Normally stool consists of water, cellulose, mucus, dead tissue cells, mineral salts, bile pigments and bacteria

Variation in health

Characteristics of normal stool can vary in health as follows;

- Diet can make variations for example plenty of oral fluid intake will make the stool soft. Intake of minimal fluids will make the stool to be very hard.
- High protein diet makes the stool smell offensively and appear dry
- Milk diet stool will be dry, crumbly and pale in colour
- Vegetables will alter the colour of the stool to green and carrots to reddish colour
- Drugs for example laxative and purgative increase the quantity and fluidity (consistency) of the stool. As you do your pharmacology you be able to understand these terms as at now do not worry.

Next we will go through Abnormalities of stool (variations of characteristics of stool in disease

Abnormalities of stool (variations of characteristics of stool in disease

We started by looking at the normal characteristics, Now look at the abnormal characteristics which when you observe them you should get concerned. The first one we will look at is consistence.
If the stool consists of small, dark hard stools due to increased water absorption during its long stay in the bowel we refer to as constipation**.** When there is constipation the frequency of opening bowels decreases. The causes of include:

- Inadequate fluid intake, it will lead to the stool become hard because the water which makes the stool soft is not enough
- Inadequate roughage in the diet because this diet make food to be digested easily and makes the stool soft.
- Changes in routines for example changes in meal times due to admission –because the meals may be irregular or inadequate, the stool which will be formed will not be enough to make someone have the urge to go to the toilet, as a result most of the water will be absorbed making the stool hard
- Ignoring defecation reflex which will lead to the absorption of the water there by making the stool hard.
- Lack of exercises leading to poor muscle tone- this will lead to poor bowel motion reducing the number of opening bowel
- Immobility – the digestion process is slowed when the patient is immobile and this leads to poor bowel motion reducing the number of opening bowel

The other abnormality you can find is diarrhoea which is the passage of loose stool 3 or more times in 24 hours. You will through in detail when you cover diarrhoea on its own. Now look at odour; if you remember very well we said that the normal smell for stool is offensive so if the stool has sour smell it is indicative of digestive disorders because it occurs in patients with digestive disorders. At times it can be Offensive but bulky, pale greasy stool suspect a problem because it occurs in conditions where there is excessive destruction of Red blood cells for instance, in Jaundice. Jaundice is the yellow discolouration of the skin and mucus membrane.

You should also observe the **Colour** and you may notice the following abnormalities:

- Light coloured stool: you can observe this colour when undigested fat ere present in stool. This type of stool is difficult to flush.
- Pale white or clay coloured: This occurs in the absence of bile. It may occur in obstructive jaundice. Obstructive jaundice is one of the types of jaundice.
- Bright red stained. This indicates bleeding from the lower gastro intestinal tract for example rectum. This usually occurs when trying to force stool out especially hard stool as we saw in constipation.
- Malena: This is dark stool and sticky due to partly digested blood. This may occur in gastric and duodenal ulcers. You may wonder what am trying to say these are simply sores in the stomach and duodenal.
- Black stool: This may be due to iron you can find black stool in patients taking iron tablets like folic acid.
- Greenish stool: In children usually it indicates undigested food due to overfeeding or underfeeding

We are still looking at abnormalities of stool- Presence of unusual materials is one of them. The examples of unusual matter which include pus, mucus, foreign bodies and worms. When you see these, you should report to the ward in charge. Pus may be due to suppuration in the intestines, liver, pancreas or pelvis. Mucus gives stool a slimy appearance for example in dysentery; stool consists of mucus and blood. Worms may be found in stool in worm infestation

Foreign bodies for example, buttons, seeds; coins may have been swallowed accidentally swallowed.

We will look at other abnormal characteristics of stool

Other abnormal characteristics of stool

Pea soup stool in typhoid and rice watery stool in cholera. These conditions you will cover them in medicine, for now what you need to know is that pea soup stool is passed by patients who suffer from typhoid fever and rice watery in those patients with cholera.

Now that you have finished studying stool, you can proceed to study sputum

You will start by defining Sputum which is the mucus secretions from the lungs, bronchi and trachea. Sputum production is the reaction of the lungs to any constantly recurring irritant. You may also associate it with nasal discharge. What then are the characteristics of sputum? You should know the normal characteristics of sputum because if you know the normal you can be able to identify the any abnormalities for example we are saying the normal colour for sputum is colourless so if you notice that instead of colourless the sputum is yellow you will definitely know that there is a problem. The following are the normal characteristics of sputum:

Sputum is
- It is colorless
- Odourless
- Very little
- Fucoid (resembling brown seaweed) and may contain some saliva

Since you have known the normal characteristics proceed and study the abnormal characteristics of sputum

Abnormal Characteristics of Sputum
You will study them in the following sequence
- ***Amount*****:** It may be scanty for example in early PTB and Broncho asthma. It may be copious or plenty in broncho- pneumonia
- ***Tenacity:*** The sputum clings to the patient's lips and is very difficult to spit out. It may occur in lobar pneumonia
- ***Appearance and colour*****:** It may appear clear opaque depending on the cause for example in Broncho pneumonia it will be muco- purulent.

You are through with covering sputum, next you will go through vomitus. You will start by defining vomiting.

Vomitus (Emesis)
Vomiting is a reflex action which results in ejection of stomach contents through the mouth.

Causes of vomiting
- Hyperemesis –because of hormones which induce nausea.
- Local gastrointestinal tract conditions for example local irritation.
- Excessive stimulation of the peripheral nerves for example when you are having severe pain.
- Disturbance of position of internal organs for example when you are flying.
- Stimulation of the vomiting centre

Collection of vomitus
- Collect normally for laboratory examination.
- You use the same receptacle/receiver in which patient has vomited into.
- Measure the quantity; you can tell the doctor your observations.
- Green vomitus indicates presence of bile.

Disposal of excreta
- You can dispose when excreta has no further use.
- You should dispose appropriately as per discussion in infection prevention.
- Sluice room is the room provided for you to dispose of the excreta.

- You clean the instruments with antiseptic and disinfectant.
- When disposing stool and blood, use cold water to prevent staining and sticking to the equipment.

After all the procedure, wash your hands.

Blood

Blood is a common specimen obtained for a number of diagnostic investigations. It may be obtained from a capillary or vein. When collecting blood, ensure that aseptic technique is observed and maintained. The puncture site must be cleaned with an antiseptic solution for example methylated spirit

Collection of other specimen

Pus: This can be obtained through a throat swab, nose swab and wound swab. A sterile swab can be used. The swab should go straight to the affected part without touching other parts. Swab is taken for identification of organisms and for effective treatment

Cerebral spinal fluid: This is collected by the doctor through lumber puncture. A lumber puncture needle is inserted through the 4^{th} and 5^{th} lumber space and cerebral spinal fluid is withdrawn.

Cavity fluid: The specimen may be obtained from body cavities and joints for example pleural, peritoneal, pericardial and synovial fluids. Strict aseptic technique should be applied and maintained.

You will now study the basic needs of a client

Self-Test Questions

1 .List any four specimens you can collect from a patient.

2 .Mention the abnormalities of urine output.

ANSWERS

1 .Blood, vomitus, urine, sputum, stool

2 .Polyuria, anuria, oliguria

6.5 Basic Client Needs

Hygiene

Hygiene is common term used in our everyday language to mean the level of cleanliness of an individual or an object; in this unit you are going to study how to meet the basic hygiene needs of a client in the hospital.

Definition

1. It is the science of health and its preservation.
2. It is a condition of practice such as cleanliness that is conducive to preservation of health.
3. It is science of preserving and promoting the health of both the individual and the community through bathing, toileting and general body hygiene.

Factors influencing individual hygiene

- Culture- some culture bath once or twice a day
- Environment- finances may affect some homeless, no warm water or other facility
- Developmental level- children learn hygiene from home
- Health and energy- ill people are not able to perform self-care.
- Personal preference- time of shower depends on persons

Bathing

Bathing is the washing of the body with a fluid, usually water or an aqueous solution, or the immersion of the body in water.

This is one of the hygienic measures you need to take as an individual as well as ensuring that the patients under your care bath frequently.

What is the importance of bathing? Think about it for 1 minute and complete the following activity.

Activity

In your own words write down the importance of bathing in your note book

Well done!! You have now completed this activity. Now compare your answers with the following:

Importance of Bathing

Bathing is important because:

- It cleans, refreshes the patient and makes him/her feel comfortable.
- Provides chance for the nurse to make observations on the patient, if remember under physical examination we mentioned this. You can be able to observe the patient when they undress to bath.
- It stimulates the blood circulation because there is dilatation of blood vessels leading increased blood flow.
- Provides opportunity for information, education and communication because you talk to the patient during a bath you also educate the on certain issues according to the information you have gathered.
- Provides an opportunity to build nurse/patient relationship because as you bathing or assisting the patient to bath you keep talking to the patient thereby building the relationship
- Increases patient's sense of wellbeing and self-esteem.
- It gives chance for physical exercises –as you bath the patient you can even do some exercise

We are now going to look at the types of bathing

Types of Baths

There are three types of baths, namely:

- Shower bath
- Tab/plunge bath
- Bed bath.

We will now look at them one by one in the following sequence:

Shower Bath

Shower bath is the most hygienic bath for it uses constantly clean water. Even if the patient can manage by him/her self, you should make sure that all is in order before permitting him/her to use the shower. If patient is weak you should watch the patient closely and take precautions to avoid accidents, remember in the previous unit we looked at you prevent injuries in the patient's unit.

You can use cold water as it is good because it removes oil and stimulates blood circulation, thereby making the individual feel warm afterwards. On the other hand, you can also use warm water, warm water is

soothing as it causes constriction of blood vessels thus, and the body gives off less heat. Warm bath stimulates sleep in patients who have insomnia (difficulties with sleep).

The other type of bath you will cover is tub or plunge bath.

Tub/Plunge Bath
Tab/plunge bath is used for physically limited persons and sometimes it is used as a cleansing bath for ambulated patients. It is used for persons with wounds as a medicated bath. The advantages of tub bath are often defeated by the disadvantages of the tub itself. It is not a particularly easy bath as you can require a device to get the patient in and out of the tub.

Bed Bath
This is where you bath the patient while in bed. Well it sounds strange bathing a patient in bed how? As you study you will see how a patient can be bathed in bed.

A bed bath is given to those patients who cannot get out of bed to go and bath
A bed bath is carried out on the following patients; you can even say indications of bed bath:

- acutely ill patients,
- bed ridden patients such as the paralyzed, unconscious,
- patients on traction,
- patients on complete bed rest and
- Those in the immediate post-operative period.

All these patients cannot get out of the bed to go and bath.

During bed bath you must observe for the following:

- Posture and mental status- observe whether changing or not, is the patient confused.
- Signs of discomfort if you are bathing the patient are the patient comfortable, observe facial expressions.
- Breathing pattern-is it normal breathing or patient is having difficulties in breathing.
- Odour from the body or clothes- is there an offensive smell especially where the patient messes himself
- Skin condition; rash, presence of lice, sores if you notice any problem attend to those problems or report to the appropriate person to deal with the problem
- Listen to any complaints the patient may have as it may assist in the care of the patient.

Refer to the procedure manual for the actual procedure

Care of the Skin

Introduction
When you do not relieve pressure on any part of the body regularly, blood supply to the area will be interfered. This will result in affecting the nutritional status and oxygen supply to the area. The end result will be reddening of the area with possible tissue break down. Good skin care is helpful in preventing such problems. Let us look at pressure.

Definition of a pressure area

Pressure areas are areas of the body where tissues may be compressed between the underlying bone and bed leading to formation of pressure sores. These are areas where the bones are prominent and liable to formation of pressure sores.

Next we will define pressure sore.

Definition of pressure sore (Decubitus)

1. A pressure sore or decubitus is an ulcer formed on an area where the skin tissue has been destroyed and there is progressive destruction of the underlying tissues. The terms decubitus ulcer, pressure sore and bed sore are used interchangeably.
2. A pressure sore is an ulcer or sore which forms at a point of bone prominence due to pressure, friction or moisture when the patient is confined to bed or wheel chair.

From the last definition you can see that actually this sore or ulcer forms as a result when patient is confirmed to bed. So you should always make an effort to relive this pressure.
The following are the pressure areas; usually they are bone prominence areas:

Pressure areas on the body

- The occipital bone
- The scapula
- Iliac crest
- Heel
- The sole
- The shoulder
- Middle knee, lateral knee
- The wrist
- Top of the toes
- Lateral edge of the foot
- The back, sacrum, coccyx.

These are areas where pressure sores can develop

Predisposing Factors to Pressure Sore Formation

- *Moisture*: It reduces skin's resistance to other physical factors such as force
- *Poor nutrition*: clients with poor nutrition experience serious muscle wasting and decrease in subcutaneous tissue which serves as a pad between the skin and the underlying bone.
- *Anaemia:* decreased haemoglobin reduces oxygen carrying capacity of blood and amount of oxygen available to the tissues. Anaemia also alters cellular metabolism.
- *Infection*: It increases metabolic and nutritional demand thereby depriving the tissues of oxygen and nutrients.
- *Shearing* ***force***: force exerted when client is being moved or pulled in bed. The skin adheres to the surface of the bed while the skin slides in the direction of the body movement.

The following patients are at risk of developing pressure sores:

Patients at risk of developing pressure sore

- A patient who is debilitated by illness and in a poor nutritional state. Because his/her skin can break or skin tissue can easily be destroyed.
- Older patients whose skin is wrinkled because of lack of subcutaneous tissue.
- Emaciated patients/people due to loss of subcutaneous tissue.
- Unconscious patients due to prolonged lying in bed on the same side without turning them.

- Patients on traction because the patients also sleep in the same position for a long time which creates pressure on the pressure there by leading to formation of pressure.

How would you know that the patient is developing pressure sores? Think about it for 1 minute and complete the following activity

Activity

In your own words write down how you know that the patient is developing pressure sores in your note book

Well done!! Now compare your answers with the following:
The following are the signs and symptoms of pressure formation

Signs of pressure sore formation

- Bleaching of the skin
- Redness of the skin
- Heat
- Tenderness
- Skin irritation
- Pain on pressure area

Heat and pain are present due to increased blood flow to the area. If pressure is not relieved the tissue eventually die due to lack of blood and oxygen. Gangrene develops and the area will slough off leaving an ulcer.

Now go through the formation of pressure sores

Pathogenesis of pressure sores

Pressure sores form as a result of pressure. The effect of pressure is due to unequal distribution of weight over the body. A pressure sore gradient is increased on those tissues receiving the pressure due to alteration of cellular metabolism at the point of pressure as a result of decreased tissue perfusion. There will be redness which disappears when pressure is relieved. Then, there will be superficial circulatory and tissue damage, redness, oedema that does not disappear. Destruction of subcutaneous layers, necrotic cells and destruction of underlying capillary bed, advanced destruction of muscle mass and exposure of underlying bone if deep

You must make an effort to prevent formation of pressure sores because when they form they are very difficult to treat.

Prevention of pressure sores

- Do routine check-ups of pressure areas during baths for presence of pressure sore formation so you remove the predisposing factors
- Keep the pressure area clean and free from irritation to prevent pressure sore formation.
- Patients who are unable to control urine or bowel excretion require special consideration so that linen is not constantly wet as moisture predisposes to pressure sore formation.
- Patients who must lie for a longer period of time on sheets over rubber or protective material perspire, hence measures should be taken to provide wool materials which eases pressure on the area and helps distribute weights.

- Promote measures to improve nutritional status of the patient because malnutrition predisposes to pressure sore formation as the skin can easily break.
- Change patient's position 2 hourly and keep a chart for turnings to relieve pressure from bony prominence areas.
- Ensure the bed is free from wrinkles, bed crumbs or other irritating materials that can cause friction of the skin.
- Keep incontinent patients dry by frequent change of linen, use of incontinent pads or catheterization.
- Pressure area care should be done 4 hourly in helpless patients for example unconscious patient

Promote early ambulation of patients to promote blood circulation and also to relieve pressure from pressure areas.

You covered pressure sores; now go through care of the nails and hair. You will study them one at a time.

Now we will look at oral care or care of the mouth or oral toilet

Care of the Mouth (Oral Toilet)

This is the care given to the patient's mouth with the aim of cleansing the mouth, and promotes the flow of saliva.

In normal circumstances cleaning of the teeth should be twice or three times daily, with mouth rinses in between meals.

When can you do oral care? Think about it for 1 minute and complete the following activity.

Activity
In your own words write down the instances when you think you can do oral care to the patient

You have completed this activity. Now compare you answer with the following content.

Indications for Oral Care

- Helpless patients (unconscious and weak patients) because there are not able to clean their mouths, if you don't do it for them, patient can end up developing complication like inflammation of the mouth
- Those on milk or fluid diet to cleanse the debris from milk.
- Patients with diseases of the mouth for example stomatitis inflammation of the mouth, gingivitis inflammation of the gums among others. to prevent bad breath.
- Patients on artificial feeding for example those on naso gastric feeding because patient is not using the mouth and may end having bad smell (halitosis).
- Febrile diseases to moisten the mouth as it is usually dry.
- Patients with excessive diuresis, diarrhoea and vomiting because the mouth is dry.
- Patients with difficulties in breathing to stimulate salivation because the patient may breathe through the mouth and mouth may be dry.

Let's outline the advantages of oral care

Advantages of Oral Care

1. Increase salivary flow.
2. Prevent mouth infections.
3. Prevent dental carries.
4. Prevents drying of the mucous membrane of the mouth.
5. Prevent sordes (dirty particles found in between the teeth).

The following are the complications a patient may develop

Complications of a Dirty Mouth

The following are the complications of a dirty mouth

- *Stomatitis*– It is inflammation of the mouth.
- *Gingivitis* – It is inflammation of the gums.
- *Tonsillitis*– It is inflammation of the tonsils.
- *Parotitis* –It is the inflammation of the parotid glands.
- *Otitis Media* –This is inflammation of the middle ear.
- *Glossitis*– This is inflammation of the tongue.
- *Halitosis*–This is bad smell of the mouth.
- *Anorexia*– This is loss of appetite.

All these complications may be as a result of neglected mouth because if you not do oral care infection may set in leading to the above complications.

Now you will proceed to cover skin care, to be specific, pressure area care.

Care of the Hair and Nails

Hair Care

The purpose of hair care is to:

i. Remove dirt and old cells and avoid the skin irritation.
ii. Remove dead cells from the scalp.
iii. Stimulate scalp circulation just as you can promote blood circulation when you give a patient a bath in the same way there is blood vessel dilation hence increased blood circulation.
iv. Remove the chemicals especially when insecticide has been used to clean the hair.
v. It improves the patient's body image as the patient will look nice when the hair is washed especially with unkempt hair as a result of self-care deficit.

The following are the category of patients where you can do hair care:

Indications

i. Chronically ill patients
ii. Patient undergoing special operation on the head.
iii. Patients with dirty hair.
iv. Patients infested with lice.
v. Patients who have been in bed for too long.
vi. Mentally ill patients

Before you wash the patient's hair you should inspect it. The following are some of the common problems you may find:

Common problems of the Scalp and Hair

1. **Dandruff:** these are white scales shading off from the scalp. Scaling of the scalp is accompanied by dandruff and itching.
2. **Pediculosis** is a condition of being infested with lice which causes intense itching thereby and subsequent scratching. This can even lead to secondary bacterial infection of the skin. There are different types of pediculosis. These are:
    i. Pediculosis capitis its found on the head
    ii. Pediculosis corporis its found on the body
    iii. Pediculosis pubis it is found in the pubic area

Hair loss (alopecia) or Boldness

Before we close the chapter on hair care we can just define alopecia. You read more on alopecia.
This is the absence of hair from where it normally grows. It can be caused by the use of hot combs, jell or plaiting.

You will now cover the care of nails on a patient in hospital

Nail Care

Definition: This is care given to the nails.

Purpose of nail care

You can do nail care for the following reasons

- To prevent infection because nails can harbour micro-organisms which can end up causing infection
- To maintain skin integrity around the nails
- To provide client's comfort and the sense of wellbeing.

You can do nail care to the following category of patients:

Indications for nail care

- Paralyzed patients.
- Blind people and patients.
- Unconscious patients.
- Bed ridden patients.
- Mentally confused patients.
- Babies
- Patients with dirt and long nails.

Now let us look at principles of nail care.

Principles of nail care

1. Get consent from the patient –in every procedure the patient should agree that you carry out a procedure on him.
2. Prepare the requirements well in advance so that you do not stop in midst of the procedure to go and collect what to use.
3. Be gentle when carrying out the procedure so that you do not injure the patient in process carrying out the procedure.
4. The patient should be comfortable throughout the procedure because if patient is not comfortable, patient cannot agree again for that procedure to be performed or patient might not allow you to continue doing the procedure.

You will now cover mobility, but before that, assess how much you can remember from the previous lesson.

Self-test question

1 .State the importance of bathing.
2 .Mention the complications of a dirty mouth.

ANSWERS

1. It cleans, refreshes the patient and makes him/her feel comfortable.
    - Provides chance for the nurse to make observations on the patient, if remember under physical examination we mentioned this. You can be able to observe the patient when they undress to bath.
    - It stimulates the blood circulation because there is dilatation of blood vessels leading increased blood flow.
    - Provides opportunity for information, education and communication because you talk to the patient during a bath you also educate the on certain issues according to the information you have gathered.
    - Provides an opportunity to build nurse/patient relationship because as you bathing or assisting the patient to bath you keep talking to the patient thereby building the relationship
    - Increases patient's sense of wellbeing and self-esteem.
    - It gives chance for physical exercises –as you bath the patient you can even do some exercise
    - 2. *Stomatitis*– It is inflammation of the mouth.
    - *Gingivitis* – It is inflammation of the gums.
    - *Tonsillitis*– It is inflammation of the tonsils.
    - *Parotitis* –It is the inflammation of the parotid glands.
    - *Otitis Media* –This is inflammation of the middle ear.
    - *Glossitis*– This is inflammation of the tongue.
    - *Halitosis*–This is bad smell of the mouth.
    - *Anorexia*– This is loss of appetite.

We can now move on to mobility

Mobility

What is mobility? Think about it for 1 minute and complete the following activity.

Activity

In your own words write the meaning of mobility in your note book

Hope in your definition will be the same as what we have defined below Mobility is often essential to the client's perception of health. Complete, unrestricted mobility requires voluntary motor and complete sensory control of all body regions.

You will proceed to cover mobility .

Definitions

Mobility refers to a person's ability to move about freely and immobility refers to the inability to move about freely (Potter and Perry, 2005).

Physical mobility and immobility

Physical mobility is important in our society. Movements serve many purposes such as expressing an emotion with non-verbal gesture, self-defence, activities of living, and recreational activities. To maintain normal physical mobility, the nervous, muscular and skeletal system of the body must be intact and functioning. All these systems you have covered them in Anatomy and if you have forgotten revise your anatomy. When part of your body or entire body is immobilized for some time, may develop secondary disabilities in one or several body systems.

Clients with certain injuries or illness become immobilized but return to mobility with rehabilitation. Both immobility and the return of mobility influence the client's physiological, psychosocial and developmental dimensions. It means that immobile patients are not only physically affected but also psychological effect which may lead to depression. You will notice that clients on complete bed rest develop health problems as a result of their bed rest. Patients who are partially mobile have a motor or sensory alteration in a region of the body.

In some cases restriction of mobility is beneficial for the client's recovery for example immobilization of a fracture allows the extremity to heal in proper alignment,
You will now study assessing mobility.

Assessing mobility
In the previous unit you covered assessing health status in general, here you are going to use the same concept but you will narrow it to assessing mobility.

Assessment of client's mobility focuses on range of joint motion, muscle strength, activity tolerance, gait and posture. Your assessment should include the client's present mobility and potential effects of mobility. So you need to observe client during activities of daily living enable you to estimate the client's muscle strength. These assessment data assist you in developing a nursing care plan that encourages the client to maintain the present level of mobility. Observe the client's posture and gait to help you determine what type of assistance the client may require to change position.

To assess the client's risk of immobility you should do full physical assessment from head to toe. The health personnel have to focus on certain physiological areas as well as client's psychosocial and developmental dimensions.

Physiologic response to immobility
You will look at the physiologic response to immobility refer to your anatomy lectures for you to understand the content.

Physiologic response to immobility involves review of physiological changes in the systems as a result of immobility. Effects of immobility are systemic and functional and result from lack of activity and most of the body systems are affected by immobility.

Metabolic system: When assessing the client's metabolic function, you use anthropometric measurements (remember to refer to your notes in nutrition on nutrition assessment) to evaluate muscle atrophy (shrinking of the muscle), intake and output records and laboratory data to evaluate fluid and electrolyte status. This includes height, weight, mid arm circumference and triceps skin folds measurements. This must be done when client is admitted and repeated after three weeks. Measurement of arm circumference and skin fold provides baseline information about client's amount of subcutaneous fat which may be lost during immobilization. Intake and output measurement can assist you in determining if fluid imbalances exist. You should also bear in mind that dehydration and oedema can increase the speed of skin breakdown in immobilized patients.

Now assess the patient's respiratory system and you can use those four methods (that is, palpation, percussion, auscultation and inspection) used in physical examination where you think it is applicable. Like for the respiratory system which methods can you use?

Respiratory system: Inspect chest movement during the full Inspiratory and expiratory cycle. You should also auscultate the chest region to identify diminished breath sounds, crackles, wheeze which may indicate presence of secretions. Immobility may predispose the client to diseases like pneumonia which can impair respirations, decreased lung expansion and stasis of secretions. Deep breathing exercises and proper positioning may help in prevention of chest complications.
Now look at how you can assess the cardiovascular system.

Cardiovascular system: to assess the cardiovascular system in immobilized clients you check the blood pressure monitoring, evaluating apical and peripheral pulses because of the risk for orthostatic hypotension. Hope still remember such terms like orthostatic hypotension; we mentioned what it is under blood pressure. Monitoring the client's peripheral pulses allows you to evaluate the heart's ability to pump blood throughout the body. Assessment of immobilized clients should include the sacrum, legs and feet, nose and earlobe, will be colder than the central body regions. The nurse assesses the client's venous system because deep vein thrombosis and increased cardiac overload are complication of restricted mobility. You can prevent deep vein thrombosis by limb exercises because limb exercises will increase blood flow, and proper positioning.

Musculoskeletal system: Abnormalities that you may identified include, decreased muscle tone, contractures, muscular atrophy and foot drop foot drop. The effects may be prevented by active and passive exercises, proper body alignment and positioning.

Urinary system: Assessment of client's elimination status should include the frequency and consistency of micturition and bowel movement. Immobility may lead to urine retention, renal calculi which is formation of stones in the bladder, urinary tract infection as a result of urine stasis. Bowel elimination is also affected resulting to constipation as a result of decreased gastric motility. You can prevent constipation by encouraging fluid intake, taking high roughage diet and giving of bed pans and urinals on demand.
We can now proceed to look at the skin

Integumentary system (skin changes): The effect of immobility on the skin is compounded by the impaired body metabolism and negative nitrogen balance. A break in the skin is referred to as bed sore (pressure sore). When the skin breaks the client is at risk of systemic infections because microorganisms can enter where the skin is broken. This is because the skin acts as a protective barrier and also when the skin break there is fluid loss as a result of oozing sores.

When we just started looking at mobility and immobility i mentioned that a person who is immobile can easily be affected psychologically hence the need to assess the psychological response of the patient.

Psychological Responses
How can you assess the psychological response of the patient? Think about it for 2 minutes and complete the following activity.

Activity
In your own words write down how you can assess the psychological response of the patient in your note book

Compare your answers with the answers in the following paragraph:

You should assess for inappropriate change in the client's emotional status such as depression, no coping mechanism to adapt to immobilization. Decreased coping mechanism may cause the client to become

disoriented or confused, hostility, anxiety and withdrawal patient will not have interest in whatever is happening. If behaviour changes occur you should determine the cause by interviewing the family and friends concerning normal behaviour patterns to gain baseline data about usual behaviour.

Congratulations!! You have just completed covering mobility and immobility, now we are going to study respiratory needs

Respiratory Needs

Introduction
One of the basic requirements for life to continue is to be able to breathe. By breathing, we maintain both the oxygen and carbon dioxide *levels* in the blood within acceptable limits. Oxygen is a basic human need and is required for life. The individual's level of health, age, life style and environment affect the ability to meet tissue oxygen needs. When a client is unable to meet his oxygen requirements, hyperventilation, hypoventilation or hypoxemia may result. You may not understand these terms lets define them one by one

- Hyperventilation is breathing in excess of that which is required to maintain normal carbon dioxide levels in the body tissues.
- Hypoventilation is a depressed respiratory rate causing carbon dioxide retention. Hypoventilation results into hypercarpnea (elevated levels of carbon dioxide in the blood) and hypoxemia.
- Hypoxemia is deficient oxygenation of the blood.

Having covered the terms, the other thing you need to do is to revise your anatomy and physiology of the respiratory physiology.

Now look at airway obstruction. It will help you to understand better when you covered maintenance of clear airway.

Definition of airway obstruction
Airway obstruction is any process that reduces the diameter of the airway. Breathing then requires more effort because air must be drawn through a narrower passage way. Airways may become obstructed through many ways:-

- Lumen may become plugged by foreign material, mucus or abnormal growth.
- Inflammation caused by chemicals or physical irritation.
- Broncho spasms leading to narrowing of the airway
- Cystic fibrosis

Maintenance of a clear airway
The following are the ways in which you can maintain a patent airway:-

- *Positioning* – for unconscious patient, the airway can be maintained clear by positioning the patient in a lateral position. This position prevents the tongue from failing back and allows the free flow of secretions.
- *Suctioning* - suctioning is useful for removing the secretions in the airway. Secretions, especially viscid secretions can be responsible for airway obstructions. These secretions if not removed may be a good media for multiplication of micro-organisms. Suctioning is only appropriate when the secretions are present in the upper airway.
- *Tracheostomy* – this is an opening into the trachea. It is made to aid breathing for example In upper airway obstruction.
- *Using Oral or nasal pharyngeal airway* – these are artificial devices you can insert through the mouth or nose to bypass airway obstructions or to facilitate secretion removal.
- *Coughing techniques* – you can tell the patient to cough effectively and efficiently to remove secretions from both upper and lower airway

You have now known how to maintain clear airway. We are now going to look at how you can administer oxygen to a patient in need.

Administration of Oxygen
As you know that Oxygen is a gas that is necessary for life. It benefits a patient whose respiratory capacity is diminished.

Promotion of lung expansion, mobilization of secretions and maintenance of a patent airway assist the client in meeting oxygenation needs. However, some clients also require oxygen therapy to keep to level of tissue oxygenation within a healthy range.

Before you cover oxygen administration, you will study the following
1. Conditions requiring oxygen therapy
2. Clinical features of a patient in need of oxygen
3. Properties of oxygen

Now go through each one of them in turn.

Conditions requiring oxygen therapy
- Severe asthmatic attack
- Carbon monoxide poisoning
- Chest injuries or operation of the lungs
- Severe pneumonia
- Acute pulmonary oedema
- Cardiac failure
- Bronchitis

In all these conditions a patient is not breathing well either because of secretions obstructing the airway, narrowed airway due to muscle spasms or inflammation.

How can you know that your patient is in need of oxygen? Think about it for 1 minute and then complete the following activity.

Activity

Using your own words, write down the clinical features of a patient in need of oxygen in your notebook.

Well done! Now compare the clinical features you have written with the following clinical features;

Clinical Features of a patient in need of oxygen
- *Dyspnoea* –difficulties in breathing
- *Restlessness* -patient seem not to be settled because of difficulties in breathing
- *Cyanosis*- blues discoloration of the skin
- *Flaring of the nostrils*-movement of the nostrils as the patient is breathing.

The following are the properties of oxygen;

Properties of Oxygen
- It is colourless
- Supports combustion-it can easily ignite a fire upon contact with a spark.

- It is tasteless
- It is odourless-has no smell

Next let us go through oxygen administration

Oxygen administration

We will start by looking at how oxygen is brought to your ward.

Oxygen may be brought in a ward in an oxygen cylinder, oxygen concentrator or as piped oxygen.

- *Oxygen concentrator* – this is a machine which extracts oxygen from the atmosphere when plugged to a source of electricity. Oxygen concentrator causes oxygen depletion in the room.
- *Piped oxygen* – oxygen comes from a central source via the pipes to the ward. Each bed may have an outlet through which oxygen tubes can be connected in order to give the patient.
- *Oxygen cylinder* – for purpose of identification, the oxygen cylinder is painted a black body and white top. Oxygen is compressed into cylinders of different sizes. Oxygen cylinder has some fittings as outlined:

Fittings of the Oxygen Cylinder

- *Regular valve*– this is used to regulate the amount of oxygen to be given.
- *Pressure gauge* – it shows the amount of oxygen in the cylinder.
- *Flow meter* - it shows the amount of oxygen being given.
- *Humidifier* **- (Wolfer bottle) –** This contains distilled water. Is used to humidify or moisten oxygen because dry oxygen can be very irritating to the mucus membranes.

Whenever an oxygen cylinder is empty, it should be clearly labelled 'EMPTY'. Always have a cylinder on standby.

You now know how oxygen is brought to the ward and the fittings of the oxygen cylinder lets now look at how oxygen is administered.

Methods of oxygen administration

Oxygen masks - There are different types of oxygen masks for example Disposable polythene mask (it is light and inexpensive, does not need sterilisation). Ventilation mask (this is meant to give accurate control of the oxygen concentration so that it does not rise enough to cause respiratory depression).

Tracheostomy mask – If the patient has had a tracheostomy performed, it is obvious that he cannot benefit from oxygen given through face mask. The tracheostomy mask can be used.

Nasal catheter /tubes – These tubes can be inserted in the nostrils about 5cm. Before the tubes can be inserted in the nostrils, it should be well lubricated to prevent irritation and injury to the mucus membranes. This tube should be removed and cleared if left in for 24 hours.

Oxygen tent – This is most useful in paediatrics (children). The tent will be saturated with oxygen.

When you administer oxygen to the patient you need to take certain precautions. Let us go through nursing a Patient on Oxygen Therapy

Nursing a patient on oxygen therapy

When you are nursing a patient on oxygen therapy, it is important that you take into consideration fire precautions. Observe the following;

- Do not use inflammable substances for example oil or grease on the cylinder fittings.
- Put a no smoking poster where the patient is being nursed as smoking can ignite fire.
- Do not use clothes or materials with static electricity.
- Naked wires should be properly insulated because it can be a source of fire.

- Children should not be allowed to play with electrical toys.
- No electrical bells, lights or heating pad should be allowed inside the oxygen tent.
- The patient should not be rubbed with oil or spirit whilst the tent is being operated

Use of Nebulizers
What do you understand by the word nebulization? Think about it for 1 minute and then complete the following activity.

Activity

Using your own words, write down the meaning of nebulization in your notebook.

Hope in your definition you have written that nebulization is a process of adding fine drops of moisture or fine particles to inspired air. The water or medication is usually blocked up by gas under pressure or by high frequency vibration. Therefore, nebulization is often used for administration of bronchodilators.

Now look at breathing exercises.

Breathing Exercises
Breathing exercises include three basic techniques to improve ventilation and oxygenation.
- Deep breathing /coughing exercises
- Pursed lip breathing
- Abdominal – diaphragmatic breathing

Now go through them one by one.

Deep Breathing/Coughing Exercises
Shallow breathing or an ineffective cough can lead to mucous plugging, atelectasis (lung collapse), hypoxemia and pneumonia (Inflammation of the lung parenchyma). Taking deep breathes helps to expand the alveoli and promote an effective cough which decreases the risk of atelectasis.
Deep breathing exercises are essential for prevention of pulmonary complications in patients who are at risk. The following are some of the deep breathing exercises which you can teach your patient.

Pursed lip breathing
Pursed lip breathing involves a deep inspiration and a prolonged expiration through pursed lips. It benefits clients primarily by slowing the ventilator rate, thereby increasing tidal volume and decreasing the dead space. Alveolar ventilation remains the same, but the work of breathing decreases. Pursed lip breathing exercises promote adequate oxygenation and ventilation in anxious clients as well as those with chronic obstructive pulmonary disease.

Abdominal –diaphragmatic breathing
This requires the client to relax the intercostal and accessory respiratory muscles while taking a deep inspiration and watching the abdomen move outward as the diaphragm descends.

During expiration the client slowly and forcefully contracts the abdominal, muscles and observe the abdomen for inward movement as the diaphragm ascends. These exercises decrease, air tapping and reduces the work of breathing. It aids clients with pulmonary disease, post-operative clients and women in labour.

Incentive spirometry

This is a simple device designed to encourage deep breathing. It motivates the client to breathe deeply by offering the incentive of being able to measure progress. There are different models incentive spirometers, but all provide the client with some observable indicator of how deep the breath he/she has taken is. There are two general types of incentive spirometers:-

- Flow oriented
- Volume oriented

Now go through each one of them in turn

Flow oriented

This consists of one or more plastic chambers that house freely moveable coloured balls. Instruct the client to inhale slowly and deeply to elevate the balls and to keep them floating as long as possible. Flow oriented inspiration spirometry is inexpensive, but it does not determine the volume of inspiration.

Volume oriented incentive spirometer

These have a ball below that is raised to a predetermined volume by an inhaled breath or an achievement light or counter. These devices allow a known volume inspiration to be maintained and encourage client to breathe to their normal inspiratory capacity.

Congratulations for completing this topic, hopefully, you have understood what you have covered. You need to review whether you have understood the topic. Complete the following self-test.

Self-test questions

1.The process that reduces the diameter of the airway is called;

a .Hypoventilation
b .Airway obstruction
c .Hypoxemia
d .Breathing

2.State any three (3) ways of maintaining a clear airway

3.List four (4) conditions requiring Oxygen therapy

4.Mention any two (2) methods of oxygen administration

Answers

1. *b*
2. *i.* ***Positioning*** – for unconscious patient, the airway can be maintained clear by positioning the patient in a lateral position. This position prevents the tongue from failing back and allows the free flow of secretions.

   ii. ***Suctioning*** - suctioning is useful for removing the secretions in the airway. Secretions, especially viscid secretions can be responsible for airway obstructions. These secretions if not removed may be a good media for multiplication of micro-organisms. Suctioning is only appropriate when the secretions are present in the upper airway.

   v. ***Tracheostomy*** – this is an opening into the trachea. It is made to aid breathing for example In upper airway obstruction.

   v. ***Using Oral or nasal pharyngeal airway*** – these are artificial devices you can insert through the mouth or nose to bypass airway obstructions or to facilitate secretion removal.

   vi. ***Coughing techniques*** – you can tell the patient to cough effectively and efficiently to remove secretions from both upper and lower airway

3. Severe asthmatic attack
   -Carbon monoxide poisoning
   -Chest injuries or operation of the lungs
   -Severe pneumonia

-Acute pulmonary oedema
-Cardiac failure
-Bronchitis

4 i. oxygen mask, tracheostomy mask, nasal catheter/tube and oxygen tent

Next you will study the nutritional needs of the patient.

Nutritional Needs

Nutrition is a basic human need. Nutrition is composed of essential nutrients all of which are important for growth and development throughout the life cycle. The essential nutrients are carbohydrates, fats, proteins, vitamins, minerals and water. When these nutrients are supplied to the body in proper balance, the body utilizes them for energy, growth and development, tissue repair and regulation, and maintenance of body processes. First we will start by looking at nutritional assessment.

Assessing Nutritional Status

Assessing nutritional status of a patient is essential on admission for you to plan properly the care of the patient. A malnourished patient is susceptible to life threatening complications like, sepsis (Infection) or haemorrhage (Bleeding).

You can do the following when assessing nutritional status:-

Screening -it involves both subjective and objective data.

- Subjective data – inquire about patient's eating habits, cultural and religious practices, social habits like intake of alcohol and smoking, any past medical history for example peptic ulcers, Gastro Intestinal Tract (GIT) surgeries, social economic status, present illness among others.
- Objective data – carry out a physical examination to note any signs and symptoms of malnutrition for example brittle dry hair and sparse pigmented and easily broken hair. In addition to weight, height and vital signs, each body system should be assessed.

Anthropometric measurements – this is the gross measure of fat and muscle contents most beneficial in evaluating long term malnutrition. You can measure the skin fold thickness at various sites which is an indicator of protein stores. These standards are then compared with standards for healthy persons of the same age and gender. Sites most reflective of body fat are those over the biceps and triceps, below the scapular, above the iliac crest and over the upper thigh. Poor hydration status may influence the readings. Other measures include the ratio of height to wrist circumference.

Body mass Index (**BMI)** – This measures weight and height relationship. MI is calculated by dividing the client's weight in kilograms by height in meter squared

Laboratory and biochemical tests – common biochemical tests used to measure nutritional status include measures of plasma protein such as albumin, total iron binding capacity and haemoglobin. However, these tests may not be reliable as they are influenced by many factors for example serum albumin level is influenced by hydration, haemorrhage and other diseases.

Now look at factors influencing nutritional status

Factors influencing diet requirement/intake

The nutritional status of a person may be influenced by many factors. These include;

- Attitude towards the importance of food and eating habits.
- Cultural and religious preference and beliefs.
- Social economic status of the family or individual.
- The availability of food sources for example climate (draughts).
- Disease like diarrhoea, malabsorption syndrome, ulcerative colitis.
- Cosmetic standards for example intentional weight loss.
- Ignorance and improper diets.

- Social habits for example alcohol taken in excess.
- Surgery – of the stomach.

Take Note
Nutrition problems can occur in all age groups, culture, ethnic groups and social economic classes. Intelligence and health do not necessarily prelude the development of poor nutrition habits. You should therefore take the role of a teacher to teach clients on good nutrition.

Now take you through feeding of the patient.

Feeding of a patient

Preparation
Before you prepare the food for the patient consider food requirements of patients because they differ according to;

- Individuals - a child and an adult may have different types of food.
- According to activeness – people who do exercises may require a bigger potion than someone who is inactive.
- Climate-in other seasons people may need larger portions like in rain season
- Emotional state- when you are emotionally disturbed you cannot eat as much as when you are emotionally stable.
- Pregnancy-pregnant women need larger portion of food in equal proportion because of high demand.

Preparation of patient before meals
Ensure that the environment should be quiet and well ventilated while other activities should be lessened or stopped. Provide physical comfort by;

- Dealing with elimination needs
- Putting your patient in comfortable position
- Removing unpleasant sites near the patient for example vomitus bowl, bed pan.
- The patient should bath, do dump dusting and floors cleaned prior to feeding.
- If patient is in pain alleviate pain before meals.
- Avoid giving treatment just before, during or just after meals.
- Provide mental comfort by reassuring your patient

Now go through assisting patients when feeding.

Serving of Meals
You should assist some patients when feeding for example a patient who is weak, a patient with burns on the hands, patient who is very ill or is hemiplegic (part of the body not functioning).

Procedure

- Make your patient comfortable, you should be comfortable and should relax and do not rush the patient when feeding.
- Find out if patient prays before meals
- Ask patient which food he/she would like to eat first
- When feeding the patient feed the rate they wish.
- Avoid leaving the patient alone when you have started feeding him.
- If patient is able to, allow the patient to participate for example Allow him to hold the cup whilst you are helping them to feed. Next let us look at nursing responsibilities when feeding the patient.

Nursing responsibilities when feeding the patient

You should do the following when feeding the patient.

- Observe the amount of food intake to avoid over or under feeding.
- Observe the patient's reaction towards food whether patient likes or dislikes the food.
- Give fluids to the patient, as fluids are important for hydration, promote kidney function and regulate gall bladder function.
- Leave your patient comfortable after feeding procedure.
- Remove all feeding utensils after the procedure.

Well done!! You have completed studying nutritional needs. Evaluate yourself to see whether you have understood the topic. Next we will look at fluid therapy.

Fluid Therapy

Introduction

Fluids are necessary for normal living and the adult human body is composed of 60- 70% water. The body loses water daily through sweating, excretion, secretions and inaccessible loss.

Fluid electrolyte balance within the body is necessary to maintain health and function of all body systems. This can be maintained by intake and output of water and electrolytes, their distribution in the body and the regulation of renal and pulmonary function. Imbalances may result from many factors associated with illness. A healthy mobile well oriented adult is usually capable of maintaining normal fluid and acid base balance because of the body's adaptive mechanism. Body fluids are distributed into two distinct compartments namely;

1. Intracellular fluids
2. Extracellular fluids

Before we look at them one by one what do you understand Intracellular fluids and extracellular fluids think about it for 2 minutes and complete the following activity.

Activity

In your own word write the meaning of intracellular and extracellular fluids in your note book

Now compare your answers with the ones outlined here;

Extracellular Fluid (ECF) - This is the fluid that surrounds the cell, maintains blood volume and serves as the body's transport system to and from the cell (Potter and Perry, 2005).

Cellular (intracellular fluid) - This is the water and its dissolved salts found within the cells. It provides the internal medium for cellular chemicals, for maintenance of normal body temperature and elimination of waste products.

- Interstitial fluid; is the fluid between the cell and outside the blood vessel and it contains lymph.
- Intravascular fluid; is simply blood plasma found within the cell membrane. It contains dissolved solutes essential to fluid and electrolyte balance and metabolism.
- Trancellular fluid; consist of cerebral spinal fluid, pleural, peritoneal and synovial fluid (McCance & Heuther, 2002 in potter & Perry 2005).

  It is hoped you now know the types of fluids; next we will look at how to assess a client for fluid requirement.

Assessing client fluid requirement

When assessing a client for fluid requirement you should assess all the systems so that you can be able to identify presence of any alterations and the extent to which the body systems are involved. Determine the effectiveness of therapies as well as any adverse reactions to therapy. Your assessment should include the following:

- Nursing history
- Physical examination
- Measuring and recording intake and output
- Laboratory studies.

We will look at them one after another.

- Nursing history: To collect data regarding a person's fluid and electrolyte status, you must understand fluid regulation, electrolyte imbalance and volume disturbance. For you to understand better you should go back to your anatomy
- She should know the disease process, treatment, drug therapies and diet changes that can alter the fluid balance.
- Clients with cardiovascular and renal diseases, severe burns or trauma and endocrine disorders are at risk of fluid and electrolyte imbalance.
- Drug therapies increase the client's risk for fluid and electrolyte imbalance for example Lasix may lead to low potassium level. NGT suctioning results in the loss of potassium and chloride ions, hydrogen is also lost causing disturbance in acid base balance.
- Physical examination: you should do physical examination from head to toe to assess for level of dehydration.
- You should maintain intake and output and record on the chart to assess level of hydration and to prevent fluid overload.
- Laboratory investigations: You should obtain Blood for blood gas analysis to evaluate acid base balance.

Take Note
When the patient has lost excess fluids, the following characteristics will be evident; dry mucus membrane, thirsty, urine output will be reduced and highly concentrated, sunken eyes, weight loss and increased pulse rate and respiration. However if the patient is over hydrated, he/she may manifest with the following; puffy eyelids, generalized oedema, weight gain, ascites, dyspnoea, pleural effusion, weight gain, pulmonary oedema.

Therefore when assessing the hydration status of the patient, you should consider the above features. Now study the types of fluids

Types of Fluids
There are two main types of fluids in general. These are:

1. Oral
2. Parental

Now cover them one by one.

- *Oral fluids*: You can give oral fluids easily to patients who are conscious. Oral fluids may include water and other fluids
- *Parenteral administration of fluids*: You can administer fluids directly into the blood rather than via the digestive system. Parenteral administration of fluids includes
    i. Total Parenteral Nutrition (TPN)
    ii. Intravenous (I.V) fluids and electrolyte therapy (crystalloids)
    iii. Blood and blood components (colloids) administration (Potter and Perry, 2005).

Let's then go through each one of the parenteral fluids.

- Total parental nutrition; is a nutritionally adequate hypertonic solution consisting of glucose and other nutrients and electrolytes given through an indwelling or central I.V catheter inserted peripherally.
- Intravenous therapy (crystalloids): You should administer fluids directly into the vascular system and should be continuously regulated according to the patient's condition. The goal of I.V fluid is to correct or prevent fluid and electrolyte disturbances.
- Blood**:** You can administer whole blood or a component such as plasma, packed red blood cells or platelets. Its function is to;
- Increase circulating blood volume after haemorrhage.
- Increase the number of RBCs and to maintain haemoglobin levels in patients with anaemia.
- Replacement of selected cellular components for example albumin or platelets. Some of the transfusion reaction which need to be observed include; anaphylactic shock.

Hope you now understand the types of fluids, now look at the types of intravenous therapy.

Types of Intravenous Therapy

There are three main types of intravenous solutions, these are:

i. Isotonic
ii. hypotonic
iii. hypertonic

Isotonic solutions have the same effective osmolarity as body fluids for example 5% dextrose, 0.9% sodium chloride, and ringers lactate. They are used for extracellular fluid volume replacement like in prolonged vomiting.

Hypotonic solutions have an effective osmolarity less than body fluids. For example, 0.45% sodium chloride to dilute the extra cellular fluid and rehydrate the cell. It may be given in burns, blood loss among others.

Hypertonic solutions are those with an effective osmolarity more than body fluids (Heinz & Horne, 2001 in potter & Perry 2005). For example, 10% dextrose, dextrose saline, dextrose 5% in ringers lactate. They may be given in hypoglycaemia. These they pull fluids into the vascular space by osmosis leading to increased vascular volume which may lead to pulmonary oedema.

You will then go through the electrolytes because the three types of intravenous therapy you have just discussed and the fluids in the body have electrolytes. You will start by an explanation of what electrolytes are:

Electrolytes

These are chemical compounds in solution that have the ability to conduct an electrical current. They are compounds which, when dissolved in a solution, will dissociate into ions. These ions are electrically charged particles and will thus conduct electricity. They are active chemicals (anion and cations) that unite in varying combinations.

Now that we know what the electrolytes, we will look at the functions of electrolytes

Functions

There are four functions of electrolytes. These are

1. To promote neuro-muscular irritability.
2. To maintain body fluid volume and osmolarity.
3. To distribute body water between fluid compartment.
4. To regulate Acid Base balance.

Let us look at the electrolytes and ions found in the body

Electrolytes and ions found in body fluids
There are about 10 Electrolytes and ions found in body fluids, these are;

i. Potassium
ii. Phosphate
iii. Sodium
iv. Calcium
v. Chloride
vi. Bicarbonate
vii. Sulphate
viii. Magnesium

Take Note

The regulation centre for fluids and electrolytes is the Hypothalamus.

Now study the Intravenous Infusion (I.V.I)

Intravenous Infusion (I.V.I)
We will start by defining intravenous infusion.

Intravenous infusion is the method of giving fluids and nutrients directly into the body of a patient by means of an infusion bag with a cannula inserted into the patient's vein.
Intravenous infusion is the therapeutic introduction of a fluid into a vein.
The infusion works by gravity, in that the container of fluid is higher than the blood vessel into which the fluid is being introduced. Intravenous infusion flows at a certain rate. Let us look at it as well.
Intravenous Flow Rate- This is the rate at which fluids, medications and blood products flow into the bloodstream during intravenous infusion. The flow rate is usually ordered by the Doctor as total volume in mils per total hours or in the case of drugs, total dose per total hours.

Now we will look at types of fluids used in intravenous infusion but one thing you remember is that the types of fluids used in IVI can be Isotonic, hypotonic, hypertonic.

Types of Fluids Used

- Normal saline 0.9%.
- Dextrose 5%, 10%, 50%.
- Dextrose saline
- Full strength darrows
- Half strength darrows
- Ringers Lactate
- Body substitutes- Plasma, Dextran.

Now go through the aims of intravenous infusion

Aims of Intravenous Infusion

- To correct electrolyte imbalance-Electrolytes may have been lost through vomiting. In this case you replace them.
- To maintain Acid-base balance.

- To administer drugs-Certain medications you need to administer through the vein because of the severity of the disease for example patient with severe malaria can be given quinine intravenously.
- For transfusing blood- you can do this to those people who have lost a lot of blood or those who have little blood due to certain diseases.
- For delivering parenteral nutrition-This is the type of nutrition given through the vein

Now look at how the body gains and loses body fluids

How the body gains and loses body fluids

The body gains fluids through the following ways:

GAIN

i. Ingestion of food
ii. By intravenous infusion of nutrients and fluids.
iii. Tube feeding
iv. Rectal feeding
v. By drinking

The body loses fluids through the following ways:

Loss

i. Sweating
ii. Breathing
iii. Faeces
iv. Burns and wound exudates
v. Vomiting
vi. Diarrhoea
vii. Surgical for instance Colostomy
viii. Suctioning
ix. Haemorrhage
x. Tears
xi. Urine

Now let us go through the calculation of flow of fluids.

Calculation of flow of fluids

This is how you calculate Flow of fluids

i. Drops per minute = $\frac{\text{Volume of infusion in mls x Drip factor}}{\text{Time of infusion in minutes}}$

ii. Drops per minute = $\frac{\text{Amount of fluid ordered x Drip factor}}{\text{Number of hours x 60}}$

for example Give Normal Saline 1000 mls to a patient in 8 hours.

In this case, the amount of fluid ordered is 1000mls

- The drip factor is 15
- The number of hours is 8

You can now do the calculation as follows:

Drops per minute= $\frac{1000\text{mls x } 15}{8 \text{ x } 60}$

= 31.25

= 31

The standard drip factor for a fluid giving set is 15 and for a blood giving set is 10.
We will now go through the factors affecting rate of flow of fluids

Factors affecting rate of flow of fluids

1 Diameter and length of tubing- The fluid will flow fast through larger diameter tubing
2 Height of the drip stand – The fluid may move slowly because there is no force of gravity.
3 Size of opening through which fluid leaves the tube.
4 Fluid viscosity- light fluid can flow faster than thick fluids.
5 Anything causing blockage-It means the fluid cannot flow.

Now we will look at the sites for insertion of a cannula.

Sites for insertion of cannula

You can insert a cannula in any vein as long as it is big enough to accommodate the cannula.
1 The veins of the arm and hand are the commonly used for infusion.
2 The veins of the legs and foot. Not commonly used unless those of the hands and arms have failed.
3 The veins of the neck, the internal and external jugular veins. These are used for emergencies only.

The procedure for I.V. Infusion is in the procedure manual.

Let us go through Care of the patient during intravenous therapy

Care during intravenous therapy

1 Instruct the patient to report any discomfort after the cannula has been inserted and the fluid has begun to flow.
2 Explain any restrictions as ordered. Tell the patient that he or she can walk while receiving I.V. therapy and can bath even drinking water.
3 Tell the patient not to pull at the insertion site or tubing, not to remove the fluid from the drip stand, not to kink the tubing or lie on it. Instruct the patient to call for help if the flow suddenly slows down or speeds up.
The patient may develop some complications while on intravenous therapy. These are:

Complications of intravenous therapy

We will start by looking at local complications first.

Local Complications

Phlebitis- This is the inflammation of a vein.

Signs and Symptoms (S/S)

- Pain, swelling, tenderness and redness along the course of the vein.
- Vein is hard on palpation.
- There can be an elevated temperature, a sign of infection in the system.

Thrombosis- This is the presence of a clot in the system.

Signs and Symptoms

- Pain, redness and swelling.

Take Note
If the above symptoms occur stop I.V. flow

Thrombophlebitis- This is the presence or formation of a clot with inflammation of the vein.

Signs and symptoms:
Severe discomfort

- Redness, swollen and hardened vein.
- Now let us go through the systemic complications

Systemic Complications
Systemic complications are complications which can occur in body systems.

i. Circulation of Fluid over-load
This is the over loading of the circulation system with excessive intravenous fluids.

Signs and Symptoms

- Discomfort due to respiratory distress (severe dyspnoea).
- Increased blood pressure.
- Cyanosis- a bluish appearance of the skin and mucous membranes caused by low oxygen in the blood.
- Increased difference between fluid intake and output.

The following are the actions you can take when you over load the patient with fluids:
Nursing care

- Raise the head of the bed.
- Administer oxygen as need.
- Notify the doctor.
- Administer medications for instance Lasix
- Monitor infusion frequently.

ii. Infection (septicaemia or bacteraemia)
This is the presence of bacteria and their toxins in the blood.

Signs and Symptoms

- Fever
- Chills
- Malaise for no apparent reason.

iii. **Air Embolism**- The presence of air in the circulatory system, though its rear.

Signs and Symptoms

- Respiratory distress
- Unequal breath sound
- Weak pulse
- Decreased blood
- Loss of consciousness.

Let us look at fluid balance chart

Fluid Balance Chart

i. This is a tool used to monitor the intake and output of fluids for a patient daily.

ii. It is a chart kept by nurses recording the daily intake and output of fluids for a patient. The amount of intake and output is usually balanced every 24-hour to provide us with the patient's fluid balance status. This is to ensuring that the patient gets adequate fluids and a normal output.

Now look at circumstances in which fluid charts may be needed.

Circumstances in which fluid charts may be needed

You may need a fluid balance chart in the following situations:

i. If there is a risk that the patient may become dehydrated as in vomiting, diarrhoea, excessive sweating or malabsorption of tube feeds.
ii. As a guide to the treatment of dehydration- so that you know when the patient is well hydrated
iii. Whenever the patient is receiving intravenous fluids or blood transfusion- so that you know how much you have given.
iv. Whenever the regular aspiration of gastro-intestinal contents are being carried out.
v. Whenever artificial drainage of the bladder is carried out by urethra catheter or supra pubic cystectomy.
vi. To keep a careful record of fluid balance in kidney failure –when the kidney is not functioning well.

Procedure on the use of the fluid chart

1. Measure fluids before they are administered to patients and chart the amount.
2. It is a must for you to chart the quantity of I.V. Fluids in each new container as the bottle or bag is changed.
3. If for some reason the infusion is discontinued before it is all finished, you should be subtract remaining quantity from the total amount. This ensures that the chart is up to date and is accurate because all members of staff will use the same method.
4. Observe, measure quantity of all fluids lost from the body, and chart.
5. At the end of each 24hours period, you should add individual quantities of fluids taken in and out accordingly, Draw your attention to any imbalance, making due allowance for fluid lost in perspiration, that is, insensible loss, normally it is about 500mls.

Congratulations!! You have completed this topic. Hope you understand fluid therapy. Next we will look at elimination of urine and faeces but before you can proceed to the next subunit, test your understanding of the topic by answering the following questions.

Self-assessment test

1. The body fluids are distributed into how many distinct compartments;
   a. 2
   b. 3
   c. 4
   d. 5
2. The body gains fluids through the following ways EXCEPT;
   a. Ingestion of food
   b. By drinking
   c. Breathing
   d. Tube feeding
3. A tool that is used to monitor intake and output of fluids for a patient is;
   a. TPR chart
   b. Nursing care plan

c. Fluid balance chart
d. Tube Feeding

4. Total Parenteral Nutrition (TPN) is delivered by which of the following methods;
   a. Mouth and rectum
   b. Mouth and Intravenous
   c. Indwelling or central IV catheter
   d. Via a nasogastric tube

Stop and check your answers whether you got them right

5. A (ECF &ICF)
6. C Breathing is one route through which the body losses fluids
7. C
8. C

Elimination of Urine and Faeces

Welcome to elimination of urine and faeces. We will start by defining elimination

Elimination

What is elimination? Think about it for a minute and complete the following activity

Activity

In your own words write the meaning of elimination in your note book

Now compare your answer with the following definition:

Definition

Elimination is the removal or discharged of waste from the body. These body wastes are excreted from the body through the Lungs, Kidneys, Respiration, Rectum, and Emesis (vomiting) and wound drainage.

Let us go through the indications for giving bed pan and urinal. We have been using the word indications, in case you do not understand it simple means when you should do something in this case when you should give a bed pan or urinal

Factors influencing voiding and defecation

Factors influencing voiding

Many factors influence the volume and quality of urine and the client's ability to urinate. Some pathophysiological conditions may be acute and reversible where as others may be chronic and irreversible. Diseases that slow or hinder physical activity interfere with the ability to void. The following are the factors that can influence voiding;

a .Disease conditions

Disease processes that affect urine elimination may affect renal function. For example; direct injury to the glomeruli or renal tubes, interfere with filtering, reabsorptive and secretory functions

b .Sociocultural factors

The degree of privacy needed for urination varies with cultural norms. For example; north-Americans expect toilet facilities to be private, where as some European cultures except communal toilet facilities. Social expectations, for example school recesses influence the time of urination. Cultures entails when and where it is appropriate to urine.

c. Psychological factors
Stress may cause a sense of urgency and increased frequency of urination. Anxiety may prevent a person from being able to urinate completely. Emotional tension makes it difficult to relax abdominal and perineal muscles. If the external urethral sphincter is not completely relaxed' voiding may be incomplete and urine is retained in the bladder.

d .Muscle tone
Weak abdominal and pelvic floor muscles impair bladder contraction and control of external urethral sphincter.

e. Fluid balance
The kidneys maintain a sensitive balance between retention and excretion of fluids. If fluids and the concentration of electrolytes and solutes are in equilibrium, an increase in fluid intake causes an increase in urine production. Ingested fluids increase body's circulating plasma and thus increase the volume of urine excreted.

f. Surgical procedures
The stress of surgery initially triggers the general adaptation syndrome for example there is altered state of fluid balance before surgery due to fasting stress which leads to release of the hormone ADH which increases water re-absorption leading to reduced urine output.

g. Medication diuretics prevents re-absorption of water and certain electrolytes, hence increasing urine output, anticholinergics for example, atropine cause urinary retention.

h. Diagnostic examinations
Examination of the urinary system can influence micturition. Procedures such as intravenous pyelogram require that the client limits fluids before the test; this restriction of fluids reduces urine output.

Nursing measures to promote voiding

- Position the patient in the normal voiding position.
- Turn a nearby tap or pour water in a basin.
- Place the patient's hands in warm water.
- Apply warmth on the pubic area to relax the muscles.
- Pour warm water over the valve.
- Encourage the pt. to take fluids.
- Massage the supra-pubic area.
- Ensure complete privacy.
    i. Offer a warm bedpan or urinal.
    ii. Maintain elimination habits by giving a bedpan or urinal every 3hours.
    iii. When all the above measures fail, do manual bladder compression or catheterize the patient.

Factors influencing defecation
Many factors influence the process of defecation, and some of which include;

a. *Age*
An infant is an able to control defecation because of luck of neuromuscular development. Older adults also loose muscle tone in the perineal floor and anal sphincter causing difficulties in controlling bowel evacuation and are at risk of incontinence.

b. *Diet*
The food that a person eats influences elimination. Regular daily food intake helps maintain a regular pattern of peristalsis in the colon. Bulk forming foods such as grains fruits and vegetables absorb fluids

and increase stool mass. The bowel walls are stretched creating peristalsis and initiating the defecation reflex. Fibre intake can help resolve constipation.

c. *Fluid intake*
An inadequate fluid intake or disturbances resulting in fluid loss such as vomiting affects the character of faeces. Fluids liquefy intestinal contents easing its passage through the colon. An increase in fluid intake softens stool and increases peristalsis.

d. *Physical activity*
This promotes peristalsis whereas immobilisation depresses peristalsis. Maintaining tone of skeletal muscles used during defecation is important in preventing constipation.

e. *Psychological Factors*
Prolonged emotional stress can impair normal function of most body organs. When an individual is anxious or afraid the stress response is initiated. This leads to an increase in the digestive process and peristalsis and can cause diarrhoea and flatulence.
If a person is depressed, the autonomic nervous system slows impulses and peristalsis is decreased resulting in constipation.

f. *Personal habits*
Most people benefit from using their own toilet facilities at a time that is convenient for them. A busy work schedule may prevent an individual from responding to the urge to defecate. This distracts regular habits and can cause constipation.

Nursing measures to encourage voiding and defecation

i. Position the pt. in the normal voiding position.
ii. Turn a nearby tap or pour water in a basin.
iii. Place the patient's hands in warm water.
iv. Apply warmth on the pubic area to relax the muscles.
v. Pour warm water over the vulva.
vi. Encourage the pt. to take fluids.
vii. Massage the supra-pubic area.
viii. Ensure complete privacy.
ix. Offer a warm bedpan or urinal.
x. Maintain elimination habits by giving a bedpan or urinal every 3hours.
xi. When all the above measures fail, do manual bladder compression or catheterize the patient.

If all these measures fall, then manual removal of faeces can be done. Use drugs like laxatives for instance liquid paraffin, dulcolax, charcoal tablets, suppositories or an enema to soften the stool for easy release.

Giving of Bed pan and Urinal

Indications for giving bed pan and urinal

i. Clients on traction because these patients are not able to move out of the bed as the broken part of the limb is pulled and maintained in one position.
ii. Paralyzed conscious clients because these patients cannot move out of the bed to go to the toilet.
iii. Clients on complete bed rest because they are not supposed to move out of the bed
iv. Clients requiring specimen collection of urine or stool so that the specimen can be put in the specimen bottle easy because it is not possible for the client to void or defecate in the specimen bottle.

Principles

i. Ensure privacy throughout the procedure as you know no one can void or defecate in the presence of other people.
ii. Give a warm bed pan to ensure comfort

iii. Ideally, bed pan rounds should be given 30-60 minutes before and after meals, before visiting time and before retiring to bed

You will now cover micturition.

Administration of Enema and insertion of Suppositories Enema

i. It is the introduction of fluid into the rectum to promote evacuation of faeces and therapeutic purposes.
ii. It is the introduction of a radio-opaque material in a radiological examination of the colon (barium enema).

The type of fluid used will depend on the purpose of the enema such as to correct dehydration, to administer drugs or to evacuate the contents of the lower colon.

Reasons for giving enema

i. To relive constipation.
ii. To empty bowel of faeces to prevent involuntary escape of faecal matter during surgery.
iii. To relive abdominal distension due to flatulence/ flatus.

For indications as in procedure manual

Solutions used

- Sodium bicarbonate or soda
- Sodium chloride or salt water.
- Weak solution of soap, a mild soap to be used for instance Lifebuoy. Soap and water enema- 400mls of water added to 100mls of soap solution.
- Plain warm water.

How Enema works

- Softens hardened stool.
- Stimulates contraction of the colon by distending the walls of the lower bowel and may irritate the intestinal mucosa wall and thus increase peristalsis.
- The volume of fluid distends the bowel wall causing it to contract and expel the contents.
- Soap irritates the lining of the bowel; this also stimulates the bowel to contract to get rid of the irritant.

Principles of giving Enema

- The equipment should be clean, tubes and cane should be clean and sterile. Bedpan should be decontaminated, cleaned and dried.
- Solutions used should be of the correct strength, amount and temperature (38'c). This is to avoid upsetting electrolyte balance in the body.
- There should be hand washing facilities for the patient.
- Air should be expelled from the tube by use of clamps because air causes pain
- Hand washing for the nurse should be done before and after the procedure.

1 Equipment should be decontaminated, cleaned and sterilized after use, ready for the next patient pt.
2 Adequate preparation to serve time and pt. preparation.
3 Education and observation is done during the procedure.
4 Ensure privacy.
5 Position the patient in left lateral with pelvis slightly raised.
6 Pinch the tube in order to control the rate of flow of fluid or alter the height of the funnel above the patient's rectum.

Dangers of Enema

1 Too hot fluid will burn the rectal mucosa.
2 Too cold fluid will lead to shock.
3 Introduction of air leads to pain in the rectum.
4 Too much fluid will make the pt. feel faint or collapse.
5 Inability to expel the enema will dehydrate the pt. since fluid will go where there is more concentration.

For procedure check in the procedure manual

Suppositories

This is a medicated solid substance, prepared for insertion into the rectum or vagina, which will dissolve at body temperature. The ones inserted into the vagina only are called pessaries.
Suppositories are cone shaped and made of gelatin or coco butter with an active ingredient such as glycerine or dulcolax. There fatty contents lubricate and soften the faecal mass making it easier to expel it. It becomes active in 20-60 minutes. The active ingredient irritates the bowel lining causing contraction of the bowel wall.

Types of suppositories

i. Glycerine Suppositories- When inserted into the rectum, they withdraw fluid from the tissues and stimulates evacuation of faeces from the bowels.
ii. Bisacodyl Suppositories (Dulcolax) Increases the mucus secretions from the membranes in the rectum and this in turn stimulates evacuation of the faeces.
iii. Aminophylline Suppositories- Used to treat patients suffering from bronchial spasms for instance Asthma.
iv. Soap Suppositories- These stimulate defecation in cases where faeces are in the lower bowel and rectum.
v. Bismuth Suppositories- Protects the rectal mucosa from irritation.
vi. Ice Suppositories- Used to reduce or stop local bleeding or to relieve local inflammation.
vii. Local Sedative Suppositories- For haemorrhoids or operative conditions where the rectum needs rest.

For the Procedure for insertion of Suppositories and passing a rectal tube check in the procedure manual.

Manual evacuation of stool

Purpose

To remove hardened faeces in the rectum or lower sigmoid colon

Equipment's/ Requirements

i. Clean gloves
ii. Water or soluble lubricant for instance K-Y JELLY
iii. Bedpan
iv. Mackintosh and draw sheet.
v. Soap, water in a bowl, cloth or towel.

Method

1. Explain the procedure to the patient. Tell him or her that it will be painful while removing the hardened stool.
2. Position the patient in left lateral to have access to the rectum.
3. Place mackintosh and draw-sheet under the buttocks.
4. Place the bedpan over the draw-sheet.
5. Put on gloves and lubricate the index finger generously.

6. Insert finger into the rectum until the mass is felt. This may increase peristalsis.
7. Gently, to avoid pain, remove or break faecal material within reach and deposit it in a bedpan. Work finger around and into the mass to break it up if possible.
8. Stimulate rectal sphincter by making a circular motion once or twice, this stimulates peristalsis and relaxes the sphincter.
9. Observe for any bleeding or pain.
10. Wash and dry the rectal area, make the patient comfortable.
11. Observe the bedpan contents and empty.
12. Record colour, consistency and odour of stool.
13. Educate the patient on nutritional and fluid needs of patient to determine activity level and encourage suitable exercises to promote adequate elimination.

Urine and Faecal incontinence

Urine Incontinence

Types and Causes

a. Functional incontinence
   In this type of incontinence there is involuntary, unpredictable passage of urine.
   This is usually caused by cognitive, sensory and mobility impairment

b. Overflow Incontinence
   In overflow incontinence the client experiences voluntary or involuntary loss of urine in small amounts (about 20-30mls) due to over distension of the bladder.
   This is usually secondary to conditions such as diabetes mellitus, faecal impaction, spinal cord injuries, enlarged prostate gland and effects of drugs which lead to a hypotonic detrusor muscle.

c. Stress Incontinence
   There is leakage of small amounts of urine caused by sudden increase in abdominal pressure for example when coughing, laughing and lifting heavy items.
d. Urge Incontinence
   In this type the client experiences involuntary passage of urine after having a strong sense of urgency to void. This is usually due to infection, increased fluid intake, alcohol ingestion and decreased bladder capacity.
e. Reflex Incontinence
   In reflex incontinence there is involuntary loss of urine which occurs at predictable intervals in large or small amounts. This occurs when there is spinal cord dysfunction.

Faecal Incontinence

This is as disturbing and embarrassing to the patient as urinary incontinence.

Causes

1 The anal sphincter is relaxed.

2 The voluntary control of defecation is interrupted in the CNS or messages may not be transmitted to the brain because of lesions within the spinal cord or due to the external pressure on the cord.

3 Perineal relation and actual damage of the Anal sphincter for example during child birth.

Management of urine incontinence

In order to control urinary incontinence, the following measures can be instituted;

a. Habit training such as scheduling toileting time, putting on condom catheter to protect under garment from soiling.

b. Intermittent catheterisation or indwelling catheterisation.
c. Exercises of the pelvic floor muscles
d. Life style modification for people who are alcoholic and regulating fluid intake.
e. Prompt treatment of urinary tract infections.

Management of faecal ncontinence

i. In order to control faecal incontinence, bowel training or regular routine stimulation of peristalsis and of going to the toilet to opening bowels should be carried out.
ii. Ordinarily, the bowel is trained to empty at regular intervals once a day or every other day. Common to most people is after breakfast.
iii. Food and fluids increase peristalsis which may stimulate defecation.
iv. The taking of certain foods or fluids maybe associated with the accustomed time for defecating for example, coffee or orange fluids provide stimulus for some people.
v. Most patients will be more relaxed and thus more likely to have a bowel movement if placed in as near the normal position as possible and if they have privacy.
vi. Glycerine or dulcolax suppositories should be inserted about 2 hours before the usual time of defecation.
vii. Incontinent patients may have diarrhoea which maybe a symptom of faecal impaction.
viii. An oil enema followed by a cleansing enema (water) may be given.
ix. The nurse must see that the patient is kept clean, odourless and free from bed sores.
x. Linen must be changed as soon as it is soiled and incontinent sheets used.
xi. Reassurance and psychological support from the nurse are needed in these situations.

Changing of an incontinent patient

Requirements and method, refer to procedure manual

You will now cover exercise, rest and sleep

Exercise, rest and sleep

We will first go through exercise and start by defining it.

Exercise

i. It is a physical or mental activity that you do to stay healthy or to become stronger.
ii. This is the performance of physical exertion for improvement of health or correction of physical deformity.

Now we will look at the types of exercises

Types of Exercises

There are two types of exercises, these are;

1 Passive Exercises

This is the motion imparted to a segment of the body by another individual, or a machine or other outside forces. Here the health care provider manipulates the client's joints through flexion, extension, hyperextension, abduction adduction, rotation, circumduction, eversion, inversion, pronation and supination, (as discussed in anatomy and physiology)

2 Active Exercises

This is the type of exercises a patient can do himself or herself.
This is the motion imparted to a part of the body by voluntary contraction and relaxation of its controlling muscles.

Encouraging patients/health care users to meet their hygienic needs, dress themselves and walk around are good examples of active exercises.

Now let us look at the importance of exercises

What is the importance of exercises? Think about it for 3 minutes and complete the following activity.

Activity

In your own words write down the importance of exercises in your note book

Well done!! Now compare your answers with the following answers

Importance of Exercises

i. Promotes and develops good muscle tone.
ii. Stimulates circulation of blood.
iii. Prevents complications like deep vein thrombosis.
iv. Prevents disability especially in burns.
v. For better body alignment.
vi. Prevents constipation by improving and maintaining the tone of the muscles used for defecating.
vii. It promotes the flow of urine and emptying of the bladder.
viii. Aids in the prevention of bed sores through reliving pressure by means of position change.
ix. Prevents postural deformation which may occur due to prolonged joint immobility.
x. Stimulates the nervous system resulting in improved condition and status of the patient.
xi. It helps to prevent cardiovascular complications.
xii. It meets all human basic needs for movement.

Rest and sleep

Rest

i. This is a relief from anything that tires, troubles or disturbs the body.
ii. It is a condition of being free from activity.

Sleep

i. This is a state of relative unconsciousness.
ii. This is a state of rest that occurs for a longer period of time.
iii. This is a period of rest for the body and mind.

Insomnia is the inability to sleep, or the difficult in initiating and maintaining sleep.
Initial Insomnia is difficult in falling asleep.
Intermittent Insomnia is difficult in remaining asleep.

Importance of rest and sleep

i. It is essential for the body tissues worn out from activities to restore themselves for inadequate rest can harm body cells, preventing optimum function of the body.
ii. Rest facilitates the resting the body organs.
iii. Sleep reduces stress, anxiety and tension.
iv. It helps the person to regain energy for concentration, coping and maintaining interest in daily activities.

Take Note

The normal sleeping hours for an adult are 6-8 hours.

Physiology of sleep

Sleep is a cyclic physiological process that alternates with longer periods of wakefulness. The sleep-wake cycle influences and regulates physiological function and behavioural responses.

Current theories indicate that sleep is thought to be an active inhibitory process. Control and regulation of sleep may depend on the interrelationship between two cerebral mechanisms that intermittently activates and suppress the brain's higher centres to control sleep and wakefulness. One mechanism causes wakefulness whereas the other causes sleep.

The Ascending reticular Activating System (RAS) located in the upper brain is believed to contain special cells that maintain alertness and wakefulness. The RAS receives visual, auditory, pain, and tactile sensory stimuli activity from the central cortex (for example emotions or thoughts process) also stimulates the RAS. Wakefulness results from the neurones in the RAS that releases catecholamines such as norepinephrine.

Sleep may be produced by the release of serotonin from specialised cells in the raphe sleep system of the pons and medulla. Whether a person remains wake or falls asleep depends on a balance of impulses received from higher centres thoughts), peripheral sensory receptors (sound or light stimuli) and the limbic system (emotions).

As people try to fall asleep, they close their eyes and assume relaxed positions. Stimuli to the RAS decline. If the room is dark and quiet activation of the RAS further declines. At some points the pons and the medulla takes over causing sleep.

General principles of rest and sleep

1 Procedures in the ward should be done at once to avoid disturbance of the patient.
2 Tension should be eased by adequate explanation given to the patient before any procedure is done.
3 Noise should be avoided.
4 Limit the number of Visitors to at least 2 during the visiting hours.
5 Physical comfort should be provided to the patient by ensuring the following;
   - Empty the bladder before sleep.
   - Relive pain
   - Changing of positioning
   - Provide dim lighting
   - Proper ventilation on the ward.
   - Provide adequate warmth.
   - Maintain hygiene for instance brushing teeth before bed time.

Factors influencing rest and Sleep

i. Sleep pattern
ii. Illness can reduce the ability to sleep due to pain, physical discomfort, anxiety and depression.
iii. Respiratory diseases like emphysema, Asthma often interferes with sleep with to shortness of breath and frequently cannot sleep with two pillows or three to raise their head.
iv. Medications through their side effects for instance Lasix in the night.
v. Lifestyle of working or rotating shift, working day and night duties.
vi. Emotional stress causes a person to be tense and often leads to frustration.
vii. Environment has a significant influence on the ability to fall and remain asleep. Good ventilation, lighting, type of bed, size firmness and position of bed can affect the quality of sleep. Noise should be minimized.
viii. Exercise and fatigue- a person who is excessively fatigued or had stressful work finds it difficult to fall asleep.

ix. Alcohol intake alters or disturbs sleep due to night mares experienced.

Measures to promote rest and sleep

i. Eliminate noise
ii. Patients should not be hungry, provide a snack where possible, for instance a glass of milk.
iii. Give water to patients who may need it at night for instance fill the jugs and put them within reach of patient.
iv. Prepare the patient by giving a bedpan or urinal.
v. Blankets should be adequate for warmth because, a well-made and clean bed promotes sleep.
vi. Prescribed medications should be given early to help patients sleep for instance analgesics for pain.
vii. Tell the patient to be free to ask for help.
viii. Give the patient a soothing bath.
ix. Reading or watching a movie.

Rehabilitative measures

Sleep can be enhanced by the following measures;

a. Encourage client to establish a bed time routine and a regular sleep pattern to help induce sleep.
b. Clients should limit intake of caffeine, nicotine and alcohol before bed time because they are stimulants and may cause difficulties in falling asleep, and alcohol fragment sleep.
c. Clients should avoid stressful concerns before bed time because this may stimulate them and prevent sleep.
d. They should adjust the environment, that is controlling noise, temperature and lighting in the bed room to provide a conducive environment to sleep
e. Clients should avoid exercises 2-3hours before bed time because they stimulate the client and prevent sleep.
f. They should perform muscle relaxation before bed time to help reduce anxiety which interferes with sleep.

Self –Test question

1. State the nursing measures to promote voiding
2. Mention the factors influencing rest and sleep

Answers

Nursing measures to promote voiding

- Position the patient in the normal voiding position.
- Turn a nearby tap or pour water in a basin.
- Place the patient's hands in warm water.
- Apply warmth on the pubic area to relax the muscles.
- Pour warm water over the valve.
- Encourage the pt. to take fluids.
- Massage the supra-pubic area.
- Ensure complete privacy.
- Offer a warm bedpan or urinal.
- Maintain elimination habits by giving a bedpan or urinal every 3hours.
- When all the above measures fail, do manual bladder compression or catheterize the patient.

Factors influencing rest and Sleep

- Sleep pattern
- Illness can reduce the ability to sleep due to pain, physical discomfort, anxiety and

depression.

- Respiratory diseases like emphysema, Asthma often interferes with sleep with to shortness of breath and frequently cannot sleep with two pillows or three to raise their head.
- Medications through their side effects for instance Lasix in the night.
- Lifestyle of working or rotating shift, working day and night duties.
- Emotional stress causes a person to be tense and often leads to frustration.
- Environment has a significant influence on the ability to fall and remain asleep. Good ventilation, lighting, type of bed, size firmness and position of bed can affect the quality of sleep. Noise should be minimized.
- Exercise and fatigue- a person who is excessively fatigued or had stressful work finds it difficult to fall asleep.
- Alcohol intake alters or disturbs sleep due to night mares experienced.

6.6 Assessment and Management of Selected Signs and Symptoms

6.6.1 Fever

Fever is a rise in body temperature above the normal range (37.4^{o}c)

Now we are to look at the causes of fever. What do you think are the causes of fever? Think about it for 1 minute and complete the following activity.

Activity

In your words write down the causes of fever in your note book

Causes of fever

Hope you have included the following in your answers

- Disturbance to the hypothalamus affecting the heat regulating Centre for example head injury.
- Infections like malaria because there is antigen anti body reaction
- Severe dehydration.
- Exposure to extreme heat.

now look at the types of fever

Types of Fever

There are six types of fever, these are:

i) Continuous or Constant fever

Temperature remains high, varying by not more than 1 degree Celsius in a day.

ii) Remittent Fever

Temperature varies by more than 1^{0} C and does not reach normal within 24 hours.

iii) Intermittent fever

Temperature varies between normal and subnormal up to high fever or hyperpyrexia every one, two or three days regularly. This is also known as quartan fever.

iv) Inverse temperature

Temperature rises in the morning and falls in the evening for example, in TB.

v) Relapsing fever

Brief febrile periods followed by one or more days of normal temperature.

vi) Pelebstein fever
Temperature rises slowly over days and takes corresponding days to fall.

Termination of Fever
i) Crisis: Sudden drop of temp to normal within 24 hrs. There is also a drop in pulse and respirations.
ii) Lysis: a gradual drop in body temp. It takes 2-10 days. (Slow reduction of temperature)

Nursing care of a patient with fever

Psychological Care: Explain to the patient their condition and explain all procedures as you carry them out to alley anxiety.

Bed rest: put patient to bed and ensure rest to reduce the metabolic rate because increased metabolic rate can increase heat production there by making the patient more uncomfortable.

Observations: Check vital signs 4 hourly; observe for restlessness and convulsions, vomiting, intake and output.

Cold stage: During the shivering patient requires to be kept warm; provide extra linen; hot water bottle if available, give a hot drink and close nearby windows.

Hot Stage: The aim is to reduce body temp. Open nearby windows; remove extra linen, living a single top sheet, provide a cold drink. Use fan if available and carry out tepid sponging. Increase fluid intake to about 3 – 4 litres in 24 hours unless contraindicated. If patient cannot take orally give intravenous infusion. Fluids will keep the mucus membrane of the mouth moist and keep up the urine output.

Sweating Stage: Change soiled linen provide a fresh night gown. Give a bath to wash off the sweat, continue giving fluids. Allow patient to rest.

Now look at control of fever.

Control of fever (pyrexia)
You can control fever by doing tepid sponging.

Tepid sponging: This is the procedure carried out in order to reduce the temperature by 0.5 – 1 degree Celsius in cases of hyperpyrexia.

Now move on to study hypothermia

6.6.2 Hypothermia

Definition: hypothermia refers to reduced body temperature below 36 degrees Celsius.

Causes
- Prolonged exposure to cold.
- Reduced metabolism for example hypothyroidism or malnutrition because during metabolism there is heat production.
- Heavy sedation because of reduced activity hence less heat production.
- Profuse sweating because it has a cooling effect on the body.
- Severe haemorrhage because reduced blood as the blood warmth.

Now look at how you can look after a patient with hypothermia

Nursing care of the hypothermic patient

- Provide extra bed linen.
- Offer a hot drink if conscious.
- Provide heaters in the environment.
- Close nearby windows.
- Use hot water bottles in conscious adult patients.
- Provide electric blanket if available.
- Ensure a warm bath.

Observations

You also need to observe the following:

1. Check vital signs – use rectal temperature. A low BP and rapid pulse may indicate shock.
2. Observe skin colour for cyanosis. Check the skin for warmth.
3. Observe if micturition and bowel movement are normal.

Skin care

Provide a warm bath. Prevent pressure sore formation by frequent change of linen and change of position.

Exercises

Do Passive exercises (that is exercises carried out by you as a nurse) to generate heat. Encourage active exercises (exercises done by the patient) to generate heat.

Health education

Educate the patient on how to keep warm especially pregnancy women and premature babies.

6.6.3 Unconscious Client

Nursing the unconscious patient can be a challenging experience. Unconscious patients have no control over themselves or their environment and thus are highly dependent on the nurse. The skills required to care for unconscious patients are not specific to critical care and theatres as unconscious patients are nursed in a variety of clinical settings. Nursing such patients can be a source of anxiety for nurses. However, with a good knowledge base to initiate the assessment, planning and implementation of quality care, nursing patients who are unconscious can prove highly rewarding, and the skills acquired can promote confidence in the care of all patients.

Before you can go into details to cover the unconscious patient you need to understand what consciousness is.

Dear leaner what then is consciousness?

Good trial for that answer. Now go through the following content

Consciousness is a state of awareness of one's self and the environment (Barker 2002). A conscious person is capable of responding to sensory stimuli. Alternatively, coma is a total absence of awareness of one's self and the environment. A person in a coma is unarousable and unresponsive to external stimuli. For example, when a person is asleep he or she can be aroused by external stimuli, but this does not occur when a person is in a coma. This suggests that consciousness depends on whether the individual can be aroused to wakefulness. However, between the poles of consciousness and unconsciousness there is a continuum of differing states of impaired consciousness.

Unconscious is the physiological state in which the patient is unresponsive to sensory stimuli and lacks the awareness of self and the environment.
Unconsciousness is a mental state that involves complete or near-complete lack of responsiveness to people and other environmental stimuli.

Causes of unconsciousness

There are many different causes of unconsciousness. The causes of unconsciousness may dictate the length of the coma and the prognosis (Mallett and Dougherty 2000).

Classification of causes

They can be classified into three categories. These are:

- Intrinsic factors
- Extrinsic factors.
- Induced.

Intrinsic factors:

These are the non-traumatic factors and or those that are secondary to trauma. These can be secondary causes as most often they involve other body systems compromising metabolic and endocrine homeostasis. For example in poisoning or a deranged metabolism, as in hypoxia or hypoglycaemia: They include;

- Haemorrhage
- Infection
- Infarction
- Metabolic / Toxic
- Seizure Among others.

Extrinsic factors

These are the traumatic factors that cause unconsciousness to a person there and then for example following an acute head injury. These can be classified as primary causes.

Induced factors

It is also important to remember that unconsciousness may be induced, for example, the use of anaesthetics for surgical or medical interventions. Another example of this is in critical care units, such as intensive care, where an anaesthetist will intervene and induce unconsciousness pharmacologically to allow for emergency intervention to stop a decline in a patient's condition.

Levels of consciousness / unconsciousness

The levels of consciousness are determined by the activity of the brain. The levels can be categorized as follows

(1) Alert (A): Sound and clear mind, responding normally and answering questions swiftly

(2) Response to voice (V): Feels tired and sleepy. Wakes up easily and able to do as told or answers simple questions. The patient is in a state of confusion nevertheless and is easily agitated

(3) Response to pain (P): Difficult to wake up but will respond to pain. The patient cannot answer questions properly.

(4) Unresponsive (U): Impossible to be woken up with no response to external stimulation.

Assessment of the levels of consciousness using a Glasgow coma scale

There are many coma scales used for assessing the level of consciousness. But in this discussion we are going to use only one. This is the Glasgow Coma Scale.
This is a tool that uses numeric expression of cognition, behaviour and neurological function of a patient.
It is helpful to have a standard scale by which one can measure levels of consciousness.

This proves advantageous for several reasons:

- Communication among health care personnel about the neurologic condition of a patient is improved;
- Guidelines for diagnostic and therapeutic intervention in certain situations can be linked to the level of consciousness;
- And in some situations a rough estimate of prognosis can be made based partly on the scale score. In order for such a scale to be useful it must be simple to learn, understand, and implement. Scoring must be reproducible among observers.

Glasgow Coma Scale uses the following parameters;

- Eye opening response
- Verbal response
- Motor response

These parameters are assessed as follows:

Eye opening response - Spontaneous 4
- To voice 3
- To pain (Pinch patient) 2
- None 1

Best Verbal response - Oriented
- To person place & time 5
- Confused 4
- Inappropriate words 3
- Incomprehensible sand 2
- None 1

Best motor response - Obeys commands 6
- Localizes pain 5
- Withdraws painful stimulus 4
- Flexion to painful stimulus 3
- Extension to painful stimulus 2
- None 1

The following table shows you the elements in a table form

Table 7: Glascow Coma Scale

Category		Best Response
Eye opening		
Spontaneous		4
To speech		3
To pain		2
None		1
Verbal	(Modified for Infants)	
Oriented	Babbles	5
Confused	Irritable	4
Inappropriate words	Cries to pain	3
Moans	Moans	2
None	None	1
Motor		
Follows commands		6
Localizes to pain		5
Withdraws to pain		4
Abnormal flexion		3
Abnormal extension		2
None		1
Glascow Coma Score		
Best possible score		15
Worst possible score		3
If tracheally intubated then verbal designated with "T"		
Best possible score while intubated		10T
Worst possible score while intubated		2T

(Montgomery, 2013)

Management of an unconscious patient

We said in our introduction that nursing the unconscious patient can be a challenging experience. Unconscious patients have no control over themselves or their environment and thus are highly dependent on the nurse.

In the first place it is better to determine the level of consciousness and then follow the principles that are needed to manage an unconscious patient.

There are a few general principles on how an unconscious patient should be handled. Some of them are:

- Ensure that there is a free supply of fresh air and that the air passages are free.
- Move the patient away from any harmful gases. If inside a room, open the door and windows. Remove false teeth. It is most important to keep back the crowds, they only obstruct.
- Loosen the clothing at the neck, chest and waist.
- If the weather is cold, wrap blankets around the body.
- If breathing has stopped or is about to stop turn the patient into the required posture and start artificial respiration.
- Breathing may be noisy or quiet. If quiet, let the patient lie on his back. Raise the shoulders slightly using a pad and turn the head to one side. Watch for some time. If the breathing becomes difficult, noisy or obstructed, change the posture to ease breathing. The changing of posture in cases of

injury to the head, neck and spine is best avoided unless absolutely necessary and should be done only after knowing the specific techniques involved. If the breathing is noisy turn the patient to the three-quarter prone position and support in this position using pads. If patient is on a stretcher, raise the foot of the stretcher so that the lung secretions can drain easily.

- Do not give any food or drinks to the patient.
- If you know the specific reason why the patient is unconscious and know the specific first aid for this condition, apply it.
- Observe the patient continuously for any changes in the condition and do not leave the scene until the doctor arrives or the patient is shifted to a hospital.
- It is best to move the patient to a sheltered place on a stretcher and then to a hospital as soon as possible.

Management of the unconscious patient may begin with the physiological changes. These changes will depend on the cause of the unconsciousness, then the state of immobility and the outcome of unconsciousness and the quality of care.

Nursing care of unconscious patient

Aim

i. To preserve life where death would otherwise occur.
ii. Prevent tissue damage and body deformity.
iii. Remember the unconscious patient has lost ability to attend to nutritional and toilet needs
iv. To protect the patient from falling.

The unconscious patient will need to be attended to in an emergency manner until he/she stabilises. This is because we may not be aware of the extent of the problem at hand. So we need to employ the ABC of resuscitation.

The ABC of resuscitation

The **ABC** and its variations are initialism mnemonics for essential steps used by both medical professionals and lay persons (such as first aiders) when dealing with a patient. In its original form it stands for Airway, Breathing and Circulation. The protocol was originally developed as a memory aid for rescuers performing cardiopulmonary resuscitation, and the most widely known use of the initialism is in the care of the unconscious or unresponsive patient, although it is also used as a reminder of the priorities for assessment and treatment of patients in many acute medical, surgical and trauma situations, from first-aid to hospital medical treatment. Airway, breathing, and circulation are vital for life, and each is required, in that order, for the next to be effective.

A = Airway: Confirm that the airway is open or not obstructed to avoid a preventable cause of hypoxia. Common problems with the airway of patient with a seriously reduced level of consciousness involve blockage of the pharynx by the tongue, a foreign body, or vomitus.

This is evaluated by;

- Looking at chest wall expanding and contracting or falling.
- Feeling or listening for air entry.

Management: if there is obstruction

Position

- Turn the patient on their back as unit.
- Support head and neck while positioning
- Place on hard firm surface

Open airway

- Head Tilt-Chin Lift Manoeuvre to avoid tongue from rolling back.
- Jaw Thrust (if suspected neck injury)
- Suction the secretions if present to clear the air way.

B = Breathing, confirm that the patient is breathing; if not, commence expired air respiration;

In the unconscious patient, after the airway is opened the next area to assess is the patient's breathing, primarily to find if the patient is making normal respiratory efforts. Normal breathing rates are between 12 and 20 breaths per minute, and if a patient is breathing below the minimum rate, then in current basic life support protocols, CPR should be considered, although professional rescuers/ resuscitators may have their own protocols to follow, such as artificial respiration. Nurses are warned against mistaking agonal breathing, which is a series of noisy gasps occurring in around 40% of cardiac arrest victims, for normal breathing.

Some of the signs of difficulties in breathing:

- Respiratory distress, such as use of accessory muscles to breathe, abdominal breathing, position of the patient, sweating, or cyanosis.
- The respiratory rate, depth and rhythm - Normal breathing is between 12 and 20 in a healthy patient, with a regular pattern and depth. If any of these deviate from normal, this may indicate an underlying problem (such as with Cheyne-Stokes respiration)
- Chest deformity and movement - The chest should rise and fall equally on both sides, and should be free of deformity. Clinicians may be able to get a working diagnosis from abnormal movement or shape of the chest in cases such as pneumothorax or haemothorax
- Listening to external breath sounds a short distance from the patient can reveal dysfunction such as a rattling noise (indicative of secretions in the airway) or stridor (which indicates airway obstruction).
- Checking for surgical emphysema which is air in the subcutaneous layer which is suggestive of a pneumothorax.
- Auscultation and percussion of the chest by using a stethoscope to listen for normal chest sounds or any abnormalities.
- Pulse oximetry may be useful in assessing the amount of oxygen present in the blood, and by inference the effectiveness of the breathing.
- Management: Emergency Breathing:
- Look, Listen and feel for breathing. This is by use of the back of a hand placed at the nose of the victim to feel for warm air from the nose.
- Observe chest rise and fall.
- Allow deflation between breaths.
- Reposition if first breath does not go in.
- Give oxygen according to the requirements for example, 4-6 litre /minute.

Respiratory Rate: Feeling for warm air using the back of the hand over the client's nose as he/she breathes in and out.

C = Circulation- check pulse, if no pulse is present, commence external chest compression.

Circulation is the original meaning of the 'C' as laid down by Jude, Knickerbocker & Safar, and was intended to suggest assessing the presence or absence of circulation, usually by taking a carotid pulse, before taking any further treatment steps.

Once oxygen can be delivered to the lungs by a clear airway and efficient breathing, there needs to be a circulation to deliver it to the rest of the body.

Circulation: The degree of Oxygenation can be evaluated by checking:-

In patients who are breathing, there is the opportunity to undertake further diagnosis and, depending on the skill level of the attending rescuer, a number of assessment options are available, including:

- Observation of colour and temperature of hands and fingers where cold, blue, pink, pale, or mottled extremities can be indicative of poor circulation.
- Capillary refill is an assessment of the effective working of the capillaries, and involves applying cutaneous pressure to an area of skin to force blood from the area, and counting the time until return of blood. This can be performed peripherally, usually on a fingernail bed, or centrally, usually on the sternum or forehead.
- Pulse checks, both centrally and peripherally, assessing rate (normally 60-80 beats per minute in a resting adult), regularity, strength, and equality between different pulses.
- Blood pressure measurements can be taken to assess for signs of shock. If there is shock then give fluids intravenously for example Normal saline, 5% Dextrose and Ringers Lactate -3lts in 24 hours.
- Auscultation of the heart can be undertaken.
- Observation for secondary signs of circulatory failure such as oedema or frothing from the mouth (indicative of congestive heart failure).
- ECG monitoring will allow the healthcare professional to help diagnose underlying heart conditions, including myocardial infarctions.

When the patient is in shock or is bleeding the haemoglobin is checked and blood grouping is estimated. The intravenous infusion is given using normal saline or plasma expanders (dextran) until compatible whole blood is available. Urine specimen for urinalysis is collected after catheterization. This is done to rule out diabetes mellitus.

Environment

The patient should be nursed in a clean environment. The room should be well dump dusted with detergents recommended. The surfaces of the furniture, lockers and other gadgets should as well be dump dusted daily. The floor should be well cleaned by the maids/ cleaners with Jik (hypochlorite) 1:6 or as deemed necessary depending on what needs to be eradicated at that moment. Eventually this will help to prevent accumulation of bacteria. All these activities will be done to prevent the patient from catching more infections from his/her environment. Thus promote a quick recovery. The room should be well lit for easy observation to be able to carry out procedures when attending to the patient. This can be done by switching on the lights in the room or drawing up the curtains. Depending on the situation prevailing you can close nearby windows to prevent chilling the patient from drought or breeze. Warm the room to prevent hypothermia as patient is prone to it due to less muscular activities. Switch on heaters if available when the patient's temperature is subnormal.

Mobilize the following in the room or near the bed where you are nursing the patient:

- Emergence tray containing emergency drugs to be used when my patient goes in shock or in need of any resuscitation.

- Oxygen cylinders or there should be a piped oxygen in the room. This is for resuscitation as well.
- A drip stand. With intravenous fluids, I.V. giving sets and cannula near.

Position

When positioning the unconscious patient, pay particular attention to maintaining proper body alignment. Remember the unconscious patient cannot tell you that he is uncomfortable or is experiencing pressure on a body part. Lateral or recumbent position is recommended to promote free airway. The head should be turned to the side and the neck extended without a pillow to support the head. The head part of the bed slightly tilted up to promote patent airway and chest expansion. Supine position is not recommended as it compromises the mechanical breathing and lung volumes such as tidal volume.

The patient's limbs must be supported in a position of function or anatomical position. Do not allow flaccid limbs to rest unsupported. This may compromise the function of the limbs later on when the patient recovers or is rehabilitated. When turning the patient, maintain the anatomical alignment of the limbs. Change the patient's position to a new weight-bearing surface every two hours. This will promote tissue perfusion and prevent tissue damage on bonny prominences.

Observations

These are some of the subsequent observations we can do putting in mind that we have covered some in the ABC of resuscitation.

- Monitor vital signs including Blood pressure, Respiration, Pulse rate , O2 saturation and Temperature 15mins for first hour 30 minutes for next 2hours, Hourly for next 2 hours, then if stable 4 hourly.
- Please remember the details of the observations in the topic where we covered the vital signs.
- While monitoring these vital signs it is also important to observe (**look, feel, listen**)
- The results should be compared against the baseline.
- Continue observing the level of consciousness, orientation and ability to move extremities to recognize neurological problems.
- Observe Intravenous sites for patency and infusions for correct rate and solution
- Observe fluid input and urine output and record on fluid balance chart

Psychological care

Explain to the patient that his/her condition is an emergency and the medical team are doing their best to get him/her in the best condition. Even if the patient is unconscious speak to her/him. This is to allay fear and anxiety as well as gaining co-operation. In cooperate the relatives/ significant others. Allow patient / relatives to ask questions based on the condition. Answer as truthfully as possible to allay anxiety as the condition may be life threatening at that time.

Be calm when carrying out nursing care on an unconscious patient to avoid alarming the relatives unnecessarily.

Investigations

The investigations like blood for haemoglobin level, grouping and cross match as well as bleeding and clotting time will be done as routine investigations. Also take the patient for x-ray when there is need. Ultra sonography can be done as well. Urinalysis results should be put in the file as well.

Exercises

When joints are not exercised in their full range of motion each day, the muscles will gradually shrink. Shrinking of muscles will form what is known as a contracture. Therefore Passive exercises must be

provided for the unconscious patient to prevent contractures. Exercises with a range of motion (ROM) are performed especially during bathing the patient. This decreases the likelihood of complications such as decubitus ulcers, orthostatic pneumonia, and thrombophlebitis. Utilize a foot board at the end of the bed to decrease the possibility of foot drop.

Promotion of rest

The staff and any other persons on the ward should adhere to the rules of minimizing noise to promote patient rest and quick recovery. This can be achieved by not talking on top of their voices. Noisy trolley wheels should be oiled. The relatives should be restricted to visit the patient only on stipulated hours and in restricted numbers.

Nutritional Needs

A patient who is unconscious is normally fed by use of the Nasal Gastric Tube (NGT). Always observe the patient carefully when administering fluids (food) by NTG. Keep accurate records of all intake and output on a balance chart. When feeding an unconscious patient through the NTG, it is better to place the patient in semi-Fowlers position supported with pillows. This permits gravity to help move the feeding. The chance of aspiration of feeds into the airway is also reduced. Fluids are maintained by IV therapy. Keep accurate records of IV intake and urine output. Feeds should have biological value to cater for all tissue needs. Fluid foods rich in proteins, carbohydrates, vitamins should be given 3hourly. The will promote tissue recovery, repair, energy and immune boosting. Observe the patient for signs of dehydration or fluid overload.

Hygiene/Skin Care

The unconscious patient should be given cared for holistically. For example bathing her every day. The patient is given the bath for the following reason:

- Prevents drying of the skin, promote circulation of blood.
- Removal of bacteria from the skin.
- Relaxation effect on the patient.
- Maintenance of joint mobility.
- Improvement of the patient's self-image and emotional and mental well-being.

The skin should be lubricated with moisturizing lotion after bathing to prevent cracking of the skin.

The nails should be kept short, as many patients will scratch themselves as they are recovering from unconsciousness. Long nails will harbour microbes.

Provide oral hygiene at least twice per shift to prevent halitosis and for refreshment the patient as the patient tends to breathe through the mouth. Breathing through the mouth causes saliva to dry and adhere to the mouth and tooth surfaces. Always have suction apparatus immediately available when giving mouth care to the unconscious patient. Apply petrolatum to the lips to prevent drying. If the patient is incontinent, the perineal area must be washed and dried thoroughly after each incident to promote comfort of patient.

Change the bed linen if damp or soiled to promote comfort of patient. Observe the skin for evidence of skin breakdown. Provide pressure area care each time the patient is turned to prevent pressure sores. Observe the skin closely noting any areas which are red, dry or broken as these indicate complications such as pressure sores.

Elimination

Keep accurate record of bowel movements. Note time, amount, colour, and consistency and note any abnormality. A liquid stool softener may be ordered by the physician to prevent constipation or impaction.

Assess for faecal impaction. The bladder should be emptied regularly to prevent infection and formation of bladder calculi. The patient needs to be catheterized to promote bladder emptying and prevent urinary incontinence. Keep accurate intake and output records. Report low urine output to the doctor as this may be an indication of renal failure. Provide catheter care at least once per shift to prevent infection.

Medication

Administer drugs as prescribed. Remember the five rules (principles) to be observed when giving drugs. That is the:

- Right patient
- Right drug
- Right time
- Right dose
- Right route

Then document at the end of the procedure for accountability and continuity. Discontinue the drug if there are adverse effects.

6.6.4 Diarrhoea

Diarrhoeal diseases are a major cause of morbidity and mortality in children around the world, accounting for 1.8 million deaths annually in children younger than 5 years, or roughly 17% of all child deaths (Levine, 2006). Diarrhoeal diseases are indicators of poor water supply and inadequate sanitation, systemic infection and poor weaning methods as well as abnormality of the GIT.

Before we go any further let us define diarrhoea.

Definitions of diarrhoea
What is diarrhoea?

Activity: 6.22

In your own words write down the meaning of diarrhoea in your note book

Now compare your answer with the following definitions:

i. Diarrhoea is an increase in the number of stools or an increase in the fluid content of the faecal material (Bernstein et al, 2003).
ii. Diarrhoea is an increase in the number of stools and the passage of liquid, unformed faeces, (Potter and Perry, 2005). It is associated with disorders affecting digestion, absorption, and secretion in the GI tract.

Excess loss of colonic fluid can result in serious fluid and electrolyte or acid base imbalances, am sure you still remember what you covered under fluid therapy. Infants and older adults are particularly, susceptible to associated complications. Repeated passage of diarrheal stools exposes the skin of the perineum and buttocks to irritating intestinal contents, meticulous skin care and containment of faecal drainage is needed to prevent skin breakdown.

Let us go through the causes of diarrhoea

Causes

The following are causes of diarrhoea

- Antibiotic use via any route of administration may alter the normal flora in the gastrointestinal tract (GIT).
- Food allergies and intolerances increase peristalsis and cause diarrhoea.
- Communicable food-borne illnesses can cause diarrhoea.
- Diseases, surgeries, or diagnostic testing of the lower GIT can also cause diarrhoea.

We will now go through gastroenteritis which is one of the conditions where a person can have diarrhoea.

Gastroenteritis

Gastro enteritis (GE) is the general term for a group of conditions that are usually caused by infections and produce symptoms such as loss of appetite, vomiting, mild to severe diarrhoea, cramps and discomfort in the abdomen (Berkow, 1999).

This is an inflammation of the mucosa of the stomach and intestines.

More likely to occur in developing countries; also called 'traveller's diarrhoea' (Saunders, 1997) our country is one of the developing countries; this means that gastro enteritis is more likely to occur in our country. Gastroenteritis is more frequent in the very young and in older adults.

Nnow look at acute diarrhoea

Acute diarrhoea

Causes

Most episodes of acute diarrhoea are caused by intestinal infections. The organisms responsible include the following:

1. Viruses, mostly rotavirus and nor virus.
2. Bacteria which include:
    - Entero pathogenic E-coli.
    - Entero-toxigenic E-coli.
    - Shigella.
    - Salmonella.
    - Vibrio cholera.
3. Protozoa which includes cryptosporidium and giardia.

You can refer to your microbiology if you have forgotten about the microorganisms mentioned.

4. Chemicals like medications or poison can irritate the GIT.
5. Radiation injury as in radiotherapy or nuclear accidents.
6. Lactose intolerance, attracting fluids into the intestinal lumen leading to excessive loss of fluids.
7. Granulomatous process of the bowel wall that causes non-infectious type of diarrhoea.

Next we will look at the predisposing factors

Predisposing factors

These are the factors that makes an individual prone to developing diarrhoea, these include:

- Unsafe drinking water, erratic water supply and poor sanitation.
- Poor personal and domestic hygiene due to inadequate or lack of water supply.
- Non availability and adequacy of isolation facilities.

- Children who are not vaccinated, especially against measles are prone to developing measles associated diarrhoea.
- Overcrowding places because the sanitary conditions as people may end having diarrhoea through faecal oral route.

Now go through the signs and symptoms

Signs and symptoms

Presentation of signs and symptom depends on the cause of diarrhoea

- There are may be pain, urgency, perineal discomfort and incontinence.
- Low volume, painful bloody stool as in dysentery.
- Vomiting, diarrhoea, abdominal cramps and fever.
- Mucus in stool.
- Sunken eye ball, irritability, dizziness, poor skin tugor, headache, dry or cracked mucus membranes, pallor, hypotension, cardiac arrhythmias and cold clammy skin.
- Lethargy, apnoea, atria tachycardia and shallow breathing due to bicarbonate build up secondary to vomiting.

If a person has diarrhoea, a person loses a lot of fluids as a result a person can become dehydrated. Now go through the classification of dehydration

Classification of dehydration

The World Health Organization (WHO) recommends a simpler system for use by both physicians and lay health workers, which classifies dehydration as none, some, or severe

Table 8: Classification of dehydration

Severe dehydration	Two of the following signs: •Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly
Some dehydration	Two of the following signs: • Restless, irritable • Sunken eyes • Thirsty, drinks eagerly • Skin pinch goes back slowly
No dehydration	Not enough of the above signs to classify as some or severe dehydration (no signs of dehydration).

* Adapted from World Health Organization (2005).

Now that you have known how to classify dehydration. Now go through the treatment

Treatment

- Rehydrate by rapid IV infusion with large amounts of isotonic Saline/ Ringers Lactate solution, alternating with isotonic Sodium bicarbonate or Sodium lactate.

- After you have corrected hypovolaemia, using IV infusions, patient only needs fluid infusions sufficient to maintain normal pulse rate and skin tugor or to replace fluid lost through diarrhoea.

Plan A.
You can use plan A for treating minimal or no dehydration.

Age	**Amount of ORS you can give after each loose stool.**	**Amount of ORS you provide for use at home.**
Less than 24 months.	50 – 100 ml.	500ml/ day.
Two up to ten years.	100 – 200 ml.	1000ml / day
Ten years or more.	As much as wanted.	2000ml / day.

Source: CBoH, 2002

Now you will look at treatment for mild to moderate dehydration

Mild-to-moderate dehydration: give 50-100 mL/kg of ORS to children over a 2- to 4-hour period to replace their estimated fluid deficit, with additional ORS given to replace on-going losses (10 mL/kg body weight for each stool and 2 mL/kg body weight for each episode of emesis).
After the initial rehydration phase, you may give the patients maintenance fluids as described:

- Instruct the parent to Give ORS slowly using a teaspoon, syringe, or medicine dropper at the rate of 5 mL every 1-2 minutes. If tolerated by the patient, the rate of ORS delivery can be increased slowly over time.
- For patients who do not tolerate ORS by mouth due to persistent vomiting or oral ulcers, use nasogastric (NG) feeding which is a safe and effective alternative. Multiple large clinical trials have found NG rehydration to be as efficacious as intravenous rehydration but more cost-effective and with fewer adverse events.
- Re assess Patients with moderate dehydration frequently to ensure adequacy of oral intake and resolution of the various signs and symptoms of dehydration.

Let us go through treatment for severe dehydration.

Plan B: Treat mild to moderate dehydration.
Approximate amount of ORS solution to give in the first four [4] hours

Age	Less than four months.	Four to eleven months.	Twelve to twenty three months.	Two to four years.	Five to Fourteen years.	Fifteen years or older.
Weight:	Less than four months.	5- 7.9 kg.	8-10.9 kg	11 – 15.9 kg.	16kg– 29.9 kg.	30 kg or more.
In ml	200-400.	400- 600.	600 -800.	800-1200.	1200 – 2200.	2200 – 4000.

Source: CBoH, 2002.

Severe dehydration: This constitutes a medical emergency requiring immediate resuscitation with intravenous fluids.
Intravenous access should be obtained, and patients should be administered repeat boluses of 20 mL/kg Ringers Lactate (RL) or normal saline (NS) until pulse, perfusion, and mental status return to normal. Serum electrolytes, bicarbonate, urea/Creatinine, and glucose levels should be sent.

Once resuscitation is complete and mental status returns to normal, continue the rehydration with ORS as described above, as it has been shown to decrease the rate of hyponatremia and hypernatremia when compared to intravenous rehydration.

Plan C. Treatment for severe dehydration with ringers lactate solution

You can use treatment plan c to treat severe dehydration

Table 9: Treatment for severe dehydration

AGE	First give 30mls/kg in:	Then give 70mls/kg in:
Infants less than one year.	One hour	Five hours.
Older	30minutes.	Two and half hours.

Source: CBoH, 2002

Take Note:
In developing countries, clinicians can use WHO ORS or a homemade solution of 3 g (1 tsp) salt and 18 g (6 tsp) sugar added to 1 L of clean water (WHO, 2002).

Before you can go to another subunit, here is a reminder of what you have covered

.Diarrhoea is one of the most common diseases in most communities with poor hygiene. It affects individuals, families and communities that do not uphold the preventive and control measures at all times. Diarrhoea in its severity form is fatal due to dehydration and electrolyte imbalances leading to high morbidity and mortality rate especially among children. Therefore accurate monitoring of intake and output is important for successful replacement of lost fluids.

You have covered diarrhoea, next you will go through nausea and vomiting that is the causes and how it can be prevented.

6.6.5 Nausea and Vomiting

Have ever felt like vomiting before? Then what is nausea and vomiting? Think about it for 2 minutes and complete the following activity.

Activity
In your own words write down the meaning of nausea and vomiting in your note book.

Now that you have completed this activity compare your answer with the following definitions of nausea and vomiting.

Nausea is unpleasant sensation vaguely referred to epigastrium and abdomen with a tendency to vomit (Medical dictionary).

Vomiting is forceful ejection of stomach contents through the mouth. Vomiting is also known as emesis (Medical dictionary).
Next you will look at the types of vomiting.

Types of vomiting
There are three types of vomiting as follows:

- Projectile vomiting
- Faecal matter vomiting
- Pukile vomiting

You will them each one in turn.

Projectile vomiting is a forceful vomiting which usually occurs without warning or nausea for example, in babies and children with the following conditions-

- Pyloric stenosis.
- Patients who have brain tumours.

The vomiting will be copious, sometimes frothy and offensive and later may be bile stained especially where patients have got dilatation of the stomach.

Faecal matter vomiting- this type occurs in patients with intestinal obstruction and those who have gastro intestinal fistula. The vomiting in this type is regurgitative and usually effortless.

Pukile vomiting occurs in children when too much food is given at a time or when they are fed quickly or when they are having a hiccup. It is not projectile and effortless.
You will now go through the causes of vomiting.

Causes of nausea and vomiting

- Too much food in the stomach because the food may start coming out as the space is no longer adequate to keep the food.
- Irritating foods for example spices which irritates the stomach leading to nausea and vomiting
- Toxins in the blood in cases of uremia will stimulate the vomiting centre.
- Diseases of the brain for example brain tumours , food poisoning
- Too much salt and water.
- Foul smell will stimulate the vomiting centre in the brain.

Now go through the nursing care of a patient who is vomiting.

Nursing care of a patient who is vomiting
Vomiting is a stressing action and if there is no food in the stomach the patient will continue with retching and this will result in a psychological effect on the patient so you should be sympathetic, empathetic and understanding.
You should do the following:

i. Do not suggest for a patient by talking about vomiting or placing the emesis bowl within his reach and visibility.
ii. Remove all objects and sites which could cause nausea.
iii. Prevent bad smells /odours as they can make patient vomit.
iv. When the patient wants to vomit that's when you bring the emesis bowl near him.
v. Screen bed for privacy, protect linen with a towel, mackintosh or draw sheet
vi. When the patient is vomiting support his head by holding his shoulders.
vii. If he/she has dentures, remove them.
viii. If he /she has an abdominal operation (wound) then gently support the abdomen to prevent pain and bursting of the abdomen.
ix. After vomiting keep the mouth clean give the patient water to rinse the mouth, wipe the face. Clean and replace the dentures, which you removed and change the linen if soiled.

x. Note the patient's general condition and keep him warm then later allow the patient to have a drink in small quantities but if he cannot tolerate the drink then give him ice cubes to suck.
xi. Record the vomiting, time, of vomit and the characteristics of the vomitus.
xii. Report the condition to the doctor who might order blood for Urea and electrolytes (potassium, sodium). If the patient appears dehydrated he may order intravenous fluids to replace the fluid and electrolytes being lost.
xiii. If the vomiting reduces encourage oral feeds.

Congratulations you have completed this unit which is the longest unit. Take time to go through the notes and other readings. You should not forget to integrate what you learn in other courses.

6.6.6 Transfer, Discharge and referral plan of a patient

You will start looking at transfer of a patient. There are 4 types of transfers, these are:
i. Hospital to hospital
ii. Ward to ward
iii. Health centre to hospital
iv. Hospital to nursing home.

Now let us look at them one by one as follows:

Client Preparation

- Inform the patient and the relatives about the transfer and reason for transfer so that they prepare for a transfer.
- Pack patients belongings because the patient is supposed to go with all his/her belongings.
- Put letter of transfer/referral and all relevant documents together in readiness for transfer so that you do not forget because you will need to present these documents as you hand of over.
- If there are any drugs to be collected for the patient, collect them for the patient so that as the patient goes to another hospital he/she can continue taking medication.
- Ensure patient is clean and dry; wounds should be dressed before transfer because it is not good to transfer a patient with a pending procedure.
- If it is a long journey make arrangements for food a little pocket money and transport for easy movement of a patient
- If possible inform the receiving hospital about the patient so that they prepare for the patient.

Take Note
The procedure for transferring a patient from hospital to a nursing home is similar to procedure for transferring a patient from Hospital/health centre to hospital.

Now go through ward to ward transfer**.**

Ward to ward transfer

1. Inform receiving ward, Inform patient and the relatives about the transfer and reason for transfer so that they prepare for a transfer.
2. Prepare the patients charts,
3. Put all relevant documents together in readiness for Transfer so that you do not forget because you will need to present this document s as give a hand of over. Belongings and take patient to the ward including all the relevant documents.

4. If there are any drugs to be collected for the patient, collect them for the patient so that as the patient goes to another ward he/she can continue taking medication.
5. Ensure patient is clean and dry; wounds should be dressed before transfer because it is not good to transfer a patient with a pending procedure.
6. Inform the receiving ward about the patient so that they prepare for the patient.

You are through with patient transfer, now you will look at discharging of a patient.

Discharging of a patient
Although discharge from hospital is usually considered routine, effective discharge requires careful planning and continuing assessment of patient's needs during hospitalization.

The doctor authorizes the patients discharge. Discharge planning should begin 1-2 days before discharge so that patient and relatives are ready.

- Teach patient and his family about his illness and its effect on life style.
- Provide information about home care-tell him how he/she is going to look after himself at home
- The patient is given written instructions of how to take drugs and when to come for review.
- Make sure that the patient is given enough drugs or dressings.
- Before the day of discharge, inform the patient's family of time and date of discharge.
- If there is no transport inform social service department so that patient can be assisted in terms of transport to his home.
- Obtain a written discharge slip from the doctor
- Give advice on where to get new supplies before the current stock finishes.
- Make arrangements for the public health nurse to visit him necessary.
- Ensure that a relative is around to accompany the patient home. Accompany patient to door of the ward or hospital and bid him farewell.

Now let us look at what you should do after patient is discharged.

After Discharge
1. Remove bed linen and send to the laundry.
2. Carbolize the bed and mattress.
3. Clean lockers and other furniture in the unit in readiness for another patient
4. The patient's case notes are completed by the medical staff and sent to the medical records for filing.
5. Send left over drugs to the pharmacy.

Disinfection of a Bed Unit
This is also known as carbolization or terminal disinfection. It is a procedure carried out after discharge or death of a patient. These are the requirements:

Requirements:
You need a trolley with the following requirements:
i. bowl with a disinfectant
ii. bowl with plain water
iii. receiver with a duster
iv. clean bed linen

This is how you can disinfect the bed.

Procedure

1. Bring the equipment to the bed side,
2. Strip the bed off of all linen and put in laundry skip.
3. Remove everything from locker.
4. Clean bed with disinfectant, pay special attention to grooves where dust gathers.
5. Start with the head of the bed and dry it after using a wet duster.
6. Clean lockers and polish the top of the locker.
7. Make an empty bed.
8. Clean the equipment used and store away.

There are instances when a patient decides to leave even if the doctor has not discharged the patient. As a nurse you should give advice, this statement leads us to the next discussion which is discharge against medical advice.

Discharge against medical advice
Occasionally the patient or his family may demand discharge against medical advice. This means that the patient who prefers to go home in spite of the advice given by the staff.
If it occurs notify the doctor immediately, if the doctor fails to convince the patient to remain in hospital, you request the patient or relative to sign in the file indicating that the patient is living against medical advice so that the hospital staff cannot be held responsible for any medical problem the patient may experience.
If there is no doctor available discuss with the patient and obtain signature, if patient refuses to sign, do not detain them, document the incidence and notify the doctor.
No drugs or discharge slip are given; but you write in the chart of file that the patient has left against medical advice.

Let's look at absconding now.

Absconding
This refers to the patient running away or sleeping out of the ward without the nurse's knowledge. Search for the patient in the ward before informing the ward in charge and security. Write in the file that patient has absconded indicating date and time. In some institutions the policy involves informing the police as well**.**

Well done you have come to the end of the topic, am sure you have understood this topic because it is very easy to understand.

6.7 Summary

In this unit, you have looked at reception of the client during admission, you have looked at different admission procedures whish are emergency, non- emergency and planned. You have learnt on how to assess the health status of a client through history taking, physical examination and measurement of height and weight as well as assessing client' vital signs which are; temperature, pulse, respirations and blood pressure.

You further went on to look at how specimen collection, examination and disposal is done. The common specimens that you looked at are urine, stool, sputum vomitus and blood.

In this same unit you also looked at the basic client's needs which are hygiene, mobility, respiratory needs, nutritional needs, fluid therapy and elimination. You also learnt about urine and faecal incontinence and how to care or manage clients with such problems. You also looked at exercise, rest and sleep, the types, importance, principles and factors influencing the same.

You went on to look at the assessment and management of selected signs and symptoms such as fever, hypothermia, diarrhoea, unconsciousness, nausea and vomiting.

Lastly you learnt about the transfer, discharge and referral plans of clients.

Hope this unit has been beneficial to you in equipping to care for client from admission through to discharge.

Self-Assessment Test

Multiple choice questions
Circle the most appropriate answer

1. Which of the following are commonly used site when checking temperature?
   a. Axilla
   b. mouth
   c. rectum
   d. Groin

2. The following are all characteristics that can be measured by palpation **Except**:
   a. Texture
   b. Tenderness
   c. Temperature
   d. Symmetry

3. Tapping of the body lightly but sharply to determine the position, size and consistence of the underlying structure is known as:

   a. Palpation
   b. Inspection
   c. Auscultation
   d. Percussion

4. Sudden drop of temp to normal within 24 hrs. known as:
   a. Lysis
   b. Crisis
   c. sudden fall
   d. Subnormal temperature

5. Difficulties in breathing except when in a sitting position
   a. Dyspnoea
   b. Orthopnoea
   c. Apnoea
   d. Hypernoea

6. The difference between the systolic and Diastolic pressure is known as:
   a. Pulse pressure
   b. Recordable pressure
   c. Superior pressure
   d. Difference pressure

7. The type intravenous therapy which has an effective osmolality less than body fluids.
   a. Hypotonic solutions
   b. Hypertonic solutions
   c. Isotonic solutions
   d. Osmolarity solutions

8. The following are the principles of urine testing **EXCEPT**

a. Test fresh urine
b. Use clean containers or instruments during the procedure
c. Keep the specimen warm
d. Follow the stipulated times when reading the results

9. The following Factors are responsible for maintenance of normal blood pressure **EXCEPT:**
a. Venous return
b. Cardiac output
c. Emotional stress
d. Viscosity of Blood

10. The following are causes of constipation **EXCEPT:**
a. Irregular bowel habits.
b. Increased roughage in the diet and fruits.
c. Lack of exercises both passive and active.
d. Change in the routine of elimination.

MATCHING QUESTIONS

Match the sites where pulse can be recorded in column A with the exact area where it is located in column B

Column A	**column B**
1. Temporal Artery	a) Palpated just in front of the earlobe.
2. Radial Artery	b) Felt alongside the anterior border of the steno mastoid muscle.
3. Carotid Artery	c) It can be palpated at the wrist.
4. Facial Artery	d) felt in the groin.
5. Femoral Artery	e) palpate it in front of the angle of the jaw.
6. Brachial Artery	f) at the elbow.

Match the types of fever in column A with their description in column B

Column A	**Column b**
1. Continuous or Constant fever	A. Temperature varies between normal and subnormal up to high fever or hyperpyrexia every one, two or three days regularly.
2. Remittent fever	B. Brief febrile periods followed by one or more days of normal temperature.
3. Intermittent fever	C. Temperature remains high, varying by not more than 1 degree Celsius in a day.
4. Inverse temperature	D. Temperature rises slowly over days and takes corresponding days to fall.
5. Relapsing fever	E.Temperature varies by more than 1 degrees Celsius and does not reach normal within 24 hours.
6. Pelebstein fever	F.Temperature rises in the morning and falls in the evening for example in TB

Answers
MCQ
1. A
2. D
3. D

4. B
5. B
6. A
7. A
8. C
9. C
10. B

MATCHING - 1

1. A
2. C
3. B
4. E
5. D
6. F

MATCHING - 2

1. C
2. E
3. A
4. F
5. B
6. D

6.8 References

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UNIT 7: FIRST AID

7.1 Introduction

Welcome to Unit 7. Before you start this unit, I want to remind you on what you learnt in unit 6. You started by looking at the admission procedure of the patient. Where you learnt that you can admit a patient in three ways; namely non-emergency/unplanned, Emergency and planned admission. You also assess the health status where you started by obtaining the patient history which includes patient's demographic data like age, sex, family history. You also discovered that you need to check the vital signs as these are cardinal signs which can give you a picture of how the patient's body is functioning. In the same unit you also learnt the basic client's needs like bathing, oral care, further you learnt the nutritional requirement of the client. You did the assessment and management of selected symptoms and looked at hypothermia which is temperature below 36 degrees Celsius. You also went on to look at transfer, discharge of patient, discussed diarrhoea including nausea and vomiting. Unit 6 was very bulky but very easy to understand.

In this unit you are going to study first aid management of emergences, which is the immediate care given to a person who has been involved or has been suddenly taken ill before full technical help arrives or before reaching a health facility. Now you are going to study the following: bandaging and splinting, methods of lifting and transportation of casualties.

7.2 Objectives

By the end of the unit the learner should be able to:

1. Outline the aims and principles of first aid.
2. Discuss bandaging and splinting.
3. Discuss the methods of lifting and transportation of casualties.

7.3 Definition of First Aid

Activity

In your own understanding define first Aid and note it down in your note book

Well done! Now compare your definition with the following.

First Aid is the immediate care given to a person who has been involved or has been suddenly taken ill before full technical help arrives or before reaching a health facility

7.4 Aims of first aid

i. To preserve life.
ii. Minimise the effects of injury.
iii. To promote recovery.
iv. To relieve pain and distress
v. To prevent the condition from worsening.

vi. Deliver live casualty in good condition to hospital.

7.5 Principles of first aid

- To treat the most urgent condition for example severe haemorrhage, shock or impaired breathing.
- Remove the patient from danger or remove further danger from the casualty for example a child who is caught up in a fire should be removed immediately and taken to a safer place before any treatment.
- Assess the level of consciousness in a patient who is unconscious and don't give anything by mouth.
- Meanwhile call for help and arrange for transport.
- Handle patient with care and if there is a suspected fracture, support the part involved carefully.
- Use your common sense.
- Control people standing by.
- Avoid cross infection by covering cuts on your hands with waterproof dressing, wear disposable gloves if available.
- Don't attempt too much alone.
- Control your feelings and know your limits.
- Make a call to inform the necessary authorities.
- Set priorities in the casualties – severe, moderate, and mild.

7.6 Bandaging and Splinting

As you are still at the scene of an accident, there could be casualties who have wounds and broken bones that will need attention in terms of bandaging and splinting.

Bandaging and splinting is application of a strip of woven materials to hold a wound dressing or splint in place. Plain white roller bandages are the usual ones but they are conforming bandages and elastic ones which have more 'give' and they are easier to adopt round and even contours.

Bandage

A strip of material such as gauze used to protect, immobilize, compress, or support a wound or injured body part. Gauze is just the type of material used when covering the wound.

Bandaging

This is the application of a strip of material such as gauze used to protect, immobilize, compress, or support a wound or injured body part.

Types of bandages

As we are doing or intend to do bandaging what are the types of bandages can we use?
Bandages are available in a wide range of types, from generic cloth strips, to specialized shaped bandages designed for a specific limb or part of the body. Bandages can often be improvised as the situation demands, using clothing, blankets or other materials.

i. Gauze bandage

This is the most common type of bandage. It is a simple woven strip of material, or a woven strip of material with a telfa absorbent barrier to prevent adhering to wounds, which can come in any number of widths and lengths. A gauze bandage can be used for almost any bandage application, including holding a dressing in place.

ii. Compression bandage

This is the type of bandage used to apply pressure to control bleeding (Medical Dictionary 2012).

The term 'compression bandage' describes a wide variety of bandages with many different applications.

Figure 34: compression bandaging

a. Short stretch compression bandages

These are good for protecting wounds on one's hands, especially on one's fingers. They are applied to a limb (usually for treatment of lymphedema or venous ulcers). This type of bandage is capable of shortening around the limb after application and is therefore not exerting ever-increasing pressure during inactivity. This dynamic is called resting pressure and is considered safe and comfortable for long-term treatment. Conversely, the stability of the bandage creates a very high resistance to stretch when pressure is applied through internal muscle contraction and joint movement. This force is called working pressure. A lot of elastic is contra-indicated because not only does it help improve condition but it can cause an aching leg. And if you have PAD (Peripheral Arterial Disease) it can aggravate an already poor arterial supply. So, it is best to avoid elastic if you want a good therapeutic effect. Short Stretch Compression Application

b. **Long stretch compression bandages**

These have long stretch properties, meaning their high compressive power can easily be adjusted. However, they also have a very high resting pressure and must be removed at night or if the patient is in a resting position.

iii. Triangular bandage

Also known as a cravat bandage, a triangular bandage is a piece of cloth cut into a right-angled triangle, and often provided with safety pins to secure it in place. It can be used fully unrolled as a sling, folded as a normal bandage, or for specialized applications, as on the head. One advantage of this type of Bandage is that it can be makeshift and made from a fabric scrap or a piece of a t-shirt. The Boy Scouts popularized use of this bandage in many of their first aid lessons. They carry a cravat bandage with their uniform in the form of a neckerchief. When used to make a sling, for humerus or forearm fractures, it is best to tie the middle point. This goes under the elbow to help secure and restrict further movement of the arm. Next, take one of the long ends of the triangular bandage and tuck it under the arm. Then pull it over the injured shoulder and behind the neck. The other long end should be placed over the opposite should and tied with the other end on the side of the neck (not the back of the neck because of the pressure it places on it). Make sure the sling covers the arm from the elbow to or a little beyond the hand. To be nice you can also place something round in their hand to place the arm in a functioning position.

iv. Tube bandage

A tube bandage is applied using an applicator, and is woven in a continuous circle. It is used to hold dressings or splints on to limbs, or to provide support to sprains and strains, and it stops the bleeding

Application of bandages

General principles

A bandage must be snug (it is useless if the bandage is too loose, but not so tight to interfere with blood circulation).

To ensure that circulation is not interfered with:-

- Never apply a tight circular bandage around a person's neck.
- It may cause strangulation.
- Loosen bandage immediately if victim complains of numbness and tingling sensation.
- Watch for swelling, changes of colour or coldness of tips of fingers or toes indicating interference with circulation.
- Have patient's finger tips exposed when the splint or bandage is applied to the arm or leg.

Methods of applying bandages

You are now going to look at the methods of applying bandages as follows:

1. Figure of eight – anchor the bandage with one or two turns around the palm or the hand. Carry it diagonally across the front of the wrist and back of the palm. This figure of eight manoeuvre is repeated as many times as it is necessary to fix the dressing properly. Complete by tying off.
2. Spiral bandaging – anchor the bandage. Continue to encircle the area to be covered by use of spiral turns, spaced so that they don't overlap. It can be closed by continuing to encircle with spiral turns until all gaps are closed.
3. Circular turns – simply encircle the part with each layer of bandage superimposed on the previous one. It is the simplest of all bandaging turns.
4. Fingertip bandage – This is a series of back and forth turns called recurrent turns, held in place by circular and spiral turns. It is secured by tying off.
5. Arm sling – involves the use of a triangular bandage. The broad part should be folded and used to hold and support the arm. Then two loose ends are tied around the neck.

You have finished discussing the methods of applying bandages. Now you can look at splinting.

Splinting

Splinting is the immobilization of a joint or injury site so that healing can take place. You can use Splints are used to immobilize an extremity that has been injured. The injury can be a broken bone or a severe sprain. Splinting provides stabilization of the injury, some amount of pain relief and prevention of further injury. Splints are often applied as a temporary measure until more definitive orthopaedic care is initiated.

Types of Splints

Soft Splints

Splinting often starts either at home or by emergency medical providers. The simplest form of splinting is soft splinting, which can be provided with the use of a pillow or blankets. The splint is secured around the area of injury and held in place with tape or ties. Even the soft splint will provide the patient some support for the injured extremity and comfort. Pre-made soft splints, which are occasionally used in hand or wrist injuries, will slide on like a glove and are adjusted with the use of laces to tighten and conform the splint.

Hard Splints

Hard splints are another type of splint used for extremity injuries. Hard splints can be as simple as using a cardboard box or a padded board. Some hard splints can be made out of fiberglass or plaster that can be moulded to fit the patient's extremity. Splints made from plaster or fiberglass are named according to the area of injury they are being applied to. A splint specifically used to treat a thumb injury is called a thumb spica. For a wrist or forearm injury, the volar splint is used, and for injuries to the hand and fist area, a boxer splint is applied. Pre-made aluminium splints are often used to stabilize fingers.

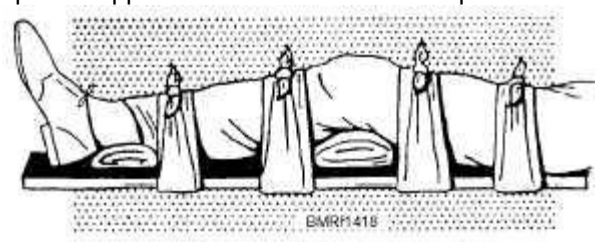

Figure 35: Hard splints

https://www.google.co.zm/search?q=illustration+of+a+hard+splint

Air or Vacuum Splint

Air or vacuum splints are a type of splint available and used by some providers for treating orthopaedic injuries. Air or vacuum splints conform well to the injured extremity. According to 'Sheehy's Emergency Nursing Principles and Practice,' excessive pressure from these type splints can compromise circulation. The air splints also stick to the skin and can cause irritation.

Figure 36: Air or vacuum splint

https://www.google.co.zm/search?q=vacuum+splint

Traction Splints

Traction splints are used to support a broken bone, decrease the amount of deformity and provide traction to keep the bones aligned and to prevent them from moving. Traction splints are often used for injuries in either the femur or mid-shaft lower leg.

Figure 37: Traction splints

https://www.google.co.zm/search?q=vacuum+splint

Methods of splinting

General fracture management principles

It is important to maintain good anatomic fracture alignment throughout treatment. Acceptable angular deformity in the hand varies depending on the fracture site. Rotational deformity in the hand is never acceptable.

Stable fractures are generally re-evaluated within one to two weeks following cast application to assess cast fit and condition, and to perform radiography to monitor healing and fracture alignment. Hand and forearm fractures, however, are often re-evaluated within the first week.

Displaced fractures require closed reduction, followed by post-reduction radiography to confirm bone alignment. Both displaced and unstable fractures should be monitored vigilantly to ensure maintained positioning. If reduction or positioning is not maintained, urgent referral to an orthopaedic subspecialist is warranted.

Upper Extremity Splints and Casts

Ulnar gutter splint

You can use the ulnar gutter splint in Non-displaced, stable fractures of the head, neck, and shaft of the fourth or fifth metacarpal with mild angulation and no rotational deformities; non displaced, non-rotated shaft fractures and serious soft tissue injuries of the fourth or fifth, proximal or middle phalanges; boxer's fractures (distal fifth metacarpal fractures, the most common injury for which ulnar gutter splint/cast used).
When applying the ulnar gutter splint, the splint begins at the proximal forearm and extends to just beyond the distal inter phalangeal (DIP) joint Cast padding is placed between the fingers.

Position of Function
The wrist is slightly extended, with the metatarsophalangeal (MCP) joints in 70 to 90 degrees of flexion, and the proximal interphalangeal (PIP) and DIP joints in 5 to 10 degrees of flexion.

Figure 38: Ulnar Gutter Splinting

Rick Kulkarni, (2013), Ulnar Gutter Splinting available at:

http://emedicine.medscape.com/article/80165-overview#a15

Ulnar gutter cast
You can use ulnar gutter cast as a definitive or alternative treatment of injuries commonly treated with ulnar gutter splint.

How can you apply it, Ideally, the cast is applied 24 to 48 hours or more after the initial injury to allow swelling to decrease. Placement of the casting materials is similar to that of the ulnar gutter splint, except the plaster or fiberglass is wrapped circumferentially

The ulna gutter cast is illustrated in the following figure.

Figure 39: Ulnar gutter cast

Radial Gutter Splint

You can use it in Non-displaced fractures of the head, neck, and shaft of the second or third metacarpal without angulation or rotation; non displaced, non-rotated shaft fractures and serious injuries of the second or third, proximal or middle phalanx; initial immobilization of displaced distal radius fractures.

Application: The splint runs along the radial aspect of the forearm to just beyond the DIP joint of the index finger, leaving the thumb free Cast padding is placed between the fingers.

Position of function: The wrist is placed in slight extension, with the MCP joints in 70 to 90 degrees of flexion, and the PIP and DIP joints in 5 to 10 degrees of flexion.

Figure 40: Radial Gutter Splint

http://emedicine.medscape.com/article/80108-overview

Radial gutter cast
Common Uses: Definitive or alternative treatment of fractures initially managed with a radial gutter splint.
Application: Placement of the casting materials is similar to that of the radial gutter splint, except the plaster or fiberglass is wrapped circumferentially. The cast is usually placed two to seven days after the initial injury to allow for resolution of swelling.

Figure 41: Radial gutter cast

Pearls and Pitfalls
Minimal angulation or rotation at the fracture site may cause functional problems, such as difficulty with grasp, pinch, or opposition. Therefore, meticulous evaluation and follow-up are essential.

Thumb spica splint
Common Uses: Suspected injuries to the scaphoid; stable ligamentous injuries to the thumb; initial treatment of non-angulated, non-displaced, extra-articular fractures of the base of the first metacarpal; de Quervain tenosynovitis; first carpometacarpal joint arthritis.

Application: The splint covers the radial aspect of the forearm, from the proximal one third of the forearm to just distal to the interphalangeal joint of the thumb, encircling the thumb.
Position of function: The forearm is in the neutral position with the wrist extended to 25 degrees and the thumb in a position of function (that is, 'holding a soda can').

Pearls and Pitfalls: Immobilization of the thumb with a removable splint after a ligamentous injury is strongly preferred by patients, and the functional results are equal to those of plaster cast immobilization after surgical and nonsurgical treatment.

Thumb spica cast
Common Uses: Suspected or non-displaced, distal fractures of the scaphoid; non-angulated, non-displaced, extra-articular fractures of the base of the first metacarpal.

Application: The cast uses the same position of function as described for a thumb spica splint, but requires circumferential application of casting materials.

Figure 42: thumb spica cast

Pearls and Pitfalls
Because these types of fractures are often serious and have a high rate of complications, long-term splinting is not an appropriate definitive treatment. Angulated, displaced, incompletely reduced, or intra-articular fractures of the first metacarpal base should be referred for orthopaedic subspecialist evaluation. Non-displaced distal fractures of the scaphoid have a greater potential to heal and may be placed in a short arm thumb spica cast and re-evaluated out of the cast by radiography in two weeks. Non-displaced fractures of the middle or proximal one third of the scaphoid are treated with a long arm thumb spica cast initially and require vigilant monitoring for non-union.

Buddy taping (dynamic splinting)

Common Uses: Minor finger sprains; stable, non-displaced, non-angulated shaft fractures of the proximal or middle phalanx.
Application: The injured finger is taped to the adjacent finger for protection and to allow movement.

Dorsal extension-block splint
Common Uses: Larger, middle phalangeal volar avulsions with potential for dorsal subluxation; reduced, stable PIP joint dorsal dislocations.

Application: In reduced, volar avulsion fractures, the splint is applied with the PIP joint at 45 degrees of flexion and secured at the proximal finger, allowing flexion at the PIP joint). With weekly lateral radiography, the flexion is decreased 15 degrees until reaching full extension over four weeks. Buddy taping should follow. Treatment of reduced PIP joint dislocations is similar, but requires a starting angle of 20 degrees.

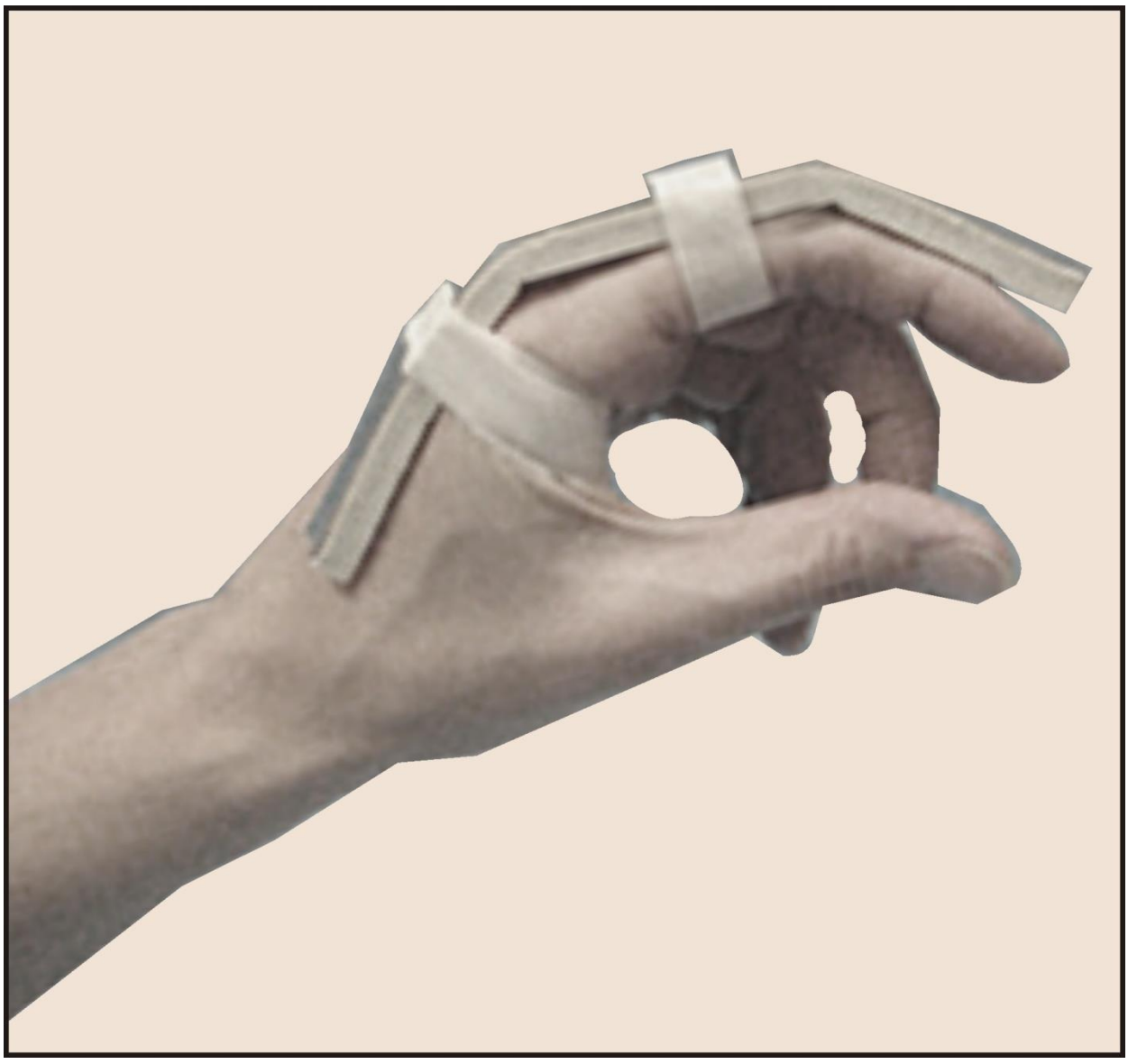

Figure 43: Dorsal extension-block splint

Aluminium u-shaped splint
Common Uses: Distal phalangeal fractures.

Application: The aluminium splint wraps from the dorsal fingertip around to the volar fingertip and immobilizes only the DIP joint in extension.

Mallet finger splints
Common Uses: Avulsion of the extensor tendon from the base of the distal phalange (with or without an avulsion fracture).

Application: The DIP joint is placed in slight hyperextension with a padded dorsal splint, an unpadded volar splint, or a prefabricated mallet finger splint. Continuous extension in the splint for six to eight weeks is essential, even when changing the splint. Compliance is assessed every two weeks. Night splinting for an additional two to three weeks is recommended.

Volar/dorsal forearm splint
Common Uses: Soft tissue injuries of the hand and wrist; temporary immobilization of carpal bone dislocations or fractures (excluding scaphoid and trapezium).
Application: The splint extends from the dorsal or volar mid-forearm to the distal palmar crease).

Figure 44: Volar wrist splint

Position of Function: The wrist is slightly extended.
Pearls and Pitfalls: The splint does not limit forearm pronation and supination, and is generally not recommended for distal radial or ulnar fractures. A recent study, however, demonstrated that compared with casting for definitive treatment of wrist buckle fractures in children, a removable plaster splint improves physical functioning and satisfaction, with no difference in pain or healing rates.

Short arm cast
Common Uses: Non-displaced or minimally displaced fractures of the distal wrist, such as Colles and Smith fractures or greenstick, buckle, and epiphyseal fractures in children; carpal bone fractures other than scaphoid or trapezium.

Application: The cast extends from the proximal one third of the forearm to the distal palmar crease volarly and just proximal to the MCP joints dorsally.

Position of function: The wrist is in a neutral position and slightly extended; the MCP joints are free.
Pearls and Pitfalls: These are the same as for a forearm splint.

Single Sugar-Tong Splint
Common Uses: Acute management of distal radial and ulnar fractures.
Application: The splint extends from the proximal palmar crease, along the volar forearm, around the elbow to the dorsum of the MCP joints).

Figure 45: Single sugar-tong splint

Position of function: The forearm is neutral and the wrist is slightly extended.
Pearls and Pitfalls: The splint stabilizes the wrist, elbow and limits, but does not eliminate, forearm supination and pronation.

Long Arm Posterior Splint
Common Uses: Acute and definitive management of elbow, proximal and mid-shaft forearm, and wrist injuries; acute management of distal radial (non-buckle) and/or ulnar fractures in children.

Application: The splint extends from the axilla over the posterior surface of the 90-degree flexed elbow, and along the ulna to the proximal palmar crease.

Pearls and Pitfalls: The posterior splint is not recommended for complex or unstable distal forearm fractures.

Long Arm Cast
Common Uses: Definitive treatment of injuries initially treated with a posterior splint.
Application: The cast extends from the mid-humerus to the distal palmar crease volarly and just proximal to the MCP joints dorsally.

Position of function:. The elbow is flexed to 90 degrees with the wrist in a neutral, slightly extended position

Pearls and Pitfalls: Adequate padding at the olecranon, ulnar styloid, and antecubital fossa prevents skin breakdown. Physicians should avoid applying the edge of the casting tape over the antecubital fossa, particularly with the initial layer. Long arm casts are used most often in childhood because of the frequency of distal radial, ulnar, and distal humeral fractures.

Double Sugar-Tong Splint
Common Uses: Acute management of elbow and forearm injuries, including Colles fractures.
Application: Physicians should start by placing a single sugar-tong splint, as described above). A second sugar-tong splint is then applied, extending from the deltoid insertion distally around the 90-degree flexed elbow, and proximally to 3 inches short of the axilla.

Figure 46: Double sugar-tong splint

Pearls and Pitfalls: The splint provides superior pronation and supination control, and is preferable with complex or unstable fractures of the distal forearm and elbow.
Lower Extremity Splints and Casts

Posterior Ankle Splint ('Post-Mold')
Common Uses: Acute, severe ankle sprain; non-displaced, isolated malleolar fractures; acute foot fractures and soft tissue injuries.

Application: The splint extends from the plantar surface of the great toe or metatarsal heads along the posterior lower leg and ends 2 inches distal to the fibular head to avoid compression of the common peroneal nerve.
Pearls and Pitfalls: For efficient application, the patient should be placed in a prone position with the knee and ankle flexed to 90 degrees.

Stirrup Splint
Common Uses: Acute ankle injuries; non-displaced, isolated malleolar fractures.

Application: The splint extends from the lateral mid-calf around the heel, and ends at the medial mid-calf. The position of function is with the ankle flexed to 90 degrees (neutral).

Pearls and Pitfalls: Stirrup and posterior ankle splints provide comparable ankle immobilization. Although the stirrup splint is adequate for short-term treatment of acute ankle sprains, the evidence favours a functional approach to inversion ankle sprain treatment with the use of a semi-rigid or soft lace-up brace. A bulky Jones splint is a variation on the stirrup splint used acutely for more severe ankle injuries. The lower extremity is wrapped with cotton batting and reinforced with a stirrup splint, providing compression and immobilization while allowing for considerable swelling.

Short Leg Cast
Common Uses: Definitive treatment of injuries to the ankle and foot.
Application: The cast begins at the metatarsal heads and ends 2 inches distal to the fibular head. Additional padding is placed over bony prominences, including the fibular head and both malleoli
Position of function: The ankle is flexed to 90 degrees (neutral).

Pearls and Pitfalls: Weight-bearing recommendations are determined by the type and stability of the injury and the patient's capacity and discomfort. Short leg walking casts are adequate for non-displaced fibular and metatarsal fractures. Commercially produced high-top walking boots are acceptable alternatives for injuries at low risk of complication

Toe Plate Extensions
Common Uses: Toe immobilization (comparable to a high-top walking boot or cast shoe); distal metatarsal and phalangeal fractures, particularly of the great toe.
Application: A plate is made by extending the casting material beyond the distal toes, prohibiting plantar flexion and limiting dorsi-flexion

Figure 47: Short leg cast with toe plate extension

Pearls and Pitfalls: The cast must be moulded to the medial longitudinal arch with the ankle at 90 degrees to allow for successful ambulation.

Posterior Knee Splint
Common Uses: Stabilization of acute soft tissue injuries (for example, quadriceps or patellar tendon rupture, anterior cruciate ligament rupture), patellar fracture or dislocation, and other traumatic lower extremity injuries, particularly when a knee immobilizer is unavailable or unusable because of swelling or the patient's size.

Application: The splint should start just below the gluteal crease and end just proximal to the malleoli
Position of function: The knee is positioned in slight flexion.

Self -Assessment Test

1. Match the types of bandage in column 1 with the appropriate description in column 2

Column 1	**Column 2**
I. Triangular bandage	a. Treatment of lymphedema and venous ulcer
ii. Long stretch Compression bandage	b. Applied using an applicator
iii. Tube bandages	c. Secured with safety pins
iv. Short stretch Compression bandage	d. Have a very high resting pressure
	e. Ankle is flexed to 90 degrees

2. List four types of splints

Answers
Q1
i. c
ii. d
iii. b
iv. a

Q2
- Soft Splints
- Hard Splints
- Air or Vacuum Splint
- Traction Splints

7.7 Methods of Lifting and Transportation of Casualties
You are now going to look at lifting and transportation of casualties. You can lift the casualty in so many ways as follows;

You can lift a Casualty by the use of the stretcher

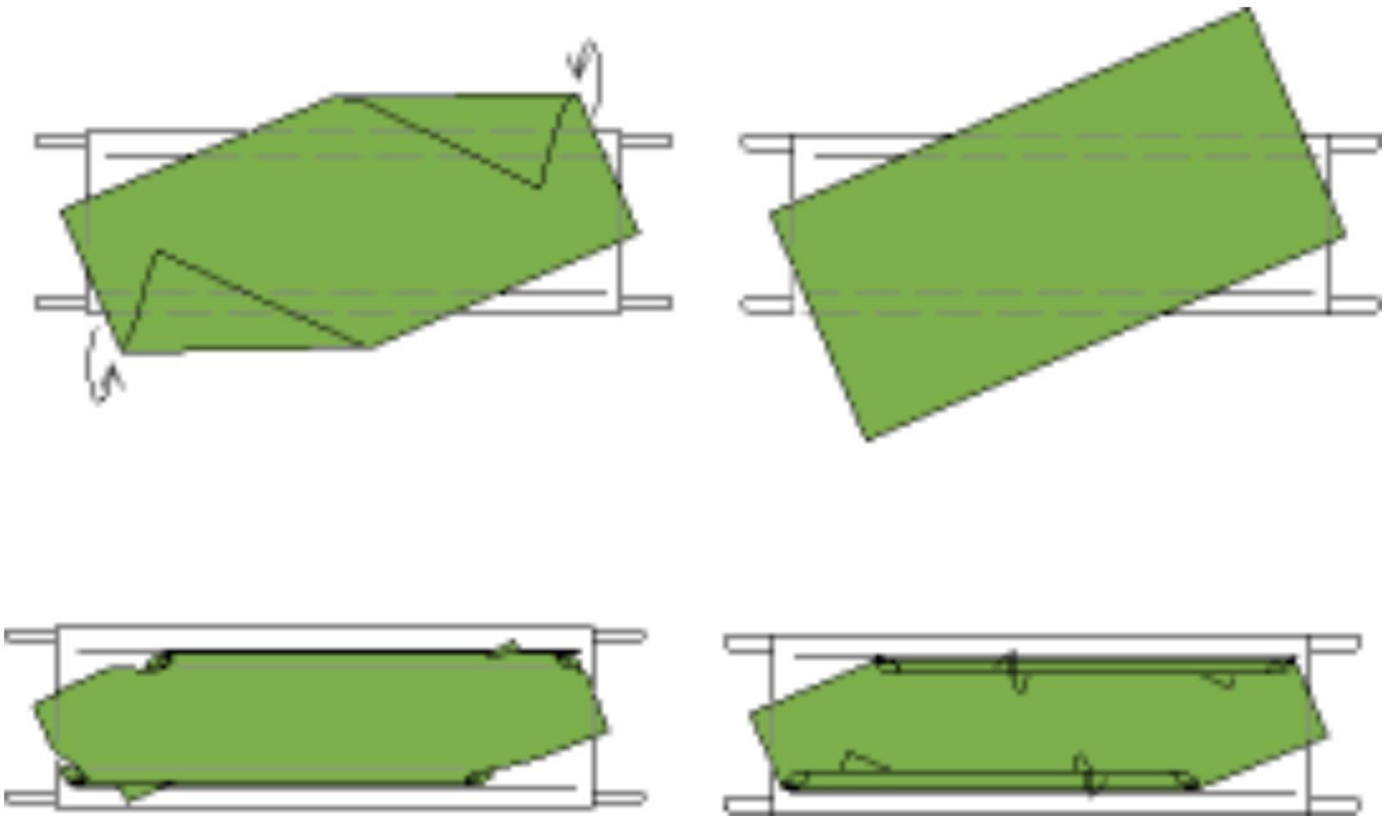

Figure 48: stretcher with a blanket on top

Procedure

- Unfold the stretcher , and secure the hinges and test it
- Use a blanket since hypothermia is a major risk for a casualty.
- Wrap the blanket around the casualty to avoid the heat leak from below (this is not necessary when the stretcher has a mattress, for example A vacuum mattress, or in case of an ambulance stretcher). For this purpose, the blanket is put before the lifting, and folded in a specific way:
- The blanket is laid so the diagonal is along the axis of the stretcher;
- The corners are put on the centre of the stretcher;
- The folded part are then rolled towards the stretcher;
- The rolls are then put under the blanket, so they will not unroll spontaneously; the corners are sticking out so they can be pulled.

You can also use scoop stretcher

Scoop stretcher

The use of a scoop stretcher allows a secure lifting with only two team members even in case of a spinal trauma. The use of this device is thus recommended for most operations.

However, in many situations, there is a lack not of people but of devices. Additionally, the scoop stretcher does not allow maintaining the legs up or a half-seated position for the casualty. For these reasons, the other methods are still taught.

Vertical lift (straddle lift)

With five team members

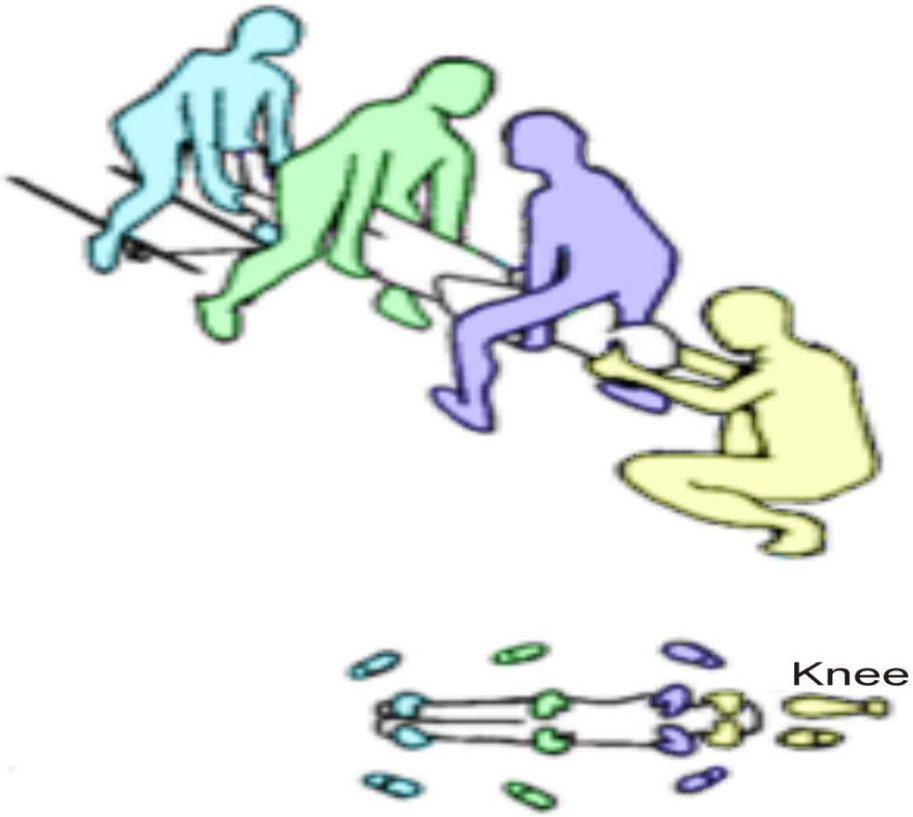

Figure 49: Vertical Lift

Vertical lifting with five team members, the stretcher coming from the feet's side; the bottom illustration shows a view of the back of the casualty (from below), with the positions of the feet and of the hands of the first responders

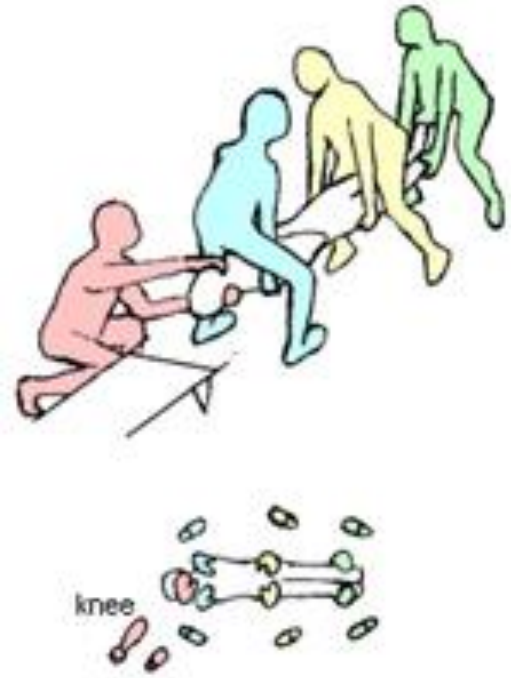

Figure 50: Vertical lift with 5 team members

Vertical lifting with five team members, the stretcher coming from the head's side

Now look at how exactly it is done:

- First the chief has one knee down, one knee up, and holds the head; he/she can hold it by sliding the finger under the head, the palm placed on each side of the head; or he/she can place one hand under the neck and hold the occiput, the other hand under the chin;
- The first team member supports himself on the shoulder of another team member, and steps over the casualty; he/she puts his/her hands under the shoulders;
- The second team member supports himself on the shoulder of another team member, and steps over the casualty; he/she puts his/her hands under the hip
- The third team member hold the ankles;
- The fourth team member pushes the stretcher.

The feet of the team members must be enough spaced so the stretcher can slide in between. If the chief uses the occipital-chin grip, the knee that is up is the knee on the side of the hand under the neck: as this arm supports the heaviest weight, it can support itself on the knee.

Another method consists in placing the team members at both sides of the casualty and holding the cloths. The cloths must be strong enough.

On the order of the chief, the casualty is lifted, the stretcher is pushed, and the casualty is put down on the stretcher. During this procedure, the chief remains kneeling (stable); the other team members lift pushing with their legs (arms stretched out, back kept straight). Then, the first and second team members pull back, supporting themselves on the shoulder of a still standing member.

With this method, the movement of the casualty is minimal, just vertical.
When there is no room at the feet of the casualty for the stretcher, it must then be placed on the side of the head. The chief must then kneel aside. If he uses the occipital-chin grip, the hand under the neck must be the closest to the casualty's feet; the same knee is up.

With three team members

Figure 51: vertical lift with three member

Vertical lifting with four team members, or ‘simple lifting’ When the casualty has no specific trauma, it is possible to slide a long spine board little by little. A team member lifts a part of the body (head, then shoulders, then hips), and the other one slide the board.

Lifting with a strap

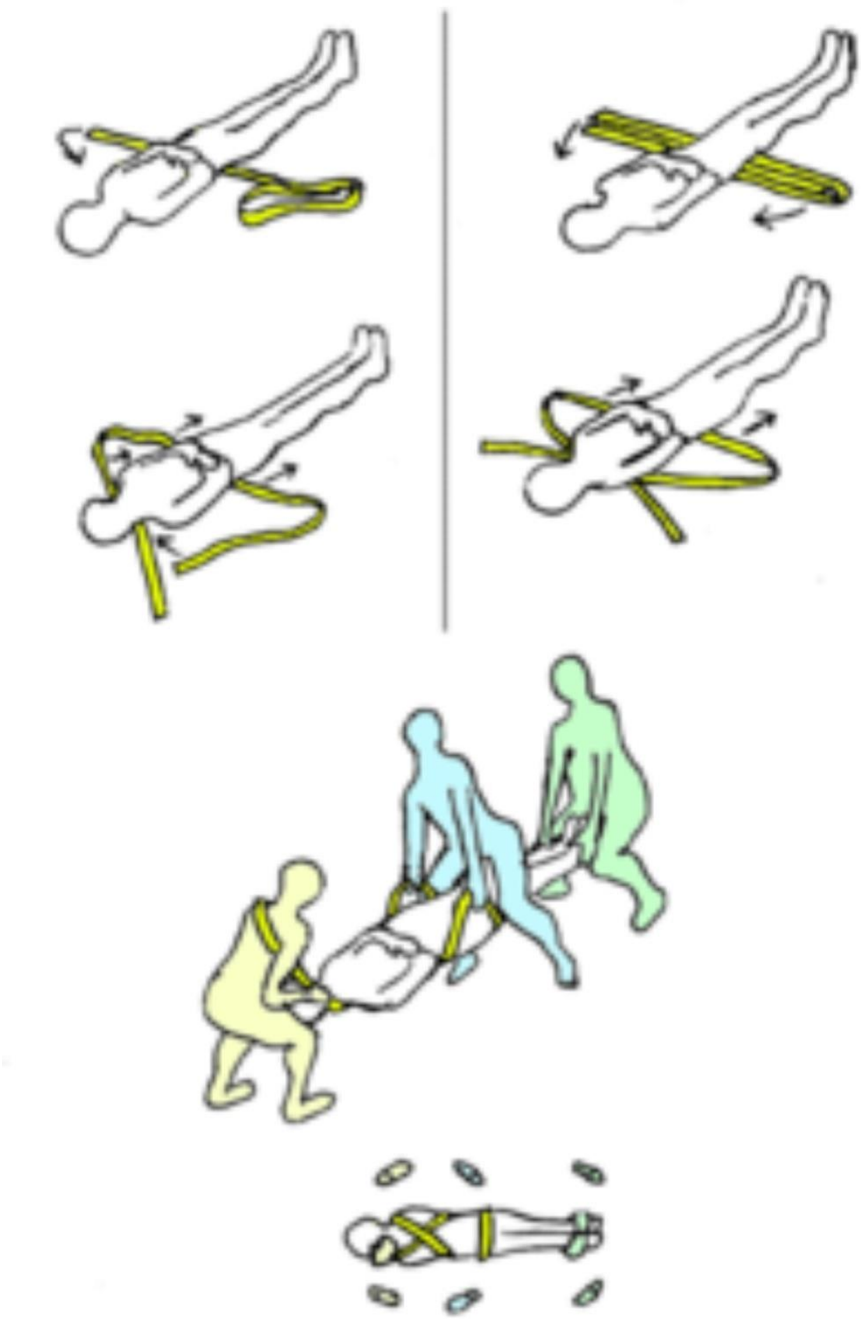

Figure 52: Strap lift

A handling strap can help the lifting. The strap for this use should be 6 m long (20 ft), at least 3 cm wide (1.2 in) to share out the weight and avoid the pain, and resist at least to a weight of 150 kg (330 lb).

The strap is slid under the casualty: the flat profile can slide easily under the back and the pelvis without lifting the casualty. This strap will form two handles, thus, the team member at the pelvis will have a better grip and a vertical back; the strap crosses in the middle of the back, thus the team member at the head (lifting with four team members) are at the shoulders (lifting with five team members) does not have to put his/hers arm between the shoulder blades, and can then lift with a vertical back. The verticality of the back of the team members is particularly important in case of an overweight casualty.
The strap can be put with two methods:

- when the hollow of the back (just above the pelvis) is small (left picture), then the strap is slid in this hollow until its middle; then, each end is slid under the neck, the two branches of the strap are slid under the back, then the middle part is slid under the buttock;

- When the hollow of the back is enough high (right picture): the strap is folded in three, then slid in under the hollow of the back; the two extremities are slid towards the shoulders, and the middle part is slid under the buttocks.

Then, one extremity of the strap goes on a shoulder of the team member and under his/hers opposite armpit (it crosses the back), and is tied to the other or held together by the team member; a hand is also put under the neck to support the head.

Translation lift

Figure 53: Translation lift

Casualty lifting using the translation lift with three first responders

The translation lift, or 'Dutch' lift, is used when it is not possible to push the stretcher: There is no room for the stretcher at the feet or head of the casualty, or the stretcher cannot slide/roll on the ground, or there are not enough first responders available. In such a case, the stretcher is placed besides the casualty.

With four first responders (including the chief), the first and second team members' step over the casualty and the stretcher, the foot is on the farthest pole of the stretcher.
The chief holds the closest pole with his knee on the ground, and the third team member with his ankle. The positions of the hands are the same as for the vertical lift with five first responders.

The first in place is the chief. The stretcher is slid besides the casualty, the pole against the thigh of the chief. Then, the third team member takes place. Once the both extremities of the pole are blocked, the other team members can step over the casualty (one by one, holding the others' shoulder to avoid falling) without any risk of rocking for the stretcher.

On the order of the chief, the casualty is lifted and translated on the stretcher.
This method can be performed with only three first responders. In this case, the chief plays the role of the first team member; he blocks the pole with his ankle, and puts one hand under the neck, the other one under the back, between the shoulder blades. Only the team member at the hips steps over the stretcher.

Rolling methods (log roll)

Figure 54: Rolling method (log roll)

Casualty lifting: roll-and-lift method with a long spine board

Figure 55: Roll-and-lifting method with a long spine board

Alternative for the position of the rescuers; note the arms that cross on the hips

Figure 56: Roll- and-lift with a flexible stretcher

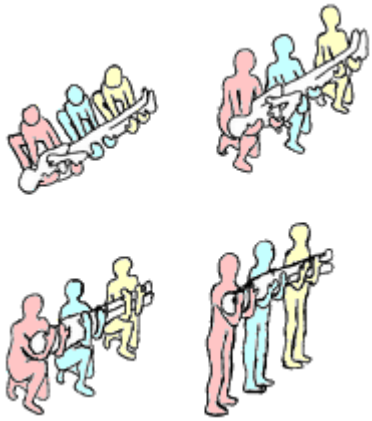

Figure 57: Manual roll-and-lift method, or 'spoon lifting', with three members

The rolling methods can only be used on a casualty who does not have an unstable trauma. They are especially helpful for heavy weighted casualties: the rolling does not require much effort, and the lifting itself is done in a more comfortable position (the back of the first responders is vertical). They are also interesting when the casualty is in a very narrow place such as a pit or a ditch: the rolling allows sliding the lifting device (board, flexible stretcher, halves of the scoop stretcher).

The rolling methods consist in rolling the casualty on his/her side; it is then possible:

- To put a long spine board against his/her back, then to roll back the casualty on his/her back;
- To slide a folded flexible stretcher (or a blanket); the casualty is then rolled on the other side to unfold the flexible stretcher.

The casualty can then be lifted with the handles of the long spine board or of the flexible stretcher (or holding the rolled sides of the blanket), and put on the stretcher.

Usually, the method is done with four first responders, including the chief:

- The chief is kneeling at the head, in the axis of the casualty, and holds the head;
- The first team member is kneeling besides the casualty, and holds the opposite shoulder and the opposite hip;
- The second team member is kneeling at the feet, in the axis of the victim, and holds the ankles;

- At the order of the chief, the casualty is rolled towards the first team member, and the fourth team member puts the board or the flexible stretcher in place.

This method can also be performed by only two first responders: the chief plays the role of the first team member, and the only team member deals with the board (neither the head nor the ankles are gripped). This is rather traumatic for the casualty, but can be used when there is non- suspicion of trauma, either in emergency (for example to transport a cardiac arrest when advanced life support cannot be performed on site), or when the first responders are lacking.

The method with a flexible stretcher was inspired by the method used to change the sheets of an impotent patient at the hospital. The flexible stretcher is placed beside the casualty, and a sheet is put on it. The third of the stretcher that is the closest to the casualty is folded on the middle third. The casualty is first rolled away from the stretcher, and the stretcher is slid against the back of the casualty. Then the casualty is put on his/her back and rolled on the other side; the stretcher and the sheet are unfolded. The casualty is wrapped into the sheet, and can be lifted with the handles of the flexible stretcher.

It is also possible to use a roll-and-lift method, or 'spoon' lifting (*relevage à la cuiller* in French), with three people:

1. The first responders are placed on the same side of the casualty; the knee that is closest to the head is lifted, the other one is on the ground;
2. The chief is at the head; he puts one arm under the neck and reach the opposite shoulder, the other arm under the back;
3. The first team member is besides the pelvis; he has one arm under the back, one arm under the back, the other one under the thighs;
4. The third team member supports the legs.

At the order of the chief, the casualty is lifted and put on the lifted knees of the first responders. Then, the casualty is flattened against the chests, and the first responders stand up. They move towards the stretcher; there, they put one knee on the ground (the closest to the casualty's feet), lay the casualty on his/her back, and move the casualty from their knees to the stretcher. For this last movement, additional first responders can be placed at the opposite side of the stretcher to help the landing.

The spoon lifting can also be used for emergency movements of a casualty when a spine trauma is suspected, for example the casualty is unconscious and is threatened by a fast rise of water level (flood).

Seated person

Sometimes, it is necessary to lift a seated or half seated person: the seating position is adapted for a conscious person with a chest trauma or of respiratory difficulties.
For this, two team members are placed on each side of the casualty; they place one hand under the buttock, the other under the opposite armpit; the casualty places his/her arms around the neck of the team members. A third team member lifts the legs as usual, and a fourth pushes the stretcher.

When a heart problem is suspected, the casualty should not lift his/hers arms. In this case, a short strap (4 m, 13 ft) can be used: one extremity is slid under the buttock, the other goes under each armpit (and thus crosses the back of the casualty); the extremities are tied to form a ring. The team members use this ring as handles; mind that the head of the casualty is not held.

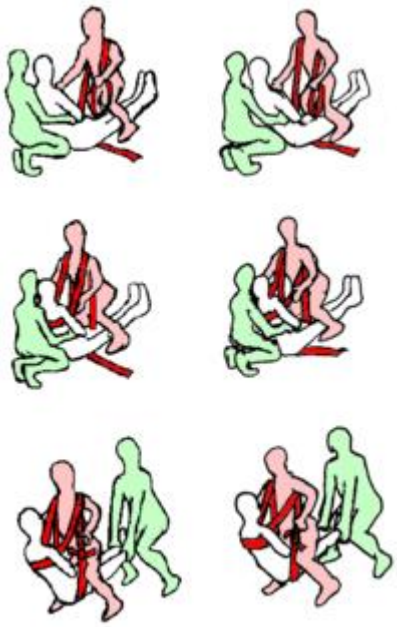

Figure 58: Lifting a seated casualty with a long strap

A long strap (6 m, 20 ft) allows the lifting with only three team members:

1. a short extremity is slid under the buttocks;
2. a team members is placed over the legs of the casualty, facing him/her; the long extremity goes under the team member's armpit and over his/hers opposite shoulder;
3. This extremity then goes under the armpits of the casualty, and again under the team member's shoulder.

Both extremities are tied or held together by the team member; it makes a cross in the back of the first responder. The team member can then support the whole weight of the top of the casualty's body while keeping a vertical back.

The long extremity goes on the team member's shoulder and under his/hers opposite armpit; then this extremity then goes under the armpits of the casualty, and again on the team member's shoulder.

With this possibility, all the weight is on one shoulder; it can be interesting when the first responder has a loose foothold on one side, or has a problem with one shoulder but cannot be replaced by another team member.

When the casualty is seating on a chair and the seated position (with legs down) is possible (that is, no problem of blood circulation), and if the chair has fixed legs and cannot be folded, then the chair itself can be used for the transport. Otherwise, the chair can be replaced by a wheelchair or a stretcher:

1. Two team members take place besides the casualty as usual;
2. When they lift, a third team member re-removes the chair;
3. He then puts the wheelchair, or deals with the causality's legs as a fourth team member pushes the stretcher.

Self-Test Question

Q1. The manual roll and lift method of transporting casualties is also known as

a. Roll lifting
b. Spoon lifting
c. Translation lifting
d. Vertical lifting

Q2. The scoop stretcher lifting technique uses

a. 3 people
b. 4 people
c. 6 people
d. 2 people

Answers
Q1-b
Q2-d

7.8 Summary

You have come to the end of unit 7. In this unit you have studied first aid management of emergences, which is the immediate care given to a person who has been involved or has been suddenly taken ill before full technical help arrives or before reaching a health facility. Bandaging and splinting which is the application of a strip of woven materials to hold a wound dressing or splint in place and lastly you learnt the methods of lifting and transportation of casualties.
I urge you to practice some of the activities as you read through. www.emedicine.

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UNIT 8: EMERGENCIES

8.1 Introduction

Welcome to this unit, before you start this unit, I want to remind you on what you learnt in unit 7. You learnt about first aid, which is the immediate care given to a person who has been involved or has been suddenly taken ill before full technical help arrives or before reaching a health facility. You also learnt Bandaging and splinting which is the application of a strip of woven materials to hold a wound dressing or splint in place and lastly you learnt the Methods of Lifting and Transportation of Casualties.

Now you are going to cover the management of clients with the emergency conditions, spinal and chest injuries, drowning, wounds, burns and scalds, bites and stings fits and infantile convulsions, fainting and heat exhaustion, fire and ward accidents (including fire drills), poisoning and corrosive strong alkaline. Hope you will enjoy the discussion because it is very interesting.

8.2 Objectives

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

1. Describe the management of clients with the emergency conditions
2. Describe spinal and chest injuries
3. Describe drowning
4. Describe wounds
5. Describe burns and scalds
6. Describe bites and stings
7. Describe fits and infantile convulsions
8. Describe fainting and heat exhaustion
9. Describe fire and ward accidents
10. Describe poisoning
11. Describe corrosives, strong acids and alkalines

You will now look at management of some emergency conditions as follows:

8.3 Management of clients with emergency conditions

Asphyxia

Activity

In your own words, define the term asphyxia and write it in your note book

Hope you got the definition, well go on and look at the definition.

Asphyxia is a deficiency of oxygen in the blood and an increase in carbon dioxide in the blood and tissues and this leads to breathing problems.

What do you think are the causes; it can occur when there is an interruption in the normal exchange of oxygen and carbon dioxide between the lungs and outside air. Common causes of asphyxia include:-

- Presence of foreign body in the air passages,
- Drowning
- Electrical shock.
- Inhalation of smoke and poisonous gasses.
- Trauma or disease to the lungs or air passages.

In all these you can notice that there can be problems with gaseous exchange that's why they lead to asphyxia.

Clinical features

You are now going to look at the clinical features which are as follows;

- Irregular respirations
- Complete absence of breathing.
- Restlessness
- Pallor
- Tachycardia

First aid management

What first aid management would you give to a patient with asphyxia? This is what you need to do:

- Ensure that a client's airway is clear. To do this you must place a client flat on his back with the head turned to the side. Vomitus or other debris should be scooped out of the mouth. Remove false teeth as well if any.
- As a first aider kneel down besides the patient's head and ensure that the patient is lying flat. Places one hand under the victim's neck and the other under the lower jaw. The head and the neck is extended backward.
- This is what you can do with a client with asphyxia. Now you will look at cardiac arrest.

Cardiac arrest

Cardiac arrest, (also known as **cardiopulmonary arrest** or **circulatory arrest**) is the cessation of normal circulation of the blood due to failure of the heart to contract effectively. When the heart stops beating or is beating in a manner that little or no blood is circulating then the patient may be said to be clinically dead and biological death may follow about three minutes later.

Causes

Activity
After looking at the definition of cardiac arrest, can you write down the causes of cardiac arrest in your note book.

Good.The following are the causes:

- Airway obstruction.
- Severe spasms to the trachea or bronchus
- Suffocation, for example by plastic bag.
- Compression of the neck.
- Compression of the thoracic cavity.
- Damage to the nervous system controlling the respiratory system.
- Myocardial infarction.
- Failure of the cardiac conducting system.
- Cardiogenic shock.

You will learn about these conditions in either surgery or medicine, all you need to know is that these conditions lead to cessation of normal circulation of the blood due to failure of the heart to contract effectively.

Clinical features

Now look at the clinical features:

- The person is unconscious often occurring as a sudden collapse.
- You cannot palpate the pulse.

- Apnoea-
- Dilating/dilated pupils.
- Cyanosis, which is blue discoloration due oxygen which is not enough.

First Aid Treatment

This is how you can manage a person with cardiac arrest

If other people are within reach, shout for help while preparing to treat the patient.

- Lay the patient flat on a firm hard surface and with a closed fist give a sharp bang on the lower third of the sternum (blow of life). This may be enough to restart the heart beat without further action. This procedure should only be used on adults.
- Check pulse again. If still absent, clear the airway before commencing eternal cardiac massage and artificial respiration at a ratio of 1 breathe to every 6 compressions. The patient's lungs should be inflated before external cardiac massage.
- Call emergency medical help quickly by dialling 999

Now proceed to haemorrhage which simply means bleeding.

Haemorrhage

Bleeding is a loss of blood from a ruptured blood vessel, externally or internally.
As mentioned in the definition we have two types:

1. **External** – blood escapes from the circulation to the outside of the body. You can usually see and recognize it.
2. **Internal** – blood escapes from circulation but is inside the body.

External Bleeding
You will look at external bleeding in detail. You will start by looking at signs and symptoms, which is obvious bleeding which is visible bleeding – blood can be seen.

Activity
Write down the things you would to a person who is bleeding in your note book.

Hope you got them correct. Now look at how you can manage someone who is bleeding?

Management
Do the following:

- Lay casualty down
- Apply direct pressure to the site of bleeding
- Raise and rest the injured part when possible
- Loosen tight clothing
- Give nothing by mouth
- Seek medical aid urgently.

This is how you can apply direct pressure

- Apply direct pressure to the wound with your fingers or hand.
- As soon as possible, place a clean dressing over the wound. Apply a bulky pad extending beyond the edges of the wound, and firmly bandage. If bleeding continues, leave the dressing in place and relocate the pad.
- Do not disturb pads or bandages once bleeding is controlled.

Uncontrolled Bleeding
Uncontrolled Bleeding is when you are not able to control the bleeding even after applying direct pressure.

If severe bleeding cannot be controlled by direct pressure, it may be necessary to apply pressure to the pressure points. These are found on the main artery above the wound. When bleeding has been controlled, remove pressure from the point and reapply direct pressure to the wound. Occasionally, in major limb injuries such as partial amputations and shark attack, severe bleeding cannot be controlled by direct pressure. Only then, it may be necessary for you to resort to the application of a constrictive bandage above the elbow or knee.

Using a constrictive bandage do the following:

- Select a strip of firm cloth, at least 7.5 centimetres (3 inches) wide and about 75 centimetres (30 inches) long. This may be improvised from clothing or a narrow folded triangular bandage.
- Bind the cloth strip firmly around the injured limb above the bleeding point until a pulse can no longer be felt beyond the constrictive bandage and bleeding is controlled. Tie firmly.
- Note the time of application. After 30 minutes, release the bandage and check for bleeding. If there is no bleeding, remove it .If bleeding recommences, apply direct pressure. If this is unsuccessful, reapply the constrictive bandage, and recheck every 30 minutes.
- Ensure that the bandage is clearly visible and inform medical aid of the location and time of its application.

Internal Bleeding

Now look at internal bleeding:

Symptoms and signs
You may see evidence of internal bleeding from some organs. For example:

- Coughing up red frothy blood if bleeding organ is from the chest.
- Vomiting blood the colour of coffee grounds or bright red. The blood may be mixed with food.
- Passing of faeces with a black, tarry appearance if the blood has gone through digestion process
- Passing of faeces which are red in colour if the bleeding is in the anal area
- Passing urine which has a red or smoky appearance if the blood is coming organs in the urinary system.

You can suspect concealed bleeding within the abdomen when there is:

- Abdominal pain
- Abdominal tenderness
- Rigidity of abdominal muscles.

For you to discover these problems you need to palpate the client, remember that you looked at palpation under physical examination.
Internal bleeding can also be accompanied by any of the following symptoms and signs

- Faintness or dizziness because the amount of blood circulating has reduced because of bleeding.
- Client has restlessness
- Client feels like vomiting
- Person feels thirst
- The pulse is weak and rapid
- The skin feels cold and clammy
- The breathing is rapid and there is gasping as the person is breathing as if the air is not enough for breathing.

- Pallor
- The person usually is sweating.
- As mentioned earlier on, basically these signs and symptom are as a result of reduction in the amount of blood circulating because of bleeding.

Management
This is how you can manage the person who is bleeding;

- lay the casualty down
- raise the legs or bend the knees
- loosen tight clothing
- seek medical aid urgently
- give nothing by mouth
- reassure the casualty

Since bleeding can lead to shock, now go through shock.

Shock

Activity
In your own words define the term shock and write it in your note book

Good.. Well the definition is given below compare it to what you wrote.

Definition
Shock is a serious medical condition in which the body is not getting enough blood flow, so the tissue perfusion becomes insufficient to meet demand for oxygen and nutrients.

Causes
There are a number of things which can cause shock which are as follows:

- Haemorrhage due to severe injury.
- Loss of body fluids other than blood for example vomiting, diarrhoea burns.
- Infection
- Poisoning by chemicals, gases, alcohol, or drugs.
- Lack of oxygen caused by obstruction of air passages or injury to the respiratory system.

All these will lead to the body not getting enough blood flow, so the tissue perfusion becomes insufficient to meet demand for oxygen and nutrients thereby causing shock.
Mention some of the clinical features you think a person who is in shock may present with.

Clinical features
In the early stages of shock, the body compensates for a decreased blood flow by constricting blood vessels in the skin, soft tissues and skeletal muscles. The following signs may result:-

In late stages, the victim becomes apathetic (not interested in anything) and relatively unresponsive. The victim's eyes are sunken, with a vacant expression and pupils may be widely dilated.

First aid management
Treatment for shock in first aid conditions can be managed by acronym WARTS (W: Warmth A: ABC's (Airway, Breathing, Circulation or CPR) R: Rest and reassurance T: Treatment (treat the cause of shock) S: Semi-prone position, which is the same thing as recovery position)

Figure 59: Casualty with elevated lower limbs

You can use first aid treatment of shock includes:

- Immediately give comfortable position to the victim if he/she is conscious
- If you are alone, call for help. If not, send someone to call for help and have someone stay with the victim.
- Ensure airway patency and assess breathing. If possible, place victim in the recovery position.
- Apply direct pressure to the wound if there is any bleeding.
- Cover him with a blanket or jacket, but not too thick to cause vasodilation.
- Do not give him a drink; moisten his lips if requested.
- If you notice the legs are uninjured, elevate them 20–30 cm (Trendelenburg position).
- Reassure the victim, as they will be very anxious, frightened and possibly nauseated.
- Prepare for cardiopulmonary resuscitation (CPR).
- Once you've cared for the patient's immediate needs, gather a focused history: 'What happened?' 'Do you have medical problems?' 'Do you take any medications?' 'Do you have any allergies to medications?' Record this information if possible. The patient may lose consciousness, and this potentially valuable information may be lost.
- Provide the gathered information to the ambulance personnel when they arrive

Please note that the management of shock requires immediate intervention, even before a diagnosis is made. Re-establishing perfusion to the organs is the primary goal through restoring and maintaining the blood circulating volume ensuring oxygenation and blood pressure are adequate, achieving and maintaining effective cardiac function, and preventing complications.
Now that you have looked at shock lets now go through unconsciousness

Unconsciousness

Unconsciousness is when a person is unable to respond to people and activities. Often, this is called a coma or being in a comatose state.

You must treat unconsciousness or any other SUDDEN change in mental status as a medical emergency.

Causes

- Unconsciousness can be caused by nearly any major illness or injury, as well as substance abuse and alcohol use.

- Brief unconsciousness (or fainting) is often caused by dehydration, low blood sugar, or temporary low blood pressure. However, it can also be caused by serious heart or nervous system problems. Your doctor will determine if you need tests.

- Other causes of fainting include straining during a bowel movement, coughing very hard, or breathing very fast (hyperventilating).

Symptoms

Activity
List the symptoms of unconsciousness and write them in your note book

Well Hope you got them correct, here are the symptoms of unconsciousness.
The person will be unresponsive (does not respond to activity, touch, sound, or other stimulation).
The following symptoms may occur after a person has been unconscious:

- Confusion
- Drowsiness
- Headache
- Inability to speak or move parts of his or her body
- Light-headedness
- Loss of bowel or bladder control (incontinence)
- Rapid heartbeat (palpitations)
- Stupor

First Aid

You can do the following to manage unconsciousness

- Call for help
- Check the person's airway, breathing, and pulse frequently. If necessary, begin rescue breathing and cardio pulmonary resuscitation
- If the person is breathing and lying on the back, and you do not think there is a spinal injury, carefully roll the person toward you onto the side. Bend the top leg so both hip and knee are at right angles. Gently tilt the head back to keep the airway open. If breathing or pulse stops at any time, roll the person on to his back and begin cardio pulmonary resuscitation.
- If you think there is a spinal injury, leave the person where you found them (as long as breathing continues). If the person vomits, roll the entire body at one time to the side. Support the neck and back to keep the head and body in the same position while you roll.
- Keep the person warm until medical help starts.
- If you see a person fainting, try to prevent a fall. Lay the person flat on the floor and raise the feet about 12 inches.
- If fainting is likely due to low blood sugar, give the person something sweet to eat or drink when they become conscious.

Things not to do

Please
DO NOT do the following to an unconscious person:

- DO NOT give an unconscious person any food or drink.
- DO NOT leave the person alone.
- DO NOT place a pillow under the head of an unconscious person.
- DO NOT slap an unconscious person's face or splash water on the face to try to revive him.

You have now concluded management of unconscious person. Now go through head injury.

Head Injury

Head injury is trauma to the head that may lead to injury of the scalp, skull, or brain. These cases really need quick action (first aid) to perform basic life support and save the victim's life. So it means that you need to act quickly. The following picture is shows a person with head injury

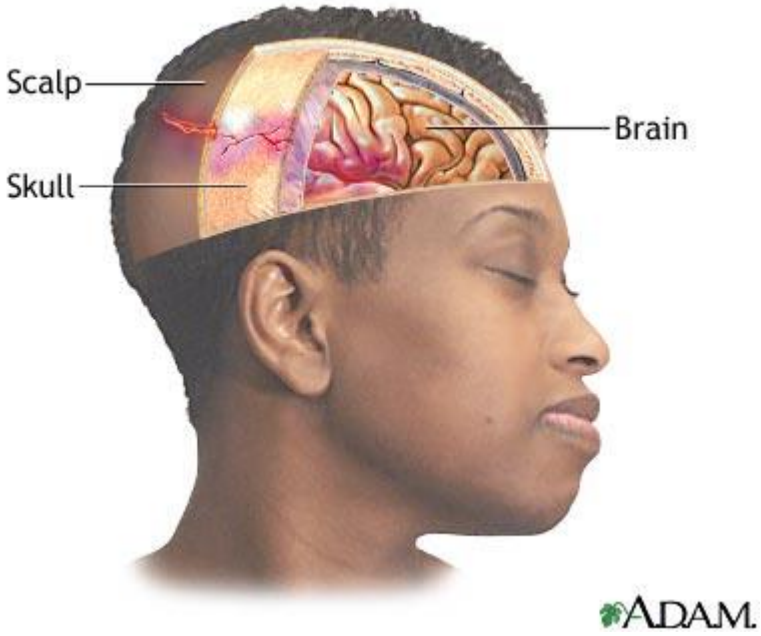

Figure 60: Head injury

Causes

The following are the most common causes of head injury;

- Traffic accidents
- Falls where a person hits the head either on an object or bear land
- Physical assault where an object is used to hit a person.
- Accidents at home, work, outdoors, or while playing sports.

In all these instances there is trauma to the head that may lead to injury of the scalp, skull, or brain.

Now look at the clinical features in head injury:

Clinical features

Head injuries may result into minor bump on the skull to serious brain injury, so it is extremely important for you to pay close attention to the following symptoms:

- Loss of consciousness
- Abnormal breathing (interruption of breathing)
- Bleeding or clear fluid from the nose, ear, or mouth
- Vomiting more than two to three times

If you find the victim of head injury with any symptom above, it's mean the victim is having serious head trauma and will require professional medical attention as the first aid action. Call for emergency medical services (EMS) immediately by dialling 999.

First aid management

Before the EMS team arrives, do the first aid action as follows:

- Stop any bleeding by firmly pressing a clean cloth on the wound

- Check the person's airway, breathing, and circulation. If necessary, begin rescue breathing and Cardiac Pulmonary Resuscitation. If possible, place the victim in a dim (quite area),but if the injury is serious, be careful not to move the person's head
- Do not leave the victim unattended to.
- If the person is vomiting, roll the head, neck, and body as one unit to prevent choking.
- Do not apply direct pressure to the wound area if there is suspected fracture of skull

Hope you now know how to manage a person with head injury.
Now look at fractures

Fracture

Fracture is a break in the bone, generally caused by trauma, twisting, or weakened bone structure due to disease.

Types of fractures
There are two types of fractures.
- Simple fracture (no wound around the fractured area)
- Compound fracture (underlying skin has been broken or damaged).

Clinical features
A person with a fracture will present with the following features:
- Pain **–** patient usually complains of pain and may give history of having a snap of the bone.
- Person is unable to move the broken limb – this may be due to pain or loss of leverage.
- Deformity and shortening – the portion of the limb below the fracture is usually found to be out of line with the portion above the fracture and is obviously in unnatural position.
- Crepitus this is the sensation of grating caused by the broken ends of the bone being rubbed against each other.
- Abnormal mobility of the bone at the site of the fracture. There may be movement at the point where the break has occurred.
- Other signs: - swelling, dislocation of the injured part, and tenderness to touch.

First aid management
What first aid management would you give to a person with a broken bone? You should:
- Control the bleeding
- Care for shock if patient is in shock
- Splint affected area to prevent further movement as shown (without causing further pain to victim)

- Apply cold packs as shown in the picture- may help reduce pain and swelling.

Figure 61: Cold pack application

- Call the emergency medical services (EMS) or ambulance by dialling 999.
- When the victim is unresponsive, you need to check his breathing and heartbeat.
- Begin cardiopulmonary resuscitation (CPR) for the first aid action if there's no respiration or heartbeat until emergency personnel arrive.

That's all on fractures in line with first aid, you learn more about fractures in detail in orthopaedics. Now go through the content on the sprain.

Sprain
A sprain is an injury to the soft tissue surrounding joints, usually as a result of forcing a limb beyond the normal range of a joint. As a result;
The ligaments, muscles, tendons and blood vessels are stretched or torn and the most affected are ankles, fingers, wrists and knees are most often sprained.

Clinical features
The following are the clinical features;
- Swelling on the affected part
- The affected part is tender touch
- Pain upon motion

First aid management
- If the victim's ankle or knee is affected, do not allow him to walk as this may worsen the situation.
- Loosen or remove the victims shoes
- In mild sprain, keep the injured part raised for at least for 24 hrs. (Do not soak in hot water).
- Apply cold, wet pack or place a small bag of crushed ice on the affected area, over a thin towel to protect the victim's skin.

This is all on sprain in first aid but you will cover it in detail as usual in orthopaedics. Now look at dislocation.

Dislocation
Dislocation is a displacement of a bone end from the joint, particularly at the shoulder, elbow, fingers or thumb.

Causes
Dislocation may result from a fall or direct blow. Unless given proper care, a dislocation may occur repeatedly.

Clinical features
The following are the clinical features:

- Swelling on the affected part
- Obvious deformity because of the displacement of the bone end of the joint
- Pain upon movement.
- Tenderness to touch.
- Affected bone will be out of place.

First aid management
First aid management is similar to the same as for closed fracture.

- Splint and immobilize the joint in the position in which it was.
- Apply a sling if appropriate. Elevate the affected part, if a limb is involved.
- Seek medical attention promptly.
- Never attempt to reduce a dislocation or to correct any deformity near a joint, since often extensive tearing of the joint capsule occurs.

Self -Test Questions

1. Which of the following is a clinical feature of asphyxia?
    a. Bradycardia
    b. Jaundice
    c. Restlessness
    d. Regular respirations
2. Which of the following terms best describes the following statement 'the cessation of normal circulation of blood due to failure of the heart to contract'.
    a. Haemorrhage
    b. Shock
    c. Cardiac arrest
    d. Asphyxia
3. A break in the bone is known as…….
    a. Wound
    b. Fracture
    c. Burns
    d. Scalds
4. An injury to the soft tissues surrounding the joints is called;
    a. Fracture
    b. Sprain
    c. Wound
    d. Head injury
5. List three (3) causes of shock

Answers

1. C
2. C
3. B
4. B

5. Haemorrhage due to severe injury
   Loss of body fluids other than blood for example vomiting, diarrhoea, burns
   Infection
   Poisoning by chemicals, gases, alcohol or drugs
   Lack of oxygen caused by obstruction of air passages or injury to the respiratory system

You will now move on to look at spinal injury

8.4 Spinal and chest injuries

Now look at spinal and chest injuries.

Spinal Injury

This is injury to the spine which may be due to road traffic accidents, trauma to the spine

Clinical Features

Activity

List the clinical features that a person with spinal injury may have in your note book

Good try. Here are the clinical features of spinal injury;

- Mental confusion (such as paranoia or euphoria)
- Dizziness
- Head, neck or back pain
- Paralysis
- Any fall where the head or neck has fallen more than two meters (just over head height on an average male)
- Cerebrospinal fluid in the nose or ears
- Resistance to moving the head
- Pupils which are not equal and reactive to light
- Head or back injury
- Priapism

First aid management

- The victim should not be moved unless absolutely necessary.
- Without moving the victim, check if the victim is breathing.
- If they are not, CPR must be initiated;
- The victim must be rolled while attempting to minimize movement of the spine.
- If the victim is breathing, immobilize their spine in the position found. The easiest way to immobilize the spine in the position found is sandbagging. Despite the name, it doesn't necessarily require bags of sand. Simply pack towels, clothing, bags of sand among others. around the victim's head such that it is immobilized.
- Be sure to leave their face accessible, since you'll need to monitor their breathing.
- Refer client to health institution immediately.

If you must roll the victim over to begin CPR, take great care to keep their spine immobilized. You may want to recruit bystanders to help you. Hands-on training is the only way to learn the various techniques which are appropriate for use in this situation.

You can now move on go through chest injuries.

Chest Injuries

Introduction

Chest injuries can be inherently serious, as this area of the body houses many critical organs, such as the heart, lungs, and many blood vessels. Most chest trauma injuries should receive professional medical attention. Always call for an ambulance for any potentially serious chest injury.

I suggest you revise the anatomy of the chest and all the structures / organs that are housed in it. This will for sure assist you to manage a client with chest injuries.

For the sake of continuity now look at the following:

Anatomy

The thorax includes all structures bounded by the thoracic inlet (a ring formed by the top of the sternum, the first thoracic vertebrae and the first ribs) superiorly, the diaphragm inferiorly, the sternum anteriorly and the vertebrae posteriorly. The chest wall is comprised of 12 pairs of ribs and the intercostal muscles. At rest, the ribs are angled downward as they track from posterior to anterior. Each rib is connected to the rib above and below it with a thin strip of muscle known as the intercostal muscle. The intercostal nerve, artery and vein run just below the lower surface of each rib.

The thorax can be divided into the mediastinum and two pulmonary cavities. The mediastinum contains the heart, oesophagus, nerves, and several other vascular and lymphatic organs. Each pulmonary cavity contains a lung surrounded by two thin layers of connective tissue known as the pleura. A potential space exists between these layers known as the pleural cavity. Shortly after the trachea divides into the right and left mainstream (or primary) bronchi, these bronchi cross from the mediastinum into the pulmonary cavity.

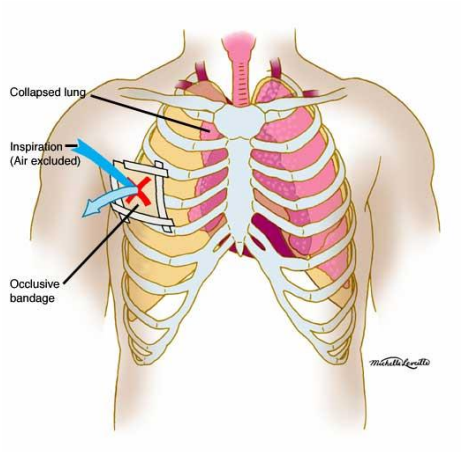

Figure 62: Chest cavity

Recognizing Chest Trauma

There are numerous types of possible thoracic injuries. Although some require further diagnostic testing after arriving at the hospital and may require specialized surgical treatment, several injuries require recognition and immediate treatment in the pre-hospital setting. These injuries are closed pneumothorax, open pneumothorax, sucking chest wound, tension pneumothorax and flail chest.

They are covered in full in Surgery and Surgical Nursing I & II. Here you concentrate on the first aid management of these conditions.

Assessment & Treatment

The first and most important step in the management of the chest trauma is maintaining a high level of suspicion.

Suspect the involvement of other critical organs and the conditions that can result thereafter. For example:

- Pneumothorax - closed pneumothorax, open pneumothorax, sucking chest wound, tension pneumothorax and flail chest.
- Haemothorax.
- Trauma to the heart and major blood vessels.
- Trauma to the Oesophagus.

Signs and Symptoms

The classic signs and symptoms are:

- Presence of dilated neck veins,
- Dusky or blue lips or nail beds
- May cough up blood
- Crackling feeling upon touching victim's skin (sounds and feels like 'Rice Crispies')
- Difficulties in breathing
- Shallow breathing
- Tenderness at site of injury
- Tracheal deviation,
- Deformity & bruising of chest
- Pain upon movement / deep breathing / coughing
- Subcutaneous emphysema,
- Unilateral absent breath sounds,
- Tachycardia and hypotension.

Patients with a pneumothorax, regardless of type, will present with:

- Respiratory distress,
- Including dyspnoea and tachypnea,
- And tachycardia

Should these findings be present, the chest must be decompressed immediately to prevent circulatory collapse. A simple closed pneumothorax requires no immediate treatment and is often not discovered in the pre-hospital setting.

Figure 63: Chest injury

First Aid Treatment

The first aid treatment is for all the chest injuries. There are specific measures for individual injuries which will be covered in Surgery and Surgical Nursing.

- Assess ABCs and intervene as necessary
- Call for an ambulance
- Assist the victim into a position of comfort (typically seated upright, to avoid fighting gravity)
- Conduct a secondary survey
- Monitor patient's condition carefully
- Be vigilant, keep alert for any changes.
- If a flail segment is suspected, tightly secure a bulky dressing (such as a tightly folded hand towel) to help stabilize the injury.
- **Do not remove any embedded objects**
- Lateral positioning: victim's injured side down
- Treat for shock
- Monitor vitals carefully

Remember, trauma is a surgical emergency and it is fixed in the operating room. Advanced medical care and immediate extraction and evacuation to a Trauma Centre is strongly advised.

This topic will be covered fully in Surgery and Surgical Nursing I and II. Now look at drowning.

8.5 Drowning

Activity
Define the term drowning and write it in your note book

Good check the following definition and compare with what you wrote.

Definition

Drowning is the result of complete immersion of the nose and mouth in water (or any other liquid). Water enters the windpipe and lungs, clogging the lungs completely and making breathing extremely difficult.

First aid management

The aim of first aid is to drain out water (or other matter) from lungs and to give artificial respiration.

What should you do?

- Act quickly. Remove seaweeds and mud from the nose and throat. Start artificial ventilation immediately. This is possible even when the casualty is in water.

- Turn the victim face down with head to one side and arms stretched beyond his head. Infants or children could be held upside down for a short period to drain water.
- Raise the middle part of the body with your hands round the belly. This is to cause water to drain out of the lungs.
- Give artificial respiration until breathing comes back to normal. This may have to go on for as long as two hours.
- Remove wet clothing because wet clothes will make person feel cold.
- Keep the body warm to prevent subnormal temperature, cover with blankets.
- When victim becomes conscious, give hot drinks such as coffee or tea to make them feel warm.
- Do not allow him to sit up.
- After doing the above, transfer casualty quickly to hospital as a stretcher case.

Let's look at wounds

8.6 Wounds

Having looked at drowning now look at wounds, but before we proceed You will be required to do the following activity.

Activity
Write down what you understand by the term wound and write it in your note book

Definition

A wound is a cut or break in the continuity of any tissue caused by injury or operation.
Healing is the replacement of dead tissue (necrotic) by living tissue.

Types of wounds

- Lacerated wound: This that type of injury that has rough or jagged edges for example that which is sustained in an RTA, barbed wire injury among others.
- Incisional wounds these are types of injuries made by sharp objects. They have edges that are evenly separated for example those wounds made by surgeons during surgery.
- Punctured wounds: These are wounds that are caused by sharp pointed objects causing a small opening through the skin. These are commonly caused by such objects such as nails, knives, gun shots among others. They appear small superficially but involving deeper structures such as nerves, blood vessels or viscera which may be damaged and contamination carried into deeper tissues.
- Contused wounds: These are a type of wounds that involve superficial injuries without damage to the skin surface. They are commonly caused by blunt surface forces and are characterized by a considerable soft pad. These are known common causes of haematomas.
- Poisoned wounds: These wounds are those type of wounds that involve direct contamination by the source of the injury such as snake bites, insect bites, dog bites especially where rabies organisms exists.
- Concussions: These are a type of wounds that result from vigorous shaking such as the severe shaking of the head causing brain function derangement without structural damage.
- Abrasions: These are wounds that result from rubbing a body tissue especially the skin against a rough surface leading to loss of superficial tissue due to friction. These are characteristically painful and superficial.

Wounds can also be classified surgically and these may be as follows;

1. **Contaminated Wounds**
   These are wounds which are exposed to excessive amounts of bacteria. These wounds have a higher

risk of infection for example unprepared colon surgery, dirty laceration among others.

2. **Infected Wounds**
   These are wounds that have infected material in them. They usually have pus or slough on their surfaces. Common infecting organisms include streptococci, staphylococci among others.
3. **Clean Wounds**
   These are wounds that have been rendered clean by cleaning with the use of disinfectants such as savlon, povidone iodine, methylated spirit, among others.
4. **Debrided Wounds**
   These are wounds whose top infected (necrotic tissue and pus) tissue has been removed surgically by a process known as *sloughectomy or debridement.*

Processes of wound healing

Wound healing occurs in three phases thus inflammatory, proliferative and maturation.

1. **Inflammatory/Lag/Exudative Phase:***1 – 4 Days*
   In this phase of wound healing a blood clot forms, the wound becomes oedematous and debris of damaged tissue and the blood clot are phagocytosed. It usually takes *1 – 4 days.*
2. **Proliferative/Fibroblastic/Connective Tissue Phase**: *5 – 20 days*
   In this phase collagen is produced, granulation tissue is formed and there is increased wound tensile strength. It takes about 5 – 20 days.
3. **Maturation/Differentiation/Resorptive/Remodelling Phase**
   Also known as Plateau Phase, it is characterized by leaving of fibroblast with more tensile strength. Collagen fibres are reorganised and tightened to reduce the scar size. It occurs from 21 days to months or even years. This phase ensures the prevention of big wounds leaving very big scars.

Types of wound healing

1. **Healing By First Intention or Primary Union**
   This is type of wound healing which takes place aseptically with minimum or no tissue destruction. The wound margins (edges) are neatly approximated with little granulation and scar formation.
2. **Healing By Second Intention or Granulation**
   This is type of wound healing that occurs on wounds that result from trauma (laceration), ulceration, infection and with irregular wound edges. There is extensive tissue loss that makes wound edges difficult to approximate. Tissue growth starts from the depth to the surface upwards and from sides to the centre. Granulation becomes the primary feature of secondary intention wound healing and scaring.
3. **Healing By Third Intention or Secondary Suture**
   Also called healing by Tertiary Intention is a type of wound healing which occurs when there is delayed suturing of a wound or if there is a breakdown of the initial suture with massive infection and loss of tissue. Two opposite granulation tissues are brought together with the result of a deeper wider scar.

Factors influencing wound healing

Factors that influence wound healing are many. The factors can influence the healing process of the wound either negatively or positively. In general terms, the factors that influence repair can be categorized into local and systemic. Local factors are those that directly influence the characteristics of the wound itself, while systemic factors are the overall health or disease state of the individual that affect his or her ability to heal. Many of these factors are related, and the systemic factors act through the local effects affecting wound healing.

A. Local factors

These are factors that directly influence the characteristics of the wound itself.

Oxygenation

Oxygen is important for cell metabolism especially for energy production and is important in all wound healing processes.

Infection

Bacterial colonization of the wound may delay the healing process of the wound. Infection delays healing by;

- Mechanical separation of wound edges
- Decrease blood supply
- Prolong inflammatory and debridement phase
- Bacteria produce proteolytic enzymes

Blood supply

Adequate blood supply to the affected area is essential. This will promote wound healing because blood carry all the necessary nutrients required in wound healing

Foreign bodies

The presence of a foreign body inhibits wound healing as the body's reaction to foreign body begins immediately after an injury leading to accumulation of exudate at the site of the injury. This leads to formation of foreign body giant cells, encapsulation of foreign object and chronic inflammation

B. Systemic factors

Age

The physiological changes that occur with aging place the older patient at higher risk of poor wound healing. Reduced skin elasticity and collagen replacement influence healing. The immune system also declines with age, making older patients more susceptible to infection. Older people can also present with other chronic diseases, which affect their circulation and oxygenation to the wound bed. Children wounds heal faster than the elderly. Advanced age slows collagen synthesis by fibroblasts, impairing circulation requires long time for epithelialisation of the skin, and alters phagocytic and immune responses.

Dehydration

This leads to an electrolyte imbalance and impaired cellular function. It is a particular problem in patients with burns

Drugs

Antibiotics decrease frequency of infection but decision to use systemic, local or any should be based on patients condition, type, length and environment of surgery, wound contamination, and immune status

Nutrition

Good nutrition boosts the immunity and there by promote wound healing. Nutritional Deficiencies; for example

a. Vitamin C – which delays formation of collagen fibres and new capillaries
b. Protein – which impairs or decreases amino acid supply for tissue repair
c. Zinc – which impairs epithelialization

Blood supply

Blood loss leading to hypovolemia can cause a decrease in the blood supply to the wound leading to local hypoxia, oxygen is required for cell migration, multiplication and protein synthesis. Inadequate blood supply which decreases supply of nutrients to the injured area, decreases removal of Exudative debris, inhibits inflammatory response among others.

Adequate supply/circulation of blood to and from the wound area in order to supply nutrients and oxygen to facilitate wound healing, and antibodies, phagocytes among others., as well as good venous drainage to remove unwanted by products of metabolism. This can be achieved by;

a. Heat/warmth as prescribed
b. Elevation of the affected part
c. Exercises

Administration of blood in order to increase the red blood cell count.

Metabolic status
For example, diabetes mellitus decreases collagen synthesis, retards early capillary growth, impairs phagocytosis (as a result of hyperglycaemia), reduces supply of oxygen and nutrients secondary to the disease

Immunity
Poor general health causes generalized absence of factors necessary to promote wound healing.

Medication

i. **NSAIDS** anti-inflammatory effects has a positive influence
ii. **Corticosteroids** retard wound healing particularly if given before inflammation begins Corticosteroid therapy – impairs phagocytosis, inhibit fibroblast proliferation and function, depress formation of granulation tissue and inhibit wound contraction among others.

iii. **Topical insulin** increases protein synthesis, cellular multiplication, wound contraction, and fat deposition.
iv. **Antibiotics** decrease frequency of infection but decision to use systemic, local or any should be based on patients condition, type, length and environment of surgery, wound contamination, and immune system

Factors affecting wound healing in table form

Local Factors	Systemic Factors
• Oxygenation • Infection • Foreign body • Venous sufficiency	• Age and gender • Sex hormones • Stress • Ischemia • Diseases: diabetes, keloids, fibrosis, hereditary healing disorders, jaundice, uraemia • Obesity • Medications: glucocorticoid steroids, non-steroidal anti-inflammatory drugs, chemotherapy • Alcoholism and smoking • Immunocompromised conditions: cancer, radiation therapy, AIDS • Nutrition

Management of a client with wounds
As a wound heals many elements such as adequate nutrition, cleanliness, rest, and position determine how quickly the process occurs. Although post-operative dressings are initially changed by a member of the surgical team, subsequent dressing changes in the immediate post-operative period are usually done by a nurse. A dressing is applied to a wound for one or more of the following reasons;

i. To provide a proper environment for wound healing
ii. To absorb excessive drainage
iii. To splint or immobilise the wound
iv. To protect new epithelial tissue from mechanical injury
v. To protect the wound from bacterial contamination and from soiling by faeces, vomitus, and urine among others.
vi. To promote haemostasis, as in a pressure dressing
vii. To provide mental and physical comfort of the patient.

Assessment
Determining when and how the wound occurred is important because a treatment delay exceeding 3 hours increase infection risk. Using aseptic technique, the clinician inspects the wound to determine the extent of damage to underlying structure. Sensory, motor, and vascular functions are evaluated for changes that might indicate complications.

The area around the wound should be kept clean that is, hair around should be removed especially if it is anticipated that the hairs will interfere with wound healing and closure. The wound is irrigated with normal saline solution or polymer to remove surface dirt. Devitalized tissue and foreign matter are removed because these impede wound healing and may encourage infection. Any small bleeding vessels are clamped and tied. After wound treatment a non-adhesive dressing is commonly applied to protect the wound.

Antibacterial agents such as povidone iodine (Betadine) or hydrogen peroxide are used on the wound but these should be allowed deeper into the wound. They are used initially in the treatment. Disinfectants are commonly and routinely used in the management of wounds and they include savlon, chloherxidine, hibitane among others.

Types of wound dressings
Wound dressing is done according to the immediate assessment, the state of the wound, and objective of the surgeon concerned. Thus dressings may be described as;

1. Wet dressings
2. Moisture retentive dressings
3. Occlusive dressings
4. Pressure dressings
5. Medicated dressings

During your clinical experience you have to learn how to dress wounds using the specific methods as described in your procedure manual.
You will go on to look at burns and scalds

8.7 Burns and Scalds
Burns are injuries caused by heat, friction or chemicals.
Scalds are burns caused by hot liquids.

Causes

Activity
State the causes of burns in your note book

Good

The following are the causes of burns

- Open fire that produce flames where a person can easily be burnt.
- Naked electric wires a person can be electrified.
- Hot liquids when it spills on the skin a person can be burnt- scalds.
- Chemicals when the chemical spills on the skin, a person may end up being burnt
- Flammable liquids
- X-rays or other ionizing radiation can destroy the skin causing an injury

Classification
Burns are usually classified according to the depth or degree of skin damaged.

- **First degree burns** – these are usually superficial. They are very painful because of the nerve endings that are not destroyed. The burnt area is reddish and often heals very fast.

- **2nd Degree burns (Partial thickness) -** there is damage to the epidermis and the superficial dermis. Some parts of dermis are spared. There is considerable subcutaneous oedema and blister formation. The skin is painful and red, if a blister burst the area beneath is pink to cherry red.
- **3rd Degree full thickness -** all the layers of the skin are destroyed and the injury may extend to the underlying fat, muscle and bone. The area is painless because nerve endings have been destroyed.
- In surgery you will look at burns in detail so do not worry if you do not understand

First aid management

The following are the aims of first aid management of burns and scalds:

- Prevent further damage
- Prevent infection
- Minimize the effects of loss of fluid from the burnt tissues
- Reassure the burnt person
- Transport the casualty swiftly to hospital

You will now go through them one by one

Prevent further damage

Remove the cause from the casualty or the casualty from the cause. Think twice before attempting to rescue someone. If you attempt to rescue the casualty from a burning house or another building:-

- Remember that someone is responsible for more deaths or fires than actual heat and that a wet or dry cloth across the face will not protect you from smoke'
- Wear gloves if possible.
- Always open doors carefully. When a door is opened, a blast of hot air and flame may rush out.
- Crawl if possible because there will be more air at ground or floor level.
- Remember to search the cupboard, wardrobe and under the beds because people may go to these places to escape heat
- Do not delay; get the casualty out as quickly as possible.
- Do not panic, if you feel you have lost your way, find your way around the walls to the door.

Prevent infection

The skin is the normal protective covering of the body. When there is damage to the skin, pathogenic microorganisms may freely enter and multiply rapidly in the tissue fluids.

- Cover the burnt area quickly with a sterile dressing large enough to cover more than the burned area
- Do not burst or break blisters.
- Do not apply any lotion, grease or antiseptic.
- Do not breathe or cough over the burnt area.
- Do not touch the burnt area. Hands are always covered with microorganisms.
- Do not apply cotton wool, fluffy or harmful materials to burnt area.

Minimize the effects of loss of fluids from burnt area

When the skin is damaged the body is not able to retain the body fluids which are part of every tissue. Conscious burnt adults should be given drinks of water, weak tea or milk in small amounts every 10 minutes until they reach hospital.

Reassure patient

Remain calm and provide reassurance. An injured person is often frightened.

Then transport the client to the health facility.

You will now look bites and stings

8.8 Bites and Stings

Bite wound caused by humans, animals and insects can cause an infection. Dogs are more likely to bite than cats, but Cat bites are more likely to cause an infection. Insect bites if happened to the people with severe allergy to the insect's venom, it can be dangerous.

The following are the signs and symptoms of allergic reaction:

Signs and symptoms of allergic reaction include:-

- Swelling around the area where the insect stung the person because of the poison the insect may have.
- Redness or discoloration at the site of the bite as a result of the swelling process
- Pain –due to the swelling process.
- Itching –because of body reaction to the deposition poison from the insect.
- Decreased consciousness
- Difficult or noisy breathing.

First aid management

The pressure immobilization technique described below is recommended for bites and stings from all Australian venomous snakes, funnel web spiders, blue ringed octopus, and cone shell. You can use it for bee, wasp, and ant stings but only for people with a known allergy to them.

You need to do the following:

- Calm and reassure the casualty
- Place a small pad and pressure bandage over the bite site. Never wash away evidence of the venom as this may be used to determine what anti-venom is required at hospital
- Use a crepe bandage to bandage from the extremity, such as finger or toes, all the way up the limb. Make sure that the tips of the fingers or toes are left exposed so that you can be checking for circulation
- Mark the bite site on the bandage so it can be cut out at hospital without removing the whole bandage
- Tell the patient to stay still until the ambulance arrives

This treatment **is not** recommended for the first aid management of other spiders (including red back), jellyfish, fish stings such as stonefish and bites or stings by scorpions, centipedes or beetles.

You will now look at fits and convulsions

8.9 Fits and infantile convulsions

You are now going to look at fit and convulsions. In your own words tell me what you think fits or convulsions are

First aid for seizures involves responding in ways that can keep the person safe until the seizure stops by itself. Here are a few things you can do to help someone who is having a generalized tonic-clonic (grand mal) seizure:

- Keep calm and reassure other people who may be nearby.
- Prevent injury by clearing the area around the person of anything hard or sharp.
- Ease the person to the floor and put something soft and flat, like a folded jacket, under his head.
- Remove eyeglasses and loosen ties or anything around the neck that may make breathing difficult.

- Time the seizure with your watch. If the seizure continues for longer than five minutes without signs of slowing down or if a person has trouble breathing afterwards, appears to be injured, in pain, or recovery is unusual in some way, call 911.
- Do not hold the person down or try to stop his movements.
- Contrary to popular belief, it is not true that a person having a seizure can swallow his tongue. **Do not** put anything in the person's mouth. Efforts to hold the tongue down can injure the teeth or jaw.
- Turn the person gently onto one side. This will help keep the airway clear.
- Don't attempt artificial respiration except in the unlikely event that a person does not start breathing again after the seizure has stopped.
- Stay with the person until the seizure ends naturally and he is fully awake.
- Do not offer the person water or food until fully alert
- Be friendly and reassuring as consciousness returns.
- Offer to call a taxi, friend or relative to help the person get home if he seems confused or unable to get home without help.
- Consider a seizure an emergency and call 999 if any of the following occurs:
- The seizure lasts longer than five minutes without signs of slowing down or if a person has trouble breathing afterwards, appears to be in pain or recovery is unusual in some way.
- The person has another seizure soon after the first one.
- The person cannot be awakened after the seizure activity has stopped.
- The person became injured during the seizure.
- The person becomes aggressive.
- The seizure occurs in water.
- The person has a health condition like diabetes or heart disease or is pregnant.

You will now look at fainting and heat exhaustion

8.10 Fainting and Heat Exhaustion

You are now going to go through fainting and heat exhaustion.

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

Heat exhaustion is one of the heat-related syndromes, which range in severity from mild heat cramps to heat exhaustion to potentially life-threatening heatstroke.

Signs and symptoms of heat exhaustion often begin suddenly, sometimes after excessive exercise, heavy perspiration, and inadequate fluid or salt intake. Signs and symptoms resemble those of shock and may include the following.

Symptoms

Symptoms of heat exhaustion include:

- Heavy sweating because of exposure to heat
- Extreme weakness or fatigue
- Dizziness, confusion
- Clammy, moist skin because of sweating a person would have lost of water as a result a person may present wit sign of shock
- Pale or flushed complexion due to loss of fluids through sweating
- Muscle cramps- in heat exhausting sweat; sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps.
- Slightly elevated body temperature because the person is exposed to excessive

- Fast and shallow breathing

First Aid

Treat a person suffering from heat exhaustion with the following:

- Have them rest in a cool, shaded or air-conditioned area.
- Have them drink plenty of water or other cool, non-alcoholic beverages.
- Have them take a cool shower, bath, or sponge bath.

If you do the above measure you help cool the body of the person with heat exhaustion because the person with heat exhaustion feels extremely hot

Heat Syncope

You have looked at heat exhaustion; now go through fainting or syncope.

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include; dehydration and lack of acclimatization.

Symptoms

- Symptoms of heat syncope include:
- Light-headedness
- Dizziness
- Fainting

First Aid

Do the following when the person has fainted

- Let the person sit or lie down in a cool place when they begin to feel symptoms.
- Let the person slowly drink water, clear juice, or a sports beverage.

Now that you have looked at heat syncope, now go through fire and ward accidents.

8.11 Fire and Ward Accidents (Including Fire Drill)

In case of fire accident you should do the following:

- Calmly leave the apartment, closing the door behind you. Remember the keys!
- Pull the fire alarm near the closest exit, if available, or raise an alarm by warning others.
- Leave the building by the stairs
- Never take the elevator during fire!

I**f the exit is blocked by smoke or fire**

- Leave the door closed but do not lock it.
- To keep the smoke out, put a wet towel in the space at the bottom of the door.
- Call the emergency fire service number and tell them your apartment number and let them know you are trapped by smoke and fire. It is important that you listen and do what they tell you.
- Stay calm and wait for someone to rescue you.

If there is a fire alarm in your building which goes off

- Before you open the door, feel the door by using the back of our hand. If the door is hot or warm, do not open the door.

- If the door is cool, open it just a little to check the hallway. If you see smoke in the hallway, do not leave.
- If there is no smoke in the hallway, leave and close the door. Go directly to the stairs to leave. Never use the elevator.

If smoke is in your apartment

- Stay low to the floor under the smoke.
- Call the Fire Emergency Number which should be pasted near your telephone along with police and other emergency services and let them know that you are trapped by smoke.
- If you have a balcony and there is no fire below it, go out.
- If there is fire below, go out to the window. DO NOT OPEN THE WINDOW but stay near the window.
- If there is no fire below, go to the window and open it. Stay near the open window.
- Hang a bed sheet, towel or blanket out of the window to let people know that you are there and need help.
- Be calm and wait for someone to rescue you.

Self -Test Questions

1. Explain the management of a person with a spinal injury
2. List five (5) signs and symptoms of chest injury
3. Outline the first aid management of drowning
4. List four (4) types of wounds
5. Mention three (3) classification of burns

Answers

9. **Management of a person with a spinal injury**
   - The victim should not be moved unless absolutely necessary.
   - Without moving the victim, check if the victim is breathing.
   - If they are not, CPR must be initiated;
   - The victim must be rolled while attempting to minimize movement of the spine.
   - If the victim is breathing, immobilize their spine in the position found. The easiest way to immobilize the spine in the position found is sandbagging. Despite the name, it doesn't necessarily require bags of sand. Simply pack towels, clothing, bags of sand among others. around the victim's head such that it is immobilized.
   - Be sure to leave their face accessible, since you'll need to monitor their breathing.
   - Refer client to health institution immediately.

10. **Signs and symptoms of chest injury**
    - Presence of dilated neck veins,
    - Dusky or blue lips or nail beds
    - May cough up blood
    - Crackling feeling upon touching victim's skin (sounds and feels like 'Rice Crispies')
    - Difficulties in breathing
    - Shallow breathing
    - Tenderness at site of injury
    - Tracheal deviation,
    - Deformity & bruising of chest

4. **First aid management of drowning**
   - Act quickly. Remove seaweeds and mud from the nose and throat. Start artificial ventilation immediately. This is possible even when the casualty is in water.
   - Turn the victim face down with head to one side and arms stretched beyond his head. Infants or

children could be held upside down for a short period to drain water.

- Raise the middle part of the body with your hands round the belly. This is to cause water to drain out of the lungs.
- Give artificial respiration until breathing comes back to normal. This may have to go on for as long as two hours.
- Remove wet clothing because wet clothes will make person feel cold.
- Keep the body warm to prevent subnormal temperature, cover with blankets.
- When victim becomes conscious, give hot drinks such as coffee or tea to make them feel warm.
- Do not allow him to sit up.

5. **Types of wounds**
   - Lacerated
   - Incisional
   - Punctured
   - Contused
   - Poisoned
   - Concussion
   - Abrasions
6. **Classification of burns**

- **First degree burns** – these are usually superficial. They are very painful because of the nerve endings that are not destroyed. The burnt area is reddish and often heals very fast.
- **2nd Degree burns (Partial thickness) -** there is damage to the epidermis and the superficial dermis. Some parts of dermis are spared. There is considerable subcutaneous oedema and blister formation. The skin is painful and red, if a blister burst the area beneath is pink to cherry red.
- **3rd Degree full thickness -** all the layers of the skin are destroyed and the injury may extend to the underlying fat, muscle and bone. The area is painless because nerve endings have been destroyed.

You will now proceed to go through poisoning after the following activity.

ACTIVITY

Think of what a poison is and write it down in your note book.

Now that you have completed the activity, compare it with the following definition.

8.12 Poisoning

Definition: Poisons are substances that cause injury, illness or death

- These events are caused by a chemical activity in the cells
- Poisons can be injected, inhaled or swallowed
- Poisoning should be suspected if a person is sick for unknown reason
- Poor ventilation can aggravate Inhalation of poisoning

Causes

The following things may cause poisoning

- Medications-
- Drug overdose, when medication is take in excess it becomes poisonous
- Occupational exposure –person may exposed to chemical at work and may end up inhaling them
- Cleaning detergents/paints – one may take cleaning detergents accidentally or internally when he/she wants to take her life

- Carbon mono oxide gas from furnace, heaters- carbon monoxide is very poisonous
- Insecticides are poisonous, in the same way they poison insects, and these chemicals can poison human beings if a person swallows it.
- Certain cosmetics-equally cosmetics poisonous if a person swallows them
- Certain household plants, have poisonous substances
- Food poisoning (Botulism) The food we eat can be poisonous especially if not stored properly, even certain types of food like some types of mushroom has poisonous substance.

Symptoms

- Blue lips –because the oxygen is not enough in the body as the poison may interfere with breathing
- Skin Rashes – some people may have allergic reaction.
- Difficulty in breathing –when the poison affects the respiratory symptom like in case of carbon monoxide
- Diarrhoea – poison can irritate the gastro intestinal tract
- Vomiting/Nausea -poison can irritate the gastro intestinal tract
- Burns or redness around the mouth and lips, from drinking certain poisons
- Breath that smells like chemicals, such as gasoline or paint thinner
- Burns, stains and odours on the person, on clothing, or on furniture, floor, rugs or other objects in the surrounding area
- Empty medication bottles or scattered pills if a person attempted to commit suicide.
- Vomiting, difficulty breathing, sleepiness, confusion or other unexpected signs

Treatment

Seek immediate medical help

What to do while waiting for help

- Try and identify the poison if possible
- Check for signs like burns around mouth, breathing difficulty or vomiting
- Induce vomiting if poison swallowed
- In case of convulsions, protect the person from self-injury
- If the vomit falls on the skin, wash it thoroughly
- Position the victim on the left till medical help arrives

Some things you can do for the person until help arrives:

- If the person has been exposed to poisonous fumes, such as carbon monoxide, get him or her into fresh air immediately.
- If the person swallowed the poison, remove anything remaining in the mouth.
- If the suspected poison is a household cleaner or other chemical, read the label and follow instructions for accidental poisoning.
- If the poison spilled on the person's clothing, skin or eyes, remove the clothing. Flush the skin or eyes with cool or lukewarm water, such as by using a shower for 20 minutes or until help arrives.
- Make sure the person is breathing. If not, start CPR and rescue breathing.
- Take the poison container (or any pill bottles) with you to the hospital

For inhalation poisoning

- Seek immediate emergency help
- Get help before you attempt to rescue others
- Hold a wet cloth to cover your nose and mouth
- Open all the doors and windows
- Take deep breaths before you begin the rescue
- Avoid lighting a match

- Check the patient's breathing
- Do a CPR, if necessary
- If the patient vomits, take steps to prevent choking

Steps to Avoid

- Avoid giving an unconscious victim anything orally
- Do not induce vomiting unless told by a medical personnel
- Do not give any medication to the victim unless directed by a doctor
- Do not neutralize the poison with lime juice/honey

Just like any other poisonous substances, some poisons are very strong and may erode the mucous membrane and cause damage to the tissues they come into contact with.

Here are some signs and symptoms to help determine if someone has been poisoned.

Signs and symptoms

Confirm that the person has indeed been poisoned. It may be hard to tell. Some signs may include; chemical-smelling breath, burns around the mouth, difficulty breathing, vomiting, or unusual odours on the person. If possible, identify the poison

First aid management

1. Check and monitor the person's airway, breathing, and pulse. If necessary, begin rescue breathing and CPR.
2. .
3. Do NOT make a person throw up (vomit) unless told to do so by poison control or a health care professional.
4. If the person vomits, clear the person's airway. Wrap a cloth around your fingers before cleaning out the mouth and throat. If the person has been sick from a plant part, save the vomit. It may help experts identify what medicine can be used to help reverse the poisoning.
5. If the person starts having convulsions, give convulsion first aid.
6. Keep the person comfortable. The person should be rolled onto the left side, and remain there while getting or waiting for medical help.
7. If the poison has spilled on the person's clothes, remove the clothing and flush the skin with water.

Self -Test Questions

1. The following are causes of poisoning except:
    a. Medication
    b. Occupation exposure
    c. Carbon monoxide
    d. Water
2. The signs and symptoms of poisoning include all of the following except:
    a. Botulism
    b. Blue lips
    c. Difficulties in breathing
    d. Nausea and vomiting

Answers

1. D
2. A

8.13 Corrosives, Strong Acids and Alkaline

A **corrosive substance** is one that will destroy and damage other substances with which it comes into contact. It may attack a great variety of materials, including metals and various organic compounds, but people are mostly concerned with its effects on living tissue: it causes chemical burns on contact.

Caustics and corrosives cause tissue injury by a chemical reaction. The vast majority of caustic chemicals are acidic or alkaline substances that damage tissue by accepting a proton (alkaline substance) or donating a proton (acidic substance) in an aqueous solution.

Corrosives are different from poisons in that corrosives are immediately dangerous whereas poisons may have systemic toxic effects that require time to become evident. Colloquially, corrosives may be called 'poisons' but the concepts are technically distinct. However there is nothing which precludes a corrosive from being a poison; there are substances that are both corrosives and poisons.

Common types of corrosive substances

Common corrosive chemicals are classified into acids and bases. These are:

Acids: common acid-containing sources are;

- Toilet bowl cleaning products
- Automotive battery liquid
- Rust removal products
- Metal cleaning products
- Cement cleaning products
- Drain cleaning products
- Soldering flux containing zinc chloride

Alkaline / Bases:

- Common alkaline-containing sources
    - Drain cleaning products
    - Ammonia-containing products
    - Oven cleaning products
    - Swimming pool cleaning products
    - Automatic dishwasher detergent
    - Hair relaxers
    - Clinitest tablets
    - Bleaches
    - Cement

Pathophysiology

Caustic chemicals produce tissue injury by altering the ionized state and structure of molecules and disrupting covalent bonds. In aqueous solutions, the hydrogen ion (H^+) produces the principle toxic effects for the majority of acids, whereas the hydroxide ion (OH^-) produces such effects for alkaline substances.

Alkaline ingestions

Alkaline ingestions cause tissue injury by liquefactive necrosis, a process that involves saponification of fats and solubilization of proteins. Cell death occurs from emulsification and disruption of cellular membranes. The hydroxide ion of the alkaline agent reacts with tissue collagen and causes it to swell and shorten. Small vessel thrombosis and heat production occurs. Severe injury occurs rapidly after alkaline ingestion, within minutes of contact. The most severely injured tissues are those that first contact the alkali, which is the squamous epithelial cells of the oropharynx, hypopharynx, and oesophagus. The oesophagus is the most commonly involved organ with the stomach much less frequently involved after alkaline ingestions. Tissue oedema occurs immediately, may persist for 48 hours, and may eventually progress sufficiently to create airway obstruction. Over time, if the injury was severe enough, granulation tissue starts to replace necrotic tissue.

Acid ingestions

Acid ingestions cause tissue injury by coagulation necrosis, which causes desiccation or denaturation of superficial tissue proteins, often resulting in the formation of an eschar or coagulum. This eschar may protect the underlying tissue from further damage. Unlike alkali ingestions, the stomach is the most commonly involved organ following an acid ingestion. This may be due to some natural protection of the oesophageal squamous epithelium. Small bowel exposure also occurs in about 20% of cases. Emesis may be induced by pyloric and antral spasms.

The eschar sloughs in 3-4 days and granulation tissue fills the defect. Perforation may occur at this time. A gastric outlet obstruction may develop as the scar tissue contracts over a 2- to 4-week period. Acute complications include gastric and intestinal perforation and upper gastrointestinal haemorrhage.

Figure 64: Endoscopic view of the oesophagus after ingestion of an acid

Toxicity, caustic ingestions.(hanging)

Endoscopic view of the oesophagus in a patient who ingested hydrochloric acid (Lime-a-way). Note the extensive thrombosis of the oesophageal sub mucosal vessels giving the appearance similar to chicken wire.

Courtesy of Ferdinando L. Mirarchi, DO, Fred P. Harchelroad Jr, MD, Sangeeta Gulati, MD, and George J. Brodmerkel Jr, MD.(misplaced)

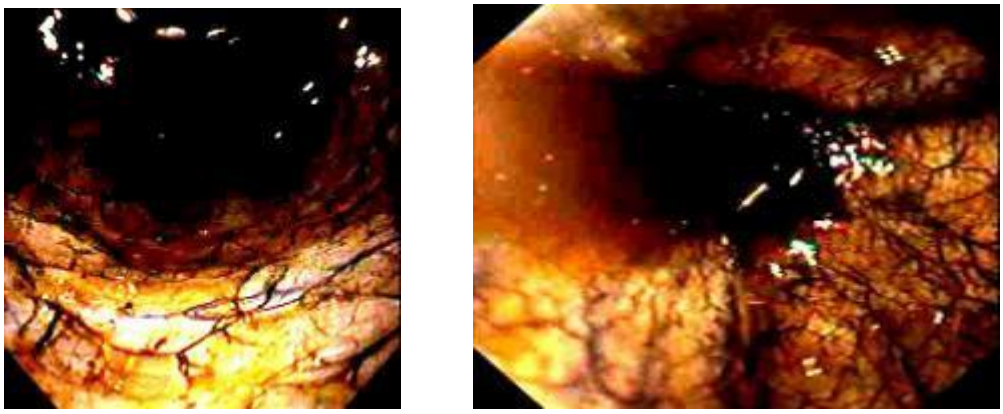

Figure 65: Endoscopic view of the oesophagus after ingestion of hydrochloric acid

Note the appearance of the thrombosed oesophageal sub mucosal vessels giving the appearance of chicken wire. Courtesy of Ferdinando L. Mirarchi, DO, Fred P. Harchelroad Jr, MD, Sangeeta.

Signs and symptoms

The presence or absence of the following signs and symptoms should be determined since the presence of any of these symptoms suggests the possibility of significant internal injury. However, their absence does not preclude significant injury.

- Dyspnoea
- Dysphagia
- Oral pain and odynophagia
- Chest pain
- Abdominal pain
- Nausea and vomiting

Signs of impending airway obstruction may include the following:

- Stridor
- Hoarseness
- Dysphonia or aphonia
- Respiratory distress, tachypnea, hyperpnea
- Cough

Other signs of injury may include the following:

- Tachycardia
- Oropharyngeal burns - These are important when identified; however, significant oesophageal involvement may occur in the absence of oropharyngeal lesions.
- Drooling
- Subcutaneous air
- Acute peritonitis - Abdominal guarding, rebound tenderness, and diminished bowel sounds
- Hematemesis
- Indications of severe injury - Altered mental status, peritoneal signs, evidence of viscous perforation, stridor, hypotension, and shock

Investigations

The following are investigation carried out in a person with acid ingestion

Laboratory Studies

- pH testing of products
    a. A pH less than 2 or greater than 12.5 indicates greater potential for severe tissue damage.
    b. A pH outside of this range does not preclude significant injury.
- pH testing of saliva: Unexpected high or low values may confirm ingestion in questionable cases; however, a neutral pH cannot rule out a caustic ingestion.
- Complete blood count (CBC), electrolyte levels, BUN levels, creatinine level, may all be helpful as baseline values and as indications of systemic toxicity.
- Liver function tests may also be helpful to establish baselines or, if abnormal, confirm severe injury following acid ingestions.
- Urinalysis and urine output may help guide fluid replacement.
- Blood for type and cross are indicated for any potential surgical candidates or those with the potential for gastrointestinal bleeding.
- Obtain aspirin and acetaminophen levels as well as an ECG in any patient whose intent may have been suicidal.
- In cases of hydrofluoric acid (HF) ingestion, precipitous falls in calcium level may lead to sudden cardiac arrest. Although ionized calcium levels are likely to have too long a turnaround to be clinically useful, cardiac monitoring and serial ECGs may help anticipate this event.

Imaging Studies

- Chest radiography: Obtain an upright chest radiograph in all cases of caustic ingestion. Findings may include pneumomediastinum or other findings suggestive of mediastinitis, pleural effusions, pneumoperitoneum, aspiration pneumonitis, or a button battery (metallic foreign body). However, the absence of findings does not preclude perforation or other significant injury.
- Abdominal radiography: Findings may include pneumoperitoneum, ascites, or an ingested button battery (metallic foreign body).
- If contrast studies are obtained, water-soluble contrast agents are recommended because they are less irritating to the tissues in cases of perforation.
- CT will often be able to delineate small amounts of extraluminal air, not seen on plain radiographs.

Treatment and management of a client with caustic ingestion

In this content, you are going to study first aid management only.

Pre hospital Care

- Attempt to identify the specific product, concentration of active ingredients, and estimated volume and amount ingested. Obtain MSDS sheets when possible for workplace exposures. The product container or labels may be available. Avoid exposure to health care workers.
- Do not induce emesis or attempt to neutralize the substance by using a weak acid or base. This induces an exothermic reaction, which can compound the chemical injury with a thermal injury. It may also induce emesis re-exposing tissue to the caustic agent.
- Small amounts of a diluent, although controversial, may be beneficial if administered as soon as possible after a solid or granular alkaline ingestion, to remove any adhering particles to the oral or oesophageal mucosa. Water or milk may be administered in small amounts. It is very unlikely to be of any benefit after more than 30 minutes.

- Some of the literature available on this topic discourages the use of diluents because of the concern of inducing emesis resulting in re-exposure of tissue to caustic agent.

Diluents should not be used with any acid ingestion or liquid alkaline ingestion. The risk of vomiting with re-exposure of the oral or oesophageal mucosa to the offending substance can result in worsening injury or perforation.

Complications

- Airway oedema or obstruction may occur immediately or up to 48 hours following an alkaline exposure.
- Gastroesophageal perforation may occur acutely.
- Secondary complications include mediastinitis, pericarditis, pleuritis, tracheoesophageal fistula formation, oesophageal-aortic fistula formation, and peritonitis.
- Delayed perforation may occur as many as 4 days after an acid exposure.
- Deep circumferential or deep focal burns may result in strictures in more than 70% of patients; these strictures typically develop 2-4 weeks post ingestion.
- Gastric outlet obstruction may develop 3-4 weeks after an acid exposure.
- Upper gastrointestinal haemorrhage may occur acutely in caustic exposures.
- Delayed upper GI bleeding may occur in acid burns 3-4 days after exposure as the eschar sloughs.
- Though many button batteries may pass through the GI tract without causing damage, they can result in perforation at any time during their course through the gastrointestinal system, particularly if they are damaged.
- Zinc chloride, mercuric chloride, and phenol can all cause significant systemic toxicity.

Cardiac arrest from sudden hypocalcaemia may occur in patients who have ingested hydrogen fluoride–containing substances. Patients have been successfully resuscitated with aggressive use of intravenous $CaCl_2$

Self -Assessment Questions

Indicate whether true or false to the following statements

1. Dysphalgia is one of the signs and symptoms of acid ingestion

2. Cough is not a sign of impending airway obstruction

3. A Ph of less than 2 but greater than 12.5 indicates that there is greater potential for severe tissue damage

Answers

1. T
2. F
3. T

8.14. Summary

You have come to the end of unit eight, In this unit you have cover first aid management of emergences, which is the immediate care given to a person who has been involved or has been suddenly taken ill before full technical help arrives or before reaching a health facility. The following are the emergences which you covered bandaging and splinting, methods of lifting and transportation of casualties, management of clients with the emergency conditions, spinal and chest injuries, drowning, wounds, burns and scalds, bites and stings fits and infantile convulsions, fainting and heat exhaustion, fire and ward accidents (including fire drills), poisoning and corrosive strong alkaline. Hope you enjoyed the description because it is very

interesting.

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UNIT 9: DEATH AND GRIEF

9.1 Introduction

In this last unit, you are going to talk about death and grief, which are normal emotional response to loss. You are going to learn about the theories of grieving, factors influencing grief, death and dying, care of the terminally ill and dying patients, care of the grieving family, care of the grieving nurse and care of the body after death.

9.2 Objectives

By the end of the unit you should be able to;

2. Explain the theories of grief
3. Describe factors influencing grief
4. Describe death and dying
5. Describe care of the terminally ill and dying patients
6. Describe care of the grieving family
7. Describe care of the grieving nurse
8. Describe care of the body after death.

Now go through the theories of grief

9.3 Theories of grief

Grieving is a normal subjective emotional response to loss. Grief is usually manifested in thoughts, feelings and behaviours which are unique to an individual and are based on personal experiences, cultural expectations and spiritual beliefs. Grieving is good for mental and physical health, as it allows the grieving person to gradually cope with the loss and to accept it as a reality. The experience of death and grief affects not only clients and their families but also the nurses who care for them. Grieving can have negative and positive outcomes on the health of an individual who is grieving.

Some of the symptoms that can accompany grieving are as follows:

Anxiety, depression, difficulties in swallowing, vomiting, weight loss, fatigue, dizziness, headache, skin rashes, chest pain, heart palpitations, excessive sweating, altered libido, concentration and sleeping patterns.

Although grieving can threaten the health of a person, a positive resolution of the grieving process can enrich the individual with new insights, values, challenges, openness and sensitivity.

There are several theorists who have developed stages of the grieving process and a series of tasks for survivors to work through their bereavement and adapt to life with a loss. Now look at some of these theories.

a. Kubler-Ross's stages of grieving

The framework for Kubler- Ross's theory is behaviour oriented and has five stages

Table 10: Kubler Ross's Stages of grieving

Stage	Behaviour Responses	Nursing Implication
Denial	Refuses to accept that loss is happening and is not ready to deal with practical problems, such as prosthesis after amputation of leg. May assume artificial happiness to prolong denial.	Verbally support client's denial for its protective function. Examine your own behaviour to ensure that you do not share in client's denial.
Anger	Client or family may direct anger at the nurse or hospital staff about matters that normally would not bother them.	Help client understand that anger is a normal response to feelings of loss and powerlessness. Avoid withdrawal or retaliation with anger and do not take anger personally. Deal with needs underlying any anger reaction. Provide structure and continuity to promote feelings of security and allow the client to have control over their lives as much as possible.
Bargaining	Client seeks to bargain to avoid loss. They may express feelings of guilty or fear of punishment for past sins, real or imagined	Listen attentively and allow client to talk to relieve guilty and irrational fears. Offer spiritual support if appropriate.
Depression	Client grieves over what has happened and what cannot be	Allow client to express sadness. Client may talk freely (for example reviewing past losses such)
Acceptance	Client comes to term with loss, may have decreased interest in surroundings and support persons. They may wish to start making plans for example writing a will, altered living arrangements	Help family and friends understand importance of being with client in silence. Help family and friends understand client's decreased need to socialize and need for short, guest visits. Encourage client to participate as much as possible in the treatment program.

Kubler-Ross, 1969

b. Engel's Theory of Grief

The theory of grieving done by Engel identified six stages in the grieving process namely;

Shock and disbelief – the client refuses to accept loss. Intellectually client accepts loss but denials it emotionally.

Developing awareness – reality of loss begins to penetrate consciousness. Anger may be directed at hospital, nurse and others. Client may show emotions such as crying and may also have self-blame.
Restitution – rituals of mourning for example funerals

Resolving the loss – attempts are made to deal with the painful void. Client is unable to accept new love object to replace lost person. They may accept more dependent relationships with support person. They think over and talk about memories of the dead person

Idealization – the grieving person produces an image of the dead person that is almost devoid of undesirable features. They repress all the negative and hostile feelings of the deceased. They may experience feelings of guilty and remorse about past inconsiderate acts to the deceased. Unconsciously they internalise admired qualities of the dead.

Outcome – the person's behaviour in this stage will be influenced by factors such as the importance of the lost object or person as source of support, degree of dependence on the relationship, number and nature of other relationship and number and nature of previous grief experiences.

c. Bowlby's Phase of Mourning

Bowlby described four phases of mourning. Just like the other theories of grieving an individual can move back and forth between any two of the phases while responding to the loss. The phases of Bowlby's theory of mourning are as follows;

Numbing – this phase may last from a few hours to a week or more. It may be interrupted by periods of intense emotion. It is the briefest phase of mourning. The grieving person may describe this phase as feeling unreal. Numbing may serve to protect the body from the consequence of the loss.

Yearning and Searching – in this stage there are emotional out bursts of tearful sobbing and acute distress. It is a painful phase but must be endured. Anything that tries to avoid or suppress the pain of grief may be just be prolonging the mourning period. Some of the symptom that can be experienced during this phase are insomnia, tightness of chest and throat, loss of appetite, weakness and lethargy.

Disorganization and Despair – in this stage the individual may endlessly examine why and how the loss happened. The person may express anger at anyone who they think is responsible for the loss.
Reorganization – this happens after a year or more. The individual begins to accept roles they were not accustomed to and acquire skills and build new relationships.

Self -Assessment Questions

1. Define grief
2. Name any one of the theories of grieving and list the stages of grieving

ANSWERS
Q1. Grief is an emotional response to loss
Q2.
i.Bowlby's four phases of mourning

- Numbing
- Yearning and Searching
- Disorganization and Despair
- Reorganization

ii. **Engel's Theory of Grief**

- Shock and disbelief
- Developing awareness
- Restitution
- Resolving the loss
- Idealization

- Outcome

iii. **Kubler-Ross's stages of grieving**

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

9.4 Factors influencing grief

The way an individual perceives a loss and responds to it during bereavement is heavily influenced by many factors.

a) Human Development

The age and developmental stage of a person has a bearing on how one responds to loss and grief. For example, toddlers are unable to understand loss or death but they feel anxious over separation from parents. School-aged children experience grief over the loss of a body part or function and they associate misdeeds with causing death. Middle aged adults usually begin to re-examine life and are sensitive to their physical changes. Older adults usually experience anticipatory grief because of aging and the possible loss of self-care abilities. According to Sue, E. Meiner, (2015), older people are often resilient in responding to grief despite it being a highly stressful process.

b) Significance of the Loss

The significance of a loss depends on the perceptions of the person experiencing the loss. A number of factors affect the significance of the loss some of which are;
Age of the strong
Value placed on the lost person, body part and so on
Degree of change required because of the loss
The person's beliefs and values

c) Culture and ethnicity

How grief is expressed is often determined by the customs of the culture. Some cultures emphasise on self-reliance and independence hence only the nuclear family and the significant others are involved in handling grief. Other cultural groups value social support and the expression of loss. The expression of emotions is also encouraged.

d) Socioeconomic Status

The socioeconomic status of an individual affects the support system available at the time of a loss. Generally an individual feels greater burden from a loss when there is lack of financial or occupational resources.

e) Spiritual Beliefs

Spiritual beliefs and practices greatly influence a person's reaction to loss and subsequent behaviour. Loss can cause internal conflicts about spiritual values and the meaning of life. Individuals who have a strong interconnection with a higher power are often very resilient and able to face death with relatively minimal discomfort.

f) Sex Role

Men are generally expected to be strong and show very little emotions during grief, but it is acceptable for women to show grief by crying.

Self -Assessment Questions

State True/False
The following factors influence grief

- Degree of change required following the loss
- Anxiety
- Gender rolls
- Weight loss
- Financial resources
- Belief in a higher power

Answers

1. T
2. F
3. T
4. F
5. T
6. T

9.5 Death and dying

Death can be defined as the permanent end of the life of a person, (Collins Dictionary, 2009).
A dying person is one who is very ill and is likely to die soon.
Apart from the signs of disease the patient is suffering from, the nurse should be able to make an assessment of the physiological signs of approaching death. There are four main characteristic changes that occur in impending death and they are as follows:

i. Loss of Muscle tone
This leads to relaxation of the facial muscle making the jaw to sag, the patient experiences difficulties in swallowing and talking. Decreased muscle tone of the gastrointestinal tract leads to accumulation of gas in intestines leading to a distended abdomen and retention of fecal matter. The urinary system is also affected leading to urine incontinence due to decreased sphincter control.

ii. Changes in Vital signs
There is an alteration in the vital signs reading. The patient's pulse rate becomes weak and slow, the blood pressure is decreased, and the respiratory rate can be rapid, shallow ad irregular or can be abnormally slow. The patient can also exhibit cheyne-stroke respirations.

iii. Slowing of the Circulation
The patient's skin becomes cold starting on the extremities and there is mottling and cyanosis of the extremities.

iv. Sensory Impairment
The senses of sight, taste and smell start to diminish.

In addition to the four physiological changes, the patient may experience alterations in the level of consciousness just before death. The patient may progress from being drowsy, stuporous to being comatose. The sense of hearing is said to be the last sense to be lost.

The World Medical Assembly adopted the following guidelines for physicians as indications of death (Benton 1978):

- Total lack of responses to external stimuli
- Absence of reflexes
- No muscular movements, especially breathing
- Flat encephalogram

In cases of artificial support, absence of electrical currents from the brain for at least 24 hours is an indicator of death. However the life support systems can only be disconnected after the doctor has certified the patient dead.
Cerebral death is another definition of death in which the higher brain centre and the cerebral cortex is irreversibly destroyed. The patient may still be able to breathe but is irreversibly unconscious.

Self-Assessment Question

1. Define death
2. List three characteristic that indicate impending death

ANSWERS
Q1. Death is the permanent end of a person's life

Q2.

i. Loss of Muscle tone
ii. Changes in Vital signs
iii. Slowing of the Circulation
iv. Sensory Impairment

9.6 Care for the terminally ill and dying patients

Interventions for people who face chronic life-threatening illnesses or who are at the end of life have a palliative focus. This will prevent, relieve, reduce, or sooth, the symptoms of the disease or disorder throughout the entire course of an illness, including care of the dying and bereavement follow-up for the family.

The World Health Organisation (2011) defines the primary obligations of collaborative team offering palliative care:

- Affirm life, and regard dying as a normal process
- Neither hasten nor postpone death.
- Provide relief from pain other distressing symptoms.
- Integrate psychological and spiritual aspect of clients care.
- Offer a support system to help clients live as actively as possible until death.
- Offer a support system to help families cope during the client's illness and their own bereavement.
- Enhance the quality of life.

The nurse provides psychological care and expert symptom management, promotes client dignity and self-esteem, maintains a comfortable and peaceful environment, provides spiritual comfort and hope, protects against abandonment or isolation, offers family support, assists with ethical decision making and facilitates mourning.

Provide psychological care

Towards the end of life clients experience a range of psychological symptoms, including anxiety, depression, altered body image, denial, powerless, uncertainty and isolation. Clients and families face' hard work' when facing death and dying, including managing their symptoms, creating a support system, feeling safe, and finding meaning in their circumstances.

Provide information that help clients understand their condition, the course of their disease, the benefits and burdens of treatment options, and their value and goals to preserve the autonomy of clients who are plagued by not knowing what the future holds or are uncertain about the goals of care.

Manage Symptoms

The primary goal of palliative care is the management of multiple symptoms commonly experienced by chronically ill or dying clients. Symptom distress, discomfort, or anguish often complicate a client's dying experience. Continue assessing and reassessing pain and medication side effects and apply appropriate intervention to relieve pain and medicinal side effects.

Promote dignity and self-esteem

A sense of dignity includes a person's positive self-regard, an ability to invest in and gain strength from one's own meaning of life, feeling valued by others, and how one is treated by caregivers. (Potter-Perry 2009). You can promote a client's self-esteem and dignity by respecting him or her as a whole person with feelings, accomplishments, and passions independent of the illness experience. Spending time with clients as they share their life experiences, helps you know the client better and facilitates the development of individualised intervention.

Attending to the clients physical appearance promotes dignity and self-esteem. Cleanliness, absence of bad odours, and attractive clothing give clients a sense of worthy.

And always provide privacy during nursing care procedures and be sensitive to when client and family needs time alone together.

Maintain a comfortable and peaceful environment.

A comfortable, clean, pleasant environment help clients relax, promotes good sleep patterns, and minimize symptoms severity. Keep a client comfortable through frequent repositioning, making sure bed linens are dry, and controlling extraneous environmental noise and odours. Pictures cherished objects and cards or letters from family members and friends create familiar and comforting environment for the dying client in institutional setting.

Promote spiritual comfort and hope

Help client make connection to their spiritual practice of cultural community. Clients are comforted when they have assurance that some aspect of their lives will transcend death. You can even call client's spiritual leader to come and talk to the client because this spiritual concept of hope takes on special significance near the end of life.

Protect against abandonment and isolation

Many terminally ill clients fear dying alone. Clients feel more hopeful when others are near to help them. Family members may find it difficult to accept the situation regarding their client's illness and may not be visiting, but when they visit explain to them the importance of them being present for client's comfort and to give them sense of belonging.

9.7 Care of the grieving family

Family members of the clients receiving palliative care are affected by the challenges of caregiving and grief. Nurses need to support, guide, and educate them as they care for their loved ones. Tell the family members that, it is common for clients in the last days of life to have reduced appetite, feel nauseated by food. Illness, decreased activity, treatments, and fatigue decrease a client's caloric needs and intake.

If possible explain to the family members the decline in the client's condition so that they can even offer support to each other. Spiritual care providers may offer comfort and support for grieving families during and after a death. After a death, assist the family members with decision making such as notification of funeral home, transportation of family members, and collection of the client's belonging because, a nurse is a primary source of support and care. Remember that because of differing in response to grief, some family members prefer to be alone while others may want to be surrounded at the time of death.

9.8 Care of the grieving nurse

When caring for dying clients and families, nurses, too, experience grief and loss. Hospice nurse often lose many clients, some of whom they have cared for long period of time. Before they recover from one loss, they are introduced to another difficult human story. Nurses in acute care setting often witness prolonged, concentrated suffering on a daily basis, leading to feeling of frustration, anger, sadness, or anxiety. Nursing students report feeling initially hesitant and uncomfortable with their first encounters with a dying client.They identifying feelings sadness, anxiety and discomfort. (Potter-Perry, 2009)

Talking with friends, a spiritual care provider, or a close professional colleague help to recognize your own grief and reflect on the meaning of caring for dying clients. Creative strategies help you cope with the loss of a person to whom you have become attached. You can gain some closure by attending a mortuary viewing or a funeral or writing a sympathy letter to the family. Stress management technique help to restore your energy and continued enjoyment in caring for clients. In some instances nurses choose to work temporarily in settings where grief and death occur less frequently.

You need to develop self-awareness of your feelings and their source as the first step to effective emotional self-care.

9.9 Care of the body after death

The care of the body after death is a nursing responsibility and it is also known as last offices. You should therefore create an enabling environment in the patient's room by removing supplies and equipment and make space to accommodate family members comfortably if they wish to view the body and grieve at the bedside.

You should follow the steps outlined;

- Remove blood, secretions and intravenous tubing from the body.
- Place absorbent pads under the body to absorb urine or faeces, because the sphincter muscles relax after death.
- Place the body in supine position with arms comfortably resting at the bedside or folded on the chest.
- Gently loose the eyelids and place dentures in the mouth to the face a more familiar appearance.
- If the lower jaw is drooping, place a small rolled towel under the chin to close the mouth.
- The body need to be positioned by rigor mortis makes it impossible.
- Rigor mortis begins with the jaw and progresses downwards.
- It usually begins 2-3 hours after death and is complete in 6- 8 hours.
- Give the family members time and privacy if they wish to practice some rituals or religious practices at the bedside of the deceased.
- Handle the body respectfully (GNC, RN, Procedure manual 2010).
- Create a respectful atmosphere in the room through the tone of your voice and choice of conversation.
- It is most distressing for family members to hear laughing or loud discussion coming from the professional care givers who are providing final care to their deceased loved one.
- Family members may be invited to help wrap the body.

Before you can summarise on death and grief unit, here are some questions for you to your understanding of the topic.

Self-Assessment Test

1. Mention the primary obligations of the cooperative team offering palliative care
2. Outline the steps you would take when preparing the body after death

ANSWERS

Q1.

- Affirm life, and regard dying as a normal process
- Neither hasten nor postpone death.
- Provide relief from pain other distressing symptoms.
- Integrate psychological and spiritual aspect of clients care.
- Offer a support system to help clients live as actively as possible until death.
- Offer a support system to help families cope during the client's illness and their own bereavement.
- Enhance the quality of life

Q2.

- Remove blood, secretions and intravenous tubing from the body.
- Place absorbent pads under the body to absorb urine or faeces, because the sphincter muscles relax after death.
- Place the body in supine position with arms comfortably resting at the bedside or folded on the chest.
- Gently loose the eyelids and place dentures in the mouth to the face a more familiar appearance.
- If the lower jaw is drooping, place a small rolled towel under the chin to close the mouth.
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- Give the family members time and privacy if they wish to practice some rituals or religious practices at the bedside of the deceased.
- Handle the body respectfully.
- Create a respectful atmosphere in the room through the tone of your voice and choice of conversation.

9.10 Summary

In this unit you have learnt about theories of grief, factors that influence grieving and you have seen how individuals react when they are grieving. You have also defined death and dying and the indicators of impending death. You also laboured to look at the care given to the terminally ill and dying patient as well as the grieving family. Care of the grieving nurse has also been covered as you saw that the nurse being the care giver is also affected by the death of the patient and goes through grieving. You have also seen that even in death the body of the deceased person has to be treated with dignity.

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