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| Department | **ORTHOPAEDIC ANDTRAUMA MEDICINE** |

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| Course/Program name | **CERTIFICATE IN ORTHOPAEDIC AND TRAUMA MEDICINE** |

**Cover page**

**[*COURSE DEVELOPMENT TEMPLATE*]**

**MODULE PRELIMINARIES**

1. **Module name and code**

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| **ORN 203: ORTHOPAEDIC NURSING** |

1. **Module Introduction**

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| The pre-requisite for this module is Biology and Home science. It has five units and requires a total of 30 hours or 3 credit hours to complete. |

1. **Module Competency**

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| This module is designed to enable the learner apply principles of nursing in the management of Orthopaedic and trauma conditions. |

1. **Module Outcomes**

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| By the end of this module ,the learner should;  1.Demonstrate understanding of nursing practice  2.Demonstrate understanding of admission and discharge procedures  3.Participate in nursing of orthopaedic and trauma patient  4.Demonstrate understanding of aseptic procedures  5.Demonstrate understanding of pre- and post- operative care of orthopaedic and trauma patients. |

1. **Learning Support**

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| The tutor who will take you through this module. In case of any queries, he can be reached through [dnanzala@kmtc.ac.ke]. The tutor’s office is [office address(optional)]  However, if you have a technical problem relating to interacting with the platform, you can write an email to [classsept19@gmail.com] or call this number 0717532643. Someone will respond to you as soon as possible. |

1. **Performance tasks**

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| Within the various units and topics in the module, there are tasks that you are supposed to attempt and submit for marking. Some of them are not meant for submission.  For those that are meant for submission, you are encouraged to be very keen to observe the due date because once the date lapses, you will not be able to submit the same. Calling support line will not help you on this. If you are not able to upload an assignment, seek help well in advance before the due date. Otherwise, this will not be used as an acceptable reason for not submitting on time.  These tasks are divided into two as follows:  (i) Main Tasks that comprise of quizzes and written assignment  (ii) Sub tasks that comprise group discussion and clinical logs.] |

**Module Learning Requirements**

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| For effective and smooth learning, it is expected of you to be computer proficient. Additionally, to satisfactorily complete this module, it is required of you to;   1. Submit assignment and required tasks on time 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. 4. Sit for CAT’s when scheduled, and 5. Sit in Exam at the end of the session |

**UNIT ONE:**

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| Unit Name | **INTRODUCTION TO ORTHOPAEDIC NURSING** |

1. **Introduction**

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| Orthopedic nursing is a specialty that focuses on musculoskeletal diseases and disorders.  These orthopedic issues include conditions like arthritis, bone fractures, broken bones, joint replacements, genetic malformations, arthritis, and osteoporosis. Orthopedic nurses are familiar with traction, casting, mobility devices, and pain management.  When musculoskeletal conditions require surgery, orthopedic nurses assist physicians with preparation for the procedure and assists patients with their postoperative recovery. |

1. **Unit Objectives**

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| In this section you will be expected to demonstrate your knowledge and skills of ethical practice in order to:   * Recognize ethical dilemmas and take appropriate action * Inform client/staff members of ethical issues affecting client care * Practice in a manner consistent with a code of ethics. * Evaluate outcomes of interventions to promote ethical practice |

1. **Unit Learning Requirements**

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| To proficiently complete this unit, you ought to make sure you spend quality time and purpose to;   1. Carry out all tasks within the sections and subsections 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. |

1. **Topic One**

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| Topic name | PRINCIPLES &CONCEPT OF NURSING |

1. **Topic objective**

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| To define what is ethics and the two major classifications of ethical principles and ethical thought. |

1. **Topic Content**

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| Ethics, simply defined, is a principle that describes what is expected in terms of right and correct and wrong or incorrect in terms of behavior. For example, nurses are held to ethical principles contained within the [American Nurses Association Code of Ethics](http://www.nursingworld.org/codeofethics" \t "_blank). Ethics and ethical practice are integrated into all aspects of nursing care.  The two major classifications of ethical principles and ethical thought are utilitarianism and deontology. Deontology is the ethical school of thought that requires that both the means and the end goal must be moral and ethical; and the utilitarian school of ethical thought states that the end goal justifies the means even when the means are not moral.  The ethical principles that nurses must adhere to are the principles of justice, beneficence, nonmaleficence, accountability, fidelity, autonomy, and veracity.   * Justice is fairness. Nurses must be fair when they distribute care, for example, among the patients in the group of patients that they are taking care of. Care must be fairly, justly, and equitably distributed among a group of patients. * Beneficence is doing good and the right thing for the patient. * Nonmaleficence is doing no harm, as stated in the historical Hippocratic Oath. Harm can be intentional or unintentional. * Accountability is accepting responsibility for one's own actions. Nurses are accountable for their nursing care and other actions. They must accept all of the professional and personal consequences that can occur as the result of their actions. * Fidelity is keeping one's promises. The nurse must be faithful and true to their professional promises and responsibilities by providing high quality, safe care in a competent manner. * Autonomy and patient self-determination are upheld when the nurse accepts the client as a unique person who has the innate right to have their own opinions, perspectives, values and beliefs. Nurses encourage patients to make their own decision without any judgments or coercion from the nurse. The patient has the right to reject or accept all treatments. * Veracity is being completely truthful with patients; nurses must not withhold the whole truth from clients even when it may lead to patient distress.   The most commonly occurring ethical issues and concerns in healthcare include the allocation of scarce resources and end of life issues.  Bioethics is a subcategory of ethics. Bioethics addresses ethical concerns like those that occur as the result of advancing science and technological advances. Some of the most common, current bioethical issues revolve around stem cells, cloning, and genetic engineering.  **Recognizing Ethical Dilemmas and Taking Appropriate Action**  Nurses have the responsibility to recognize and identify ethical issues that affect staff and patients. For example, providing nursing care for clients undergoing an abortion may raise ethical and moral concerns and issues for some nurses; and some patients may be affected with a liver transplant rejection because donor livers are not abundant enough to meet the needs of all patients who request it.  Many hospitals, medical centers and other healthcare facilities have multidisciplinary ethics committees that meet as a group and resolve ethical dilemmas and conflicts. Nurses should avail themselves to ethicists and ethical committees within their facility when such ethical resources and mechanisms are present in order to resolve ethical concerns and ethical dilemmas.  In addition to utilizing these resources, the nurse can take appropriate actions when faced with an ethical dilemma by understanding and applying the ethical guidelines provided in the American Nurses Association's Code of Ethics, the American Medical Association's Code of Ethics, the World Medical Association's Code of Ethics, the American Nurses  **Legal Aspects of Nursing in Kenya**  Reference icon  As a nurse you are liable to the national laws as well as professional ethics related to your practice. You have already studied the functions of the Nursing Council and the disciplinary Committee.  **Examples of Offences**  **negligence**  You will be charged with this offence if you do not provide the expected care to a patient or client in the field you were trained in.  **misconduct**  Misconduct includes stealing drugs or hospital property, forgery or fraud, coming on duty while drunk, fighting while on duty or use of abusive language.  **malpractice**  Remember you are a trained nurse. If you provide substandard care to patients you will be charged of malpractice. In addition, if you also perform procedures that are out of your scope of practice you may be charged with malpractice.  **impropriety**  As a nurse the profession binds you to conduct yourself professionally while on duty or off duty.  If you fight in a bar or anywhere or conduct yourself unprofessionally you will have discredited or shamed the nursing profession and will, therefore, be liable to be charged with impropriety. |

1. **Topic Summary**

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| Ethics, simply defined, is a principle that describes what is expected in terms of right and correct and wrong or incorrect in terms of behavior. The two major classifications of ethical principles and ethical thought are utilitarianism and deontology. The ethical principles that nurses must adhere to are the principles of justice, beneficence, nonmaleficence, accountability, fidelity, autonomy, and veracity.   |  | | --- | | Ethics, simply defined, is a principle that describes what is expected in terms of right and correct and wrong or incorrect in terms of behavior. For example, nurses are held to ethical principles contained within the [American Nurses Association Code of Ethics](http://www.nursingworld.org/codeofethics" \t "_blank). Ethics and ethical practice are integrated into all aspects of nursing care.  The two major classifications of ethical principles and ethical thought are utilitarianism and deontology. Deontology is the ethical school of thought that requires that both the means and the end goal must be moral and ethical; and the utilitarian school of ethical thought states that the end goal justifies the means even when the means are not moral.  The ethical principles that nurses must adhere to are the principles of justice, beneficence, nonmaleficence, accountability, fidelity, autonomy, and veracity.   * Justice is fairness. Nurses must be fair when they distribute care, for example, among the patients in the group of patients that they are taking care of. Care must be fairly, justly, and equitably distributed among a group of patients. * Beneficence is doing good and the right thing for the patient. * Nonmaleficence is doing no harm, as stated in the historical Hippocratic Oath. Harm can be intentional or unintentional. * Accountability is accepting responsibility for one's own actions. Nurses are accountable for their nursing care and other actions. They must accept all of the professional and personal consequences that can occur as the result of their actions. * Fidelity is keeping one's promises. The nurse must be faithful and true to their professional promises and responsibilities by providing high quality, safe care in a competent manner. * Autonomy and patient self-determination are upheld when the nurse accepts the client as a unique person who has the innate right to have their own opinions, perspectives, values and beliefs. Nurses encourage patients to make their own decision without any judgments or coercion from the nurse. The patient has the right to reject or accept all treatments. * Veracity is being completely truthful with patients; nurses must not withhold the whole truth from clients even when it may lead to patient distress.   **Examples of Offences**  negligence  misconduct   malpractice   impropriety | |

1. **Further Reading**

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| 1.Nursing procedure manual  2.standard operating procedure in nursing |

1. **UNIT TWO:**

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| Unit Name | **PATIENT ADMISSION AND DISCHARGE PROCEDURES** |

1. **Introduction**

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| Patients are admitted to an inpatient healthcare facility if their health condition requires continuous healthcare for more than 24 hours.  The term “hospitalization” means admitting the patient to an inpatient healthcare facility. Inpatient healthcare can be administered in various facilities such as hospitals,sanatoriums, hospices or nursing care homes. |

1. **Unit Objectives**

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| After studying this chapter, you should be able to:  • Define the term “hospitalization”;  • Describe, and during clinical nursing practice, subsequently implement the correct procedure for admitting a patient to inpatient healthcare facility by a nurse;  • List the types of patient admission according to priority;  • Correctly prepare medical documents for patient admission to the inpatient healthcare facility;  • Explain the effect of hospitalization on the mental state of both adult and child patients;  • Apply the principles that contribute to better adaptation of the patient to hospitalization;  • Describe the correct procedure for patient transfer;  • Describe, and subsequently implement during clinical practice, the correct procedure for discharging a patient to home care. |

1. **Unit Learning Requirements**

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| To proficiently complete this unit, you ought to make sure you spend quality time and purpose to;   1. Carry out all tasks within the sections and subsections 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. |

1. **Topic One**

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| Topic name | PATIENT BIO DATA |

1. **Topic objective**

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| To help in arriving to a diagnosis and easy identification of a patient |

1. **Topic Content**

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| **This is the information relating toaliving individual that can identify them .Examples include name, date of birth, age, resident, occupation, level of education, marital status and religion.**  **The records are used by the healthcare workers to:**   1. **Provide good basis for all healthcare decisions** 2. **Make sure the care provided is safe and effective** 3. **It will help in checking the quality of care(clinical audit)** 4. **To protect the health of general public** 5. **Help investigate untoward incidents, complaints or legal claims.** |

1. **Topic Summary**

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| This is the information relating to a living individual that can identify them .Examples include name, date of birth, age, resident, occupation, level of education, marital status and religion. |

1. **Further Reading**

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| **[www.nhs.uk](http://www.nhs.uk)** |

1. **Topic Two**

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| Topic name | CLERKSHIP,ADMISSION &DISCHARGE PROCEDURES |

1. **Topic objective**

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| By the end of the topic students should:  . Understand what is patient clerkship  • Define the term “hospitalization”;  • Describe, and during clinical nursing practice, subsequently implement the correct procedure for admitting a patient to inpatient healthcare facility by a nurse;  • List the types of patient admission according to priority;  • Correctly prepare medical documents for patient admission to the inpatient healthcare facility; |

1. **Topic Content**

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| Clinical clerkships encompass a period of [medical education](https://en.wikipedia.org/wiki/Medical_education" \o "Medical education) in which students practice under the supervision of a health practitioner.Clerkships give students experience in all parts of the hospital setting, including the [operating room](https://en.wikipedia.org/wiki/Operating_room" \o "Operating room), [emergency department](https://en.wikipedia.org/wiki/Emergency_department" \o "Emergency department), and various other departments that allow learning by viewing and doing. Students are required to undergo a pre-clerkship course, which include introduction to clinical skills, and clinical reasoning.During the clerkship training, students are required to rotate through different [medical specialties](https://en.wikipedia.org/wiki/Medical_specialties" \o "Medical specialties) and treat [patients](https://en.wikipedia.org/wiki/Patient" \o "Patient) under the supervision of [physicians](https://en.wikipedia.org/wiki/Physicians" \o "Physicians). Students elicit [patient histories](https://en.wikipedia.org/wiki/Medical_history" \o "Medical history), complete [physical examinations](https://en.wikipedia.org/wiki/Physical_examination" \o "Physical examination), write [progress notes](https://en.wikipedia.org/wiki/Progress_note" \o "Progress note), and assist in [medical procedures](https://en.wikipedia.org/wiki/Medical_procedure" \o "Medical procedure). They are also actively involved in the diagnoses and treatment of patients under the supervision of a resident lecturer or healthcare workers in those fields.  **Patient admission to healthcare facility**  Patient admission, hospital stays and discharges follow an established procedure, i.e. planned nursing activities. For patients requiring long-term care and repeated hospitalization, the activities must be coordinated so that the nursing care is continuous.  The specific medical treatment prescribed by the doctor, and the nursing regime followed by the nurse, are administered by the nurse in order to meet patient needs. The nurse monitors patient responses throughout the stay.  **Types of patient admission according to priority:**  **Planned admission** – the patient has been previously booked for hospitalization, examination or surgery and it is expected that the patient will remain in hospital for the required period.  The hospitalization period starts after initial examinations in the outpatient facility.  **Emergency admission** – the patient is admitted without referral from a doctor in the case of a life-threatening condition.  **Legal aspects of patient admission**  • Providing information about the patient to family members and to the next of kin is governed by applicable legislation;  • In the case of acutely ill patients who cannot express consent with hospitalization (e.g. unconscious, following strokes, etc.) a detention procedure or the “procedure concerning patient admission and detention by a healthcare facility” is put into place.  The healthcare provider reports the patient admission without their consent to the court;  • Under emergency hospitalization, the court will appoint a guardian to represent the patient during detention  **Patient discharge**  If the patient’s condition improves so that treatment can be continued through an outpatient facility or at home, then the patient is discharged. The patient may also be discharged at their own request, known as DAMA(discharge against medical advice) i.e. a declaration that they are leaving on their own request.  The release is decided by the attending doctor after consultation with the senior consultant.  After that the patient deals with the necessary matters, such as transportation from the hospital and notifies their relatives. If the patient is not collected by relatives, the nurse will book an  ambulance if the patient's health condition requires it.  The nurse will give the patient the necessary medical documentation, such as the report from the attending doctor and the forms for work incapacity for their general practitioner. A nurse will ensure the patients clothes are released from the central locker room. A mobile patient is comfortably seated by the nurse on a chair, either in the room or in the communal room. The patient is considered to be a patient of the treatment unit until they physically leave the ward.  If the patient is on long-term medication, the nurse will provide them with fixed doses (usually three days) until their general practitioner prescribes the next dose. The patient must pay the regulatory fee for a hospital stay before departure.  After the patient leaves, all the used equipment is properly washed, disinfected or sterilized.  The bed and bedside table are washed and disinfected so as to be ready for the next patient (the bedding is changed and adjusted).  **Administrative procedure upon leaving:**  The nurse will delete the patient from the admission list and the catering list. All nameplates with patient information are removed. The completed patient documentation is saved in the hospital archive. The nurse will record the patient’s departure in the report. |

1. **Topic Summary**

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| Clinical clerkships encompass a period of [medical education](https://en.wikipedia.org/wiki/Medical_education" \o "Medical education) in which students practice under the supervision of a health practitioner.Clerkships give students experience in all parts of the hospital setting, including the [operating room](https://en.wikipedia.org/wiki/Operating_room" \o "Operating room), [emergency department](https://en.wikipedia.org/wiki/Emergency_department" \o "Emergency department), and various other departments that allow learning by viewing and doing. Patient admission, hospital stays and discharges follow an established procedure, i.e. planned nursing activities. For patients requiring long-term care and repeated hospitalization, the activities must be coordinated so that the nursing care is continuous.  The specific medical treatment prescribed by the doctor, and the nursing regime followed by the nurse, are administered by the nurse in order to meet patient needs. The nurse monitors patient responses throughout the stay.  patient admission is classified according to priority:  Planned admission – the patient has been previously booked for hospitalization, examination or surgery and it is expected that the patient will remain in hospital for the required period.  The hospitalization period starts after initial examinations in the outpatient facility.  Emergency admission – the patient is admitted without referral from a doctor in the case of a life-threatening condition.  If the patient’s condition improves so that treatment can be continued through an outpatient facility or at home, then the patient is discharged. The patient may also be discharged at their own request, known as DAMA(discharge against medical advice) i.e. a declaration that they are leaving on their own request.  The release is decided by the attending doctor after consultation with the senior consultant. |

1. **Further Reading**

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| 1.Nursing procedure manual  2.Standardoperating procedures in nursing |

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1. **UNIT THREE:**

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| Unit Name | **NURSING PROCEDURES IN ORTHOPAEDICAND TRAUMA** |

1. **Introduction**

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| Nursing practice involves the application of knowledge and skills that improve an individual’s level of health. In view of this, all nurses, regardless of their level of educational preparation, learn basic skills that are fundamental to the practice of nursing. |

1. **Unit Objectives**

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| By the end of this section you will be able to:   * Describe how to check vital signs from a patient * Describe importance of monitoring vital signs in a patient * Describe drug administration and ordering. |

1. **Unit Learning Requirements**

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| To proficiently complete this unit, you ought to make sure you spend quality time and purpose to;   1. Carry out all tasks within the sections and subsections 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. |

1. **Topic One**

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| Topic name | vital signs |

1. **Topic objective**

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| Describe how to check vital signs from a patientand the  importance of monitoring vital signs in a patient |

1. **Topic Content**

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| **Taking Vital Signs：**  *Temperature,Pulse, Respiration, Blood pressure*  *Definition:*  Vital signs are defined as the procedure that takes the sign of basic physiology that includes temperature, pulse, respiration and blood pressure. If any abnormality occurs in the body, vital signs change immediately.  *Purpose:*  1. To assess the client’s condition  2. To determine the baseline values for future comparisons  3. To detect changes and abnormalities in the condition of the client  *Equipment required:*  1. Oral/ axilla / rectal thermometer (1)  2. Stethoscope (1)  3. Sphygmomanometer with appropriate cuff size (1)  4. Watch with a second hand (1)  5. Spirit swab or cotton (1)  6. Sponge towel (1)  7. Paper bag (2): for clean (1)  for discard (1)  8. Record form  9. Ball- point pen: blue (1)  black (1)  red (1)  10. Steel tray (1): to set all materials  **Taking axillary temperature by glass thermometer**  Definition:  Measuring/monitoring patient’s body temperature using clinical thermometer  Purpose:  1. To determine body temperature  2. To assist in diagnosis  3. To evaluate patient’s recovery from illness  4. To determine if immediate measures should be implemented to reduce dangerously elevated body temperature or converse body heat when body temperature is dangerous low  5. To evaluate patient’s response once heat conserving or heal reducing measures have been implemented  *Procedure:*  *Care ,Action and Rationale*  1Wash your hands.   Hand washing prevents the spread of infection  2. Prepare all required equipment   Organization facilitates accurate skill performance.  3. Check the client’s identification.   To confirm the necessity  4. Explain the purpose and the procedure to the client.   Providing information fasters cooperation and understanding  5. Close doors and/or use a screen.   Maintains client’s privacy and minimize embarrassment.  6. Take the thermometer and wipe it with cotton swab from bulb towards the tube.   Wipe from the area where few organisms are present to the area where more organisms are present to limit spread of infection  7Shake the thermometer with strong wrist movements until the mercury line falls to at least  95 ℉(35 ℃).   Lower the mercury level within the stem so that it is less than the client’s potential body temperature  8. Assist the client to a supine or sitting position.   To provide easy access to axilla.  9. Move clothing away from shoulder and arm   To expose axilla for correct thermometer bulb placement  10. Be sure the client’s axilla is dry. If it is moist, pat it dry gently before inserting the thermometer.   Moisture will alter the reading. Under the condition moistening, temperature is generally measured lower than the real.  11. Place the bulb of thermometer in hollow of axilla  9. Report to the senior staff if you find any abnormalities.   To provide nursing care and medication properly and continuously  Fundamental at anterior inferior with 45 degree or horizontally.   To maintain proper position of bulb against blood vessels in axilla.  12. Keep the arm flexed across the chest, close to the side of the body   Close contact of the bulb of the thermometer with the superficial blood vessels in the axilla ensures a more accurate temperature registration.  13.Hold the glass thermometer in place for 3 minutes.   To ensure an accurate reading  14.Remove and read the level of mercury of thermometer at eye level.   To ensure an accurate reading  15. Shake mercury down carefully and wipe the thermometer from the stem to bulb with spirit swab.   To prevent the spread of infection  16. Explain the result and instruct him/her if he/she has fever or hypothermia.   To share his/her data and provide care needed immediately  17. Dispose of the equipment properly. Wash your hands.   To prevent the spread of infection  18. Replace all equipment in proper place.   To prepare for the next procedure  19. Record in the client’s chart and give signature on the chart.   Axillary temperature readings usually are lower  than oral readings.   Giving signature maintains professional accountability  20. Report an abnormal reading to the senior staff.   Documentation provides ongoing data collection  **b. Measuring a Radial Pulse**  *Definition:* Checking presence, rate, rhythm and volume of throbbing of artery.  *Purpose:*  1. To determine number of heart beats occurring per minute ( rate)  2. To gather information about heart rhythm and pattern of beats  3. To evaluate strength of pulse  4. To assess heart's ability to deliver blood to distant areas of the blood viz. fingers and lower extremities  5. To assess response of heart to cardiac medications, activity, blood volume and gas exchange  6. To assess vascular status of limbs  *Procedure:*  *Care Action Rationale*  1.Wash hands.   Hand washing prevents the spread of infection  2. Prepare all equipment required on tray.   Organization facilitates accurate skill problems  3. Check the client’s identification   To confirm the necessity  4. Explain the procedure and purpose to the client.   Providing information fosters cooperation and understanding  5. Assist the client in assuming a supine or sitting position.  1) If supine, place client’s fore arm straight alongside body with extended straight or upper abdomen with extended straight  2) If sitting, bend client’s elbow 90 degrees and support lower arm on chair or on nurse’s arms lightly flex the wrist   To provide easy access to pulse sites of its own.  2) Apply only enough pressure to radial pulse  Mod Relaxed position of forearm and slight flexion ofwrist promotes exposure of artery to palpation without restriction.  6.Count and examine the pulse  1) Place the tips of your first, index, and third finger the client's radial artery on the inside of the wrist on the thumb side.   The fingertips are sensitive and better able to feel the pulse. Do not use your thumb because it has a strong pulse rate pressure facilitates palpation of the pulsations. Too much pressure obliterates the pulse, whereas the pulse is imperceptible with too little pressure  3) Using watch, count the pulse beats for a full minute.   Counting a full minute permits a more accurate reading and allows assessment of pulse strengthand rhythm.  4) Examine the rhythm and the strength of the pulse.   Strength reflects volume of blood ejected against  Arterial wall with each heart contraction.  7.Record the rate on the client’s chart.  Sign on the chart.   Documentation provides ongoing data collection   To maintain professional accountability  8.Wash your hands.   Handwashing prevents the spread of infection  **c. Counting Respiration**  *Definition:* Monitoring the involuntary process of inspiration and expiration in a patient  *Purposes:*  1. To determine number of respiration occurring per minute  2. To gather information about rhythm and depth  3. To assess response of patient to any related therapy/medication  Procedure:  **Care, Action and Rationale**  1. Close the door and/or use screen.   To maintain privacy  2. Make the client's position comfortable, preferably sitting or lying with the head of the elevated 45 to  60 degrees.   To ensure clear view of chest wall and abdominal movements. If necessary ,move the bed linen.  3. Prepare count respirations by keeping your  Finger tips on the client’s pulse.   A client who knows are counting respirations may not breathe naturally.  4. Counting respiration:  1) Observe the rise and fall of the client’s (one inspiration and one expiration).  2) Count respirations for one full minute.  3) Examine the depth, rhythm, facial expression, cyanosis, cough and movement accessory.   One full cycle consists of an inspiration and an expiration.   Allow sufficient time to assess respirations, especially when the rate is with an irregular   Children normally have an irregular, more rapid rate. Adults with an irregular rate require more careful assessment including depth and rhythm of respirations.  5. Replace bed linens if necessary. Record the rate on the client’s chart. Sign the chart   Documentation provides ongoing data collection.   Giving signature maintains professional accountability  6. Perform hand hygiene   To prevent the spread of infection  7. Report any irregular findings to the senior staff.  To provide continuity of care  **d. Measuring Blood Pressure**  *Definition:* Monitoring blood pressure using palpation and/or sphygmomanometer  *Purpose:*  1. To obtain baseline data for diagnosis and treatment  2. To compare with subsequent changes that may occur during care of patient  3. To assist in evaluating status of patient’s blood volume, cardiac output and vascular system  4. To evaluate patient’s response to changes in physical condition as a result of treatment with fluids or medications  *Procedure:* by palpation and an eroidmanometer  *Care Action and Rationale*  1Wash your hands.   Hand washing prevents the spread of infection  2. Gather all equipment. Cleanse the stethoscope's ear pieces and diaphragm with a spirit swab wipe.   Organization facilitates performance of the skill.   Cleansing the stethoscope prevents spread of infection.  3. Check the client’s identification. Explain the purpose and procedure to the client.   Providing information fosters the client’s cooperation and understanding.  4. Have the client rest at least 5 minutes before measurement.   Allow the client to relax and helps to avoid falsely elevate readings.  5. Determine the previous baseline blood pressure. if available, from the client’s record.   To avoid misreading of the client’s blood pressure and find any changes his/her blood pressure from the usual  6. Identify factors likely to interfere which accuracy of blood pressure measurement: exercise, coffee and smoking   Exercise and smoking can cause false elevations in blood pressure.  7. Setting the position:  1) Assist the client to a comfortable position. Be sure room is warm, quiet and relaxing.  2) Support the selected arm. Turn the palm upward.  3) Remove any constrictive clothing.   The client's perceptions that the physical or interpersonal environment is stressful affect the blood pressure measurement.   Ideally, the arm is at heart level for accurate measurement. Rotate the arm so the brachial pulse is easily accessible.   Not constricted by clothing is allowed to access the brachial pulse easily and measure accurately.  Do not use an arm where circulation is compromised in anyway  **Care Action and Rationale**  8. Checking brachial artery and wrapping the cuff:  1) Palpate brachial artery.  2) Center the cuff’s bladder approximately 2.5 cm  (1 inch) above the site where you palpated the brachial pulse  3) Wrap the cuff snugly around the client’s arm and secure the end approximately  4) Check the manometer whether if it is at level with the client’s heart   Center the bladder to ensure even cuff inflation over the brachial artery   Loose-fitting cuff causes false high readings.  Appropriate way to wrap is that you can put only  2 fingers between the arm and cuff. (Fig. 33)   Improper height can alter perception of reading.  **9. Meausre blood pressure by two step method:**  **(A) Palpatory method**  1) Palpate brachial pulse distal to the cuff with  Finger tips of non dominant hand.  2) Close the screw clamp on the bulb.  3) Inflate the cuff while still checking the pulse with other hand.  4) Observe the point where pulse is not longer palpable.  5) Inflate cuff to pressure 20-30 mmHg above point at which pulse disappears.  6) Open the screw clamp, deflate the cuff fully and wait 30 seconds.   Palpation identifies the approximate systolic reading. Estimating prevents false low readings,  which may result in the presence of an auscultory gap.   Maximal inflation point for accurate reading can be determined by palpation.   Short interval eases any venous congestion that may have occurred.  (B)Auscultation  1) Position the stethoscope’s earpieces comfortably in your ears( turn tips slightly forward). Be sure sounds are clear, not muffled.  2) Place the diaphragm over the client’s brachial artery. Do not allow chest piece to touch cuff or clothing.   Each earpiece should follow angle of ear canal to facilitate hearing.   Proper stethoscope placement ensures optimal sound reception.   Stethoscope improperly positioned sounds that often result in false low systolic and high diastolic readings.  Fundamental of Nursing Procedure Manual  **Care Action and Rationale**  **9. (B)**  3) Close the screw clamp on the bulb and inflate the cuff to a pressure30 mmHg above the point where the pulse had disappeared  4) Open the clamp and allow the aneroid dial to fall at rate of 2 to 3mmHg per second.  5) Note the point on the dial when first clear sound is heard. The sound will slowly increase in intensity.  6) Continue deflating the cuff and note the point where the sound disappears. Listen for 10 to 20 mmHg after the last sound.  7) Release any remaining air quickly in the cuff and remove it.  8) If you must recheck the reading for any reason, allow a 1 minute interval before taking blood pressure again.   Ensure that the systolic reading is not underestimated.   If deflation occurs too rapidly, reading may be inaccurate.   This first sound heard represents the systolic pressure or the point where the heart is able to force blood into the brachial artery.   This is the adult diastolic pressure. It represents the pressure that the artery walls exert on the blood at rest.   Continuous cuff inflation causes arterial occlusion, resulting in numbness and tingling of client’s arm.   The interval eases any venous congestion and provides for an accurate reading when you repeat  The measurement.  10. Assist the client to a comfortable position.  Advise the client of the reading.   Indicate your interest in the client's well-being and allow him/her to participate in care.  11.Wash your hands.  Hand washing prevents the spread of infection.  12. Record blood pressure on the client’s chart. Sign on the chart. Report any findings to senior staffs.   Documentation provides ongoing data collection.   Giving signature maintains professional accountability  13. Replace the instruments to proper place and discard.   To prepare for the next procedure. |

1. **Topic Summary**

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| **Vital Signs include：**  *Temperature,Pulse, Respiration, Blood pressure*  Vital signs are defined as the procedure that takes the sign of basic physiology that includes temperature, pulse, respiration and blood pressure. If any abnormality occurs in the body, vital signs change immediately.  *Purpose:*  1. To assess the client’s condition  2. To determine the baseline values for future comparisons  3. To detect changes and abnormalities in the condition of the client |

**[***Summary of the topic content that guides the learner to know what he ought to have understood during the topic coverage***]**

1. **Further Reading**

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| --- | --- |
| |  | | --- | | 1.Nursing procedure manual  2.Standardoperating procedures in nursing | |

1. **Topic two**

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| Topic name | RECORDENING OF PATIENT INFORMATION,REPORTING,MEDICATION AND ORDERING OF DRUGS |

1. **Topic objective**

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| * To know the importance of recording patient information. * Describe drug administration and ordering of drugs. |

1. **Topic Content**

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| **Patient medical documentation during hospitalization**  Good medical records – whether electronic or handwritten – are essential for the continuity of care of your patients. For health professionals, good medical records are vital for defending a complaint or clinical negligence claim; they provide a window on the clinical judgment being exercised at the time. The presence of a complete, up-to-date and accurate medical record can make all the difference to the outcome.  The type of medical documentation varies according to the nature of each department. During hospitalization, the nurse monitors the patient's condition and records such information.  Medical documentation is available in printed and electronic form.  Medical documentation contains, in addition to the medical record, which includes a daily report and other documents – the patient’s consent with the procedure, the patient's consent to consult the documentation, the temperature table, nursing documentation including evaluation scales, e.g. regarding the risk of bedsores, the risk of falling, pain monitoring, self-sufficiency – Barthel test, nutritional screening form, etc.  **The Administration of Medication**  Administration involves all activities related to safe drug use which include:   * Assessing the risk to a patient of a new drug order * Delivering the drug dose to the proper body tissues * Assessing the patient's response to drug therapy * Treatment of adverse reactions to drugs Consultation with the doctor about adjusting the prescribed regimen * Educating the patient about the proper use of drug substances * **Recording and Transcribing Orders** Drug orders should always include: * The name of the patient * The name of the drug * The dose * The route of administration * The frequency or timing * You should always ask the doctor to verify the route desired if no route has been specified. * The handwriting of many doctors may not legible. If there is doubt about any element of a drug order, oral verification must be sought from the doctor involved. Written orders may contain errors in dose and/or drug form. If any part of the order appears inappropriate, contact the doctor to correct any mistakes that may have  been made   **The Five Rights**  Accuracy in drug administration depends on five factors: the right drug; the right dose; the right patient; the right route and the right time. You shall now look at each of these factors in greater detail.  **The Right Drug**  To ensure that you have used the right drug, you must check and double check the package label and the cardex and medication card or sheet. You must prepare the medications you give yourself and do not administer drugs prepared by someone else.  ***The person who administers the medication is the one held responsible.***  You should recheck the order, the label and the medication card if a client questions the medication. A mentally alert client will notice a change in medication or mention problems that have arisen from the medication.  **Do not ignore statements or questions regarding medication from a client!** Please ensure that you take the following precautions when administering medicine:   * All doses are best prepared from the original container * Medicines should not be prepared in the dark. Good illumination is necessary for positive identification * You should caution clients about the use of non labelled pillboxes * Do not to mix supplies of several tablets or capsule in a single container * Make sure you check medication labels when removed from the shelf, before pouring or measuring and when returning to the shelf   PreviousPageButton  **The Right Dose**  To obtain the right dose, you must carefully measure the medicine. Use the proper technique for pouring solid drugs such as capsules and tablets in order to minimise handling of the drugs. You should pour the medication into the container's cap, and then transfer the required number of units in the dose from the cap to the medication cup. If you require half of a tablet, a scored tablet may be cut into two pieces with a knife edge or folded in clean paper and broken with the fingers.  Scored tablets may be split by exerting digital pressure on each side of the slot. Fold tissue or a paper towel around the tablet to avoid contact between the hands and the medication. This procedure is easiest with larger tablets. Small tablets, which provide too little leverage for the fingers, should be cut with a knife. Do not attempt to split non scored tablets or to divide the dose of a single capsule. When you split tablets, give the two halves in successive doses, so that any deviation from the prescribed dose due to uneven breakage is levelled out as quickly as possible. Do not break all the tablets available and mix the halves.  Liquids should be measured in a container with a scale that provides a mark for the required dose, for example, plastic medicine glasses or spoons.  **The Right Client**  You should make sure that the right client receives the right drug. You should only give drugs to the person for whom they are prescribed or recommended for. If the patient is wearing an identification bracelet, check the client's name on their identification bracelet with the name on the medication card in your hand. Alternatively, if the patient is conscious and sane, simply call out the patient's name. This check is essential to avoid errors.  FirstPageButton  **The Right Route**  The right route must be used for drug delivery. Most medicines are taken orally or by topical application. Ensure that the client understands how the drug is to be taken. Sublingual or chewable tablets should not be swallowed whole. Crush oral drugs, if swallowing is difficult or if they are to be taken in liquid form. Demonstrate to the client procedures for application of topical drugs.  ***Giving medication by the wrong route can cause death. The person                who administers the drug is held responsible*.**  You should always check the doctor's orders and the cardex or treatment sheet to verify the medication route. Alert the doctor if the route is not in accord with that which is recommended for the drug preparation.  **The Right Time**  Under normal circumstances the right time for drug administration is not indicated by the doctor. The doctor only indicates the number of times a day a drug is to be given. For example, the doctor might state:   * The hourly interval between doses * The relation of the dose to the client's activity patterns, such as, before or after meals, on rising or retiring or every 4 hours, 6 hours or 12 hours   Clients with poor time orientation, short-term memory defects or distracting activity schedules need some system for guiding them in self medication. Most hospitals have set up routines for intervals and times for medication. Nonetheless you must be familiar with times for medications and the appropriate times for administering them. |

1. **Topic Summary**

1. **Further Reading**

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| --- | --- |
| |  | | --- | | 1.Nursing procedure manual  2.Standardoperating procedures in nursing | |

1. **Unit Activities**

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| --- | --- |
| **Review Questions** | **(Type here)** |
| **Performance task-** | **Quiz/assignment etc**  **(Type here)** |
| **Handout** | **(insert here)** |
| **Discussion** | **(Type discussion here)** |
| **Chat** | **(indicate time here)** |

**UNIT FOUR:**

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| Unit Name | **ASEPTIC TECHNIQUES** |

1. **Introduction**

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| Aseptic can be defined as "free from sepsis or germ free".  A technique is a method or skill used for a particular task or technical proficiency. Other definitions of technique are: art, artistry, craft, proficiency, skill, touch.  Weller, (1996) defines aseptic technique as:  **“A method of carrying out sterile procedures so that there is the minimum of risk of introducing infection.”**  This is achieved by the sterility of equipment and a non touch technique. |

1. **Unit Objectives**

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| * precautions Learn on how to maintain a sterile field * State an overview of infectious diseases * Describe the disease transmission cycle and those at risk of infection * List some standard * List common antiseptics, disinfectants and  aseptic techniques * Describe the use and disposal of needles and  other sharps * Describe the processing of instruments and  other items * Describe decontamination and sterilisation   Describe the storage of sterile equipment |

1. **Unit Learning Requirements**

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| To proficiently complete this unit, you ought to make sure you spend quality time and purpose to;   1. Carry out all tasks within the sections and subsections 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. |

1. **Topic One**

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| Topic name | INFECTIONPREVENTION AND CONTROL |

1. **Topic objective**

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| * Define whatis aseptic technique * Learn on how to maintain a sterile field * State an overview of infectious diseases * Describe the disease transmission cycle and those at risk of infection |

1. **Topic Content**

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| **Infection prevention and control**  The focus of infection prevention is to minimise the risk of transmitting infections to patients, service providers, supportive staff, housekeeping personnel and members of the community.  The goal of infection prevention is to minimise post procedure infections in patients and prevent transmission of life threatening infections to patients, service providers, auxiliary staff and members of the community ([AVSC 1999](https://en.wikipedia.org/wiki/Physical_examination)).  Aseptic can be defined as "free from sepsis or germ free".  A technique is a method or skill used for a particular task or technical proficiency. Other definitions of technique are: art, artistry, craft, proficiency, skill, touch.  Weller, (1996) defines aseptic technique as:  **“A method of carrying out sterile procedures so that there is the minimum of risk of introducing infection.”**  This is achieved by the sterility of equipment and a non touch technique. Brunner and Sudarth (1988) state some basic rules with regards to surgical asepsis as follows: **“Only sterile surfaces or articles may touch other sterile surfaces or articles and remain sterile. In contrast, un-sterile contact at any point renders a sterile area contaminated. If there is any doubt about the sterility of an article or area, it is considered un-sterile.”**  Also note whatever is sterile for one patient can only be used for that patient. Unused sterile supplies must be discarded or re-sterilised if they are to be used again.  You must pour sterile fluids from a point high enough to prevent accidental touching of the receptacle, but this should not be so high as to produce splashing which causes the fluid to touch an unsterile surface then flow back into the receptacle causing contamination.  The aseptic technique is applied when performing sterile procedures whether in general nursing, midwifery or community health nursing.  The practices performed just before or during a clinical procedure include hand washing, surgical hand scrub, using barriers such as gloves and surgical attire, proper preparation of a patient for clinical procedures, maintaining a sterile field, using good surgical technique and maintaining a safer environment in the surgical/procedure area.  **Maintaining a Sterile Field**  Think about how you can maintain a sterile field.  You can maintain a sterile field by placing sterile towels and/or surgical drapes around the surgical/procedures site. Other measures include:   * Placing only sterile items within the sterile field * Opening, dispensing or transferring sterile items without contaminating them * Considering items located below the level of the draped client to be unsterile * Not allowing sterile personnel to reach across unsterile areas and touch unsterile items * Not allowing unsterile personnel to reach across the sterile field or to touch sterile items   Think about how you can maintain a safe environment in the surgical/procedure area.  You are aware that specific rooms have been designed for performing surgical/clinical procedures and processing instruments and other items.  You often hear of dressing room or treatment room, autoclaving room and so on.  In these rooms traffic is controlled. Other activities are minimised or prohibited. This is because the number of people and amount of activity in them influences the number of micro-organisms and the risk of infections. You must therefore:   * Limit the entry of unauthorised individuals to surgical/procedure areas * Close doors and curtains during all procedures * Require that personnel in the surgical area wear clean clothes, a mask, a cap and sturdy footwear * Enclose surgical procedure area to minimise dust and eliminate insects * Air-condition the room if feasible   Disinfect and clean examination/operating tables, instrument trolleys, light handles and any other surfaces that may have been contaminated with blood. |

1. **Topic Summary**

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| The focus of infection prevention is to minimise the risk of transmitting infections to patients, service providers, supportive staff, housekeeping personnel and members of the community.  The goal of infection prevention is to minimise post procedure infections in patients and prevent transmission of life threatening infections to patients, service providers, auxiliary staff and members of the community ([AVSC 1999](https://en.wikipedia.org/wiki/Medical_procedure)).  Aseptic can be defined as "free from sepsis or germ free".  A technique is a method or skill used for a particular task or technical proficiency  You can maintain a sterile field by placing sterile towels and/or surgical drapes around the surgical/procedures site. Other measures include:   * Placing only sterile items within the sterile field * Opening, dispensing or transferring sterile items without contaminating them * Considering items located below the level of the draped client to be unsterile * Not allowing sterile personnel to reach across unsterile areas and touch unsterile items   Not allowing unsterile personnel to reach across the sterile field or to touch sterile items |

1. **Further Reading**

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| **Nursing procedure manual** |

1. **Topic two**

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| Topic name | **Wound care** |

1. **Topic objective**

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| To describe accurate wound assessment and effective wound management |

**Topic Content**

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| Accurate wound assessment and effective wound management requires an understanding of the physiology of wound healing, combined with knowledge of the actions of the dressing products available.  It is essential that an ongoing process of assessment, clinical decision making, intervention and documentation occurs to facilitate optimal wound.  **Physiology of a wound and wound healing**  *Wound classification-* **Acute wound**- is any surgical wound that heals by primary intention or any traumatic or surgical wound that heals by secondary intention. An acute wound is expected to progress through the phases of normal healing, resulting in the closure of the wound.   **Chronic wound**- is a wound that fails to progress healing or respond to treatment over the normal expected healing time frame (4 weeks) and becomes "stuck" in the inflammatory phase. This pathologic inflammation is due to a postponed, incomplete or uncoordinated healing process. Wound healing is delayed by the presence of intrinsic and extrinsic factors including medications, poor nutrition, co-morbidities or inappropriate dressing selection.  *Type of Healing-* **Primary intention**- the wound edges are held together by artificial means such as sutures, staples, tapes or tissue glue. There is minimal tissue loss and wounds heal with minimal scarring. Most clean surgical wounds and recent traumatic injuries are managed by primary closure. **Delayed primary intention**- when the wound is infected or requires more thorough intensive cleaning or debridement prior to primary closure usually 3-7 days later. May be used for traumatic wounds or contaminated surgical wounds. **Secondary intention**- spontaneous wound healing occurs through a process of granulation, contraction and epithelialisation. Results in scar formation and used as a method of healing for pressure injuries, ulcers or dehisced wounds.  **Skin graft-** removal of partial or full thickness segment of epidermis and dermis from its blood supply and transplanting it to another site to speed up healing and reduce the risk of infection. **Flap**- the surgical relocation of skin and underlying structures to repair a wound. Flaps are named according to their tissue components and may include an anastomosis of blood supply to vessels attached to or at the affected site.  **Wound healing** is a complex sequence of events that can be broadly divided into two stages: **Haemostasis**- is the rapid response to physical injury and is necessary to control bleeding. It involves the following components: 1. Vasoconstriction 2. Platelet response 3. Biochemical response **Tissue Repair & Regeneration**- involves 3 phases:   1. **Inflammation phase (0-4 Days)** the body's **normal**response to injury. This phase activates vasodilatation leading to increased blood flow causing heat, redness, pain, swelling and loss of function. Wound exudate may be present and this is also a normal body response. 2. **Reconstruction phase (2-24 Days)** the time when the wound is ***healing***. The body makes new blood vessels, which cover the surface of the wound. This phase includes reconstruction and epithelialisation. The wound will become smaller as it heals. 3. **Maturation phase (24 days-1 year)** the final phase of healing, when scar tissue is formed. The wound is still at risk and should be protected where possible.   **Factors That Inhibit Wound Healing**  Holistic assessment of the patient is an important part of the wound management process. A number of local and general factors can delay or impair wound healing.  These may include:  **Local:**   * Wound management practices- the goal is to optimise the wound environment so healing progresses * Moisture balance- dressings are designed to promote moist wound healing * Wound temperature and pH- a constant temperature of approximately 37’C has been shown to have a significant effect on healing along with the impact of maintaining a neutral or acidic pH to reduce the risk of bacterial colonisation and opportunistic infection * Infection- replication of organisms within a wound with subsequent host injury * Pressure, friction and shearing, limited mobility * Presence of foreign bodies   **General:**   * Underlying disease- diabetes, autoimmune disorders, anaemia and malignancy. The reason these conditions impair healing include- impaired collagen, impairment of angiogenesis, delayed infiltration of inflammatory cells, macrophages and lymphocytes, due to decreased host resistance, poor cutaneous or epidermal vasculature. * Impaired perfusion and hypoxia- cardiac conditions, smoking, shock and haemorrhage * Malnutrition- inadequate supply of protein, carbohydrates, lipids and trace elements and vitamins essential for all phases of wound healing * Body mass index * Disorders of sensation or movement- cerebral palsy, movement disorders, peripheral neuropathies, spina bifida * Medications- NSAIDs, chemotherapy, immunosuppressive drugs, corticosteroids * Radiation therapy * Stress, anxiety and depression   **Wound Assessment**  When conducting initial and ongoing wound assessments the following considerations should be taken into account to allow for appropriate management in conjunction with the treating team:   * Type of wound- acute or chronic * Aetiology- surgical, laceration, ulcer, burn, abrasion, traumatic, pressure injury, neoplastic * Location and surrounding skin * Tissue Loss * Clinical appearance of the wound bed and stage of healing * Measurement and dimensions * Wound edge * Exudate * Presence of infection * Pain * Previous wound management   **Considerations for Wound Assessment**  **Type of wound:**  There is different terminology used to describe specific types of wounds: such as surgical incision, burn, laceration, ulcer, abrasion. They can be generally classified as either acute or chronic wounds.  **Tissue loss:**  The degree of tissue loss may be referred to in broad terms as:   * **Superficial wound**- involving the epidermis * **Partial wound**- involves the dermis and epidermis * **Full thickness wound**-involves the epidermis, dermis, subcutaneous tissue and may extend to muscle, bones and tendons.   **There are classification systems for certain types of wounds such as Burns ([Nursing Management of Burn Injuries Clinical Practice Guideline](https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Nursing_management_of_burn_injuries/" \o "Nursing Management of Burn Injuries Clinical Practice Guideline)) and Pressure Injuries ([Pressure Injury Prevention and Management Clinical Practice Guideline](https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Pressure_Injury_Prevention_and_Management/" \o "Pressure Injury Prevention and Management Clinical Practice Guideline))  Wound bed clinical appearance:**   * **Granulating**- is when healthy red tissue is observed and is deposited during the repair process. It presents as pinkish/red coloured moist tissue and comprises of newly formed collagen, elastin and capillary networks. The tissue is well vascularised and bleeds easily. * **Epithelialising**- is a process by which the wound surface is covered by new epithelium, this begins when the wound has filled with granulation tissue. The tissue is pink, almost white, and only occurs on top of healthy granulation tissue. * **Sloughy**- the presence of devitalised yellowish tissue is observed and is formed by an accumulation of dead cells. Must not be confused with the presence of pus. * **Necrotic**- describes a wound containing dead tissue. The wound may appear hard, dry and black. Dead connective tissue may appear grey. The presence of dead tissue in a wound prevents healing. * **Hyper granulating**- this is observed when granulation tissue grows above the wound margin. This occurs when the proliferative phase of healing is prolonged usually as a result of bacterial imbalance or irritant forces.   **Wound measurement:**  'Assessment and evaluation of wound healing is an ongoing process.  All wounds require a two-dimensional assessment of the wound opening and a three-dimensional assessment of any cavity or tracking' (Carville, 2017)   * **Two-dimensional assessment**- can be done with a paper tape to measure the length and width in millimetres. The circumference of the wound can be traced if the wound edges are not even - often required for chronic wounds. The clinical picture application with the use of the ‘Rover’ device within EMR can be utilised and added in the ‘LDA’ wound assessment flowsheet. * **Three-dimensional assessment**- the wound depth is measured using a dampened cotton tip applicator.   **Wound edges:**  The edges of the wound are assessed for-   * **Colour**- pink edges indicate growth of new tissue; dusky edges indicate hypoxia; and erythema indicates physiological inflammatory response or cellulitis * **Evidence of contraction**- wound edges coming together indicate the healing process is occurring. Raised or rolled edges- raised (where the wound margin is elevated above the surrounding tissue) may indicate hyper granulation tissue and rolled (where the edges are rolled down towards the wound bed) can inhibit healing. * **Changes in sensation**- increased pain or the absence of sensation should be further investigated   **Exudate:**  Is produced by all acute and chronic wounds (to a greater or lesser extent) as part of the natural healing process. It plays an essential part in the healing process in that it:   * Contains nutrients, energy and growth factors for metabolising cells * Contains high quantities of white blood cells * Cleanses the wound * Maintains a moist environment * Promotes epithelialisation   It is important to assess and document the type, amount, colour and odour of exudate to identify any changes. Excess exudate leads to maceration and degradation of skin while too little can result in the wound bed drying out. It may become more viscous and odorous in infected wounds.  **Surrounding skin:**  The surrounding skin should be examined carefully as part of the process of assessment and appropriate action taken to protect it from injury.  **Presence of infection:**  Wound infection may be defined as the presence of bacteria or other organisms, which multiply and lead to the overcoming of host resistance. Infection can disrupt healing and damage tissues (local infection) or produce spreading infection or systemic illness. Infection adversely affects wound healing and may be the cause of wound dehiscence. Local indicators of infection-   * Redness (erythema or cellulitis) * Exudate- a change to purulent fluid or an increase in amount of exudate * Malodor * Localised pain * Localised heat * Oedema   Wound healing and clinical infection demonstrate inflammatory responses and it is important to ascertain if increases in pain, heat, oedema and erythema are related to the inflammatory phase of wound healing or infection.  If any of the above clinical indicators are present a medical review should be instigated and a Microscopy & Culture Wound Swab (MCS) should be considered.  **Pain:**  Pain can be an important indicator of abnormality. The pain associated with chronic wounds and wounds that require frequent dressing changes can be underestimated. Accurate assessment of pain is essential with regard to choice of the most appropriate dressing. Assessment of pain before, during and after the dressing change may provide vital information for further wound management and dressing selection.  **Wound Management**  **Guidelines for wound management:**   1. Promote a multidisciplinary approach to care. 2. Initial patient and wound assessment is important and whenever there is a change in condition. 3. Consider the psychological implications of a wound- especially relevant in the paediatric setting in relation to developmental understanding and pain associated with the wound and dressing changes. 4. Determine the goal of care and expected outcomes. 5. Respect the fragile wound environment. 6. Maintain bacterial balance- use aseptic technique when performing wound procedures. 7. Maintain a moist wound environment 8. Maintain a stable wound temperature. Avoid cold solutions or wound exposure. 9. Maintain an acidic or neutral pH. 10. Allow a heavily draining wound to drain freely. 11. Eliminate dead space but don’t pack a wound tightly. 12. Select appropriate dressings and techniques based on assessment and scientific evidence. 13. Instigate appropriate adjunctive wound therapies- e.g. compression, splinting and pressure redistribution equipment, off-loading orthotics. 14. Follow the principles for managing acute and chronic wounds.) (Carville, 2017   **Acute Wound Management**  **Wound cleansing**  The goal of wound cleansing is to:   * Remove visible debris and devitalised tissue * Remove dressing residue * Remove excessive or dry crusting exudates * Reduce contamination   Principles of wound cleansing:   * Use [Aseptic Technique procedure](https://www.rch.org.au/policy/policies/Aseptic_Technique/" \o "Aseptic Technique procedure)- a non-touch technique is used to protect key parts and key sites. If a key part or key site is to be touched directly then sterile gloves must be worn. Note: when using a disinfectant on a key site (e.g. skin) or key part (e.g. injection port) it must be allowed to dry. * Cleansing should be performed in a way that minimises trauma to the wound as new epithelial cells and vessels are fragile. * Irrigation is the preferred method for cleansing open wounds. This may be carried out utilising a syringe in order to produce gentle pressure and loosen debris. Gauze swabs and cotton wool should be used with caution. * Wounds are best cleansed with sterile isotonic saline or water, warmed to body temperature.   **Choice of dressing**  A wound will require different management and treatment at various stages of healing. No dressing is suitable for all wounds; therefore frequent assessment of the wound is required.  Wound healing progresses most rapidly in an environment that is clean, moist (but not wet), protected from heat loss, trauma and bacterial invasion.   * Much research has demonstrated that moisture control is a critical aspect of wound care. * The appropriate dressing can have a significant effect on the rate and quality of healing. * The appropriate dressing will help to minimize bacterial contamination and pain associated with wound care.   There are a multitude of dressings available to select from. Effective dressing selection requires both accurate wound assessment and current knowledge of available dressings (Ayello, Elizabeth A)  **Wounds healing by Primary Intention**  These wounds require **little intervention** other than protection and observation for complications. Recommended dressings include:   * Dry non-adherants * Island dressings * Semi-permeable films * Hydrocolloids * Foams   **Wounds healing by delayed primary intention**  Occurs when the wound is contaminated or infection is suspected. These traumatic or surgical wounds require intensive cleaning before healing can occur. Debridement using irrigation may be required. Recommended dressings include:   * Normal saline compresses * Amphorous hydrogels or hydrogel impregnated gauzes to assist with debridement * Calcium alginate ropes or ribbons * Hyrofibre ropes or ribbons * Drainable wound/ostomy appliances when large amounts of exudate is present * Foams   Absorbent or protective secondary dressings will be required for most wounds- it is important to ensure that the surrounding skin is protected from maceration. A skin barrier wipe can be used.  **Wounds healing by secondary intention**  Acute surgical or traumatic wounds may be allowed to heal by secondary intention- for example a sinus, drained abscess, wound dehiscence, skin tear or superficial laceration. Dressing selection should be based on specific wound characteristics. Referral to Stomal Therapy should be considered to promote optimal wound healing.    **Chronic wound management**  Determine the aetiology for inhibition of wound healing. Address or control the factors identified for example: presence of infection, poor nutritional status, appropriate dressing selection, moist wound environment.  Dressing selection should be based on the specific wound characteristics and referral to Stomal Therapy should be initiated to promote optimal wound healing. Advanced wound therapies may be required to be utilitised e.g surgical debridement, application of a negative pressure dressing, hyperbaric therapy. |

1. **Topic Summary**

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| Accurate wound assessment and effective wound management requires an understanding of the physiology of wound healing, combined with knowledge of the actions of the dressing products available.  It is essential that an ongoing process of assessment, clinical decision making, intervention and documentation occurs to facilitate optimal wound.  *Wound classification-* **Acute wound**- is any surgical wound that heals by primary intention or any traumatic or surgical wound that heals by secondary intention. An acute wound is expected to progress through the phases of normal healing, resulting in the closure of the wound.   **Chronic wound**- is a wound that fails to progress healing or respond to treatment over the normal expected healing time frame (4 weeks) and becomes "stuck" in the inflammatory phase. This pathologic inflammation is due to a postponed, incomplete or uncoordinated healing process. Wound healing is delayed by the presence of intrinsic and extrinsic factors including medications, poor nutrition, co-morbidities or inappropriate dressing selection.  *Type of Healing-* **Primary intention**- the wound edges are held together by artificial means such as sutures, staples, tapes or tissue glue. There is minimal tissue loss and wounds heal with minimal scarring. Most clean surgical wounds and recent traumatic injuries are managed by primary closure. **Delayed primary intention**- when the wound is infected or requires more thorough intensive cleaning or debridement prior to primary closure usually 3-7 days later. May be used for traumatic wounds or contaminated surgical wounds. **Secondary intention**- spontaneous wound healing occurs through a process of granulation, contraction and epithelialisation. Results in scar formation and used as a method of healing for pressure injuries, ulcers or dehisced wounds.  **Skin graft-** removal of partial or full thickness segment of epidermis and dermis from its blood supply and transplanting it to another site to speed up healing and reduce the risk of infection. **Flap**- the surgical relocation of skin and underlying structures to repair a wound. Flaps are named according to their tissue components and may include an anastomosis of blood supply to vessels attached to or at the affected site. |

**[***Summary of the topic content that guides the learner to know what he ought to have understood during the topic coverage***]**

1. **Further Reading**

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| [Clinical Guideline (Nursing): Nursing Assessment](http://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Nursing_Assessment/" \o "Clinical Guideline (Nursing): Nursing Assessment)  Principles for managing acute and chronic wounds. (Carville, 2017 |  |

1. **Topic three**

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| --- | --- |
| Topic name | Use of personal protective equipment |

1. **Topic objective**

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| To learn different types of personal protective equipment |

1. **Topic Content**

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| **Personal Protective Equipment**  These are physical barriers used to prevent transmission of infection to the patient or from the patient to the persons attending them, for example, gloves, gowns, surgical masks and protective eye wear  **A)Gloves** Gloves provide a barrier against potentially infectious micro-organisms in blood, other body fluids, and medical waste, thus lowering the risk of transmitting infections to both health care workers and patients. Gloves also protect against hazardous chemical waste. You should wear gloves whenever you may come into contact with patient's blood and other body fluids, for example, while:   * Providing clinical services * Handling or cleaning used instruments and other items * Performing housekeeping activities * Use a new pair of gloves for each patient! Disposable gloves are used once and then  thrown away * Disposable gloves are preferable to renewable gloves because it is difficult to properly process gloves. Disposable gloves should never be processed or reused   PreviousPageButton  **types of gloves**  **Sterile Surgical Gloves or High Level Disinfected Surgical Gloves**  These should be worn during all procedures in which your main aim is to avoid introduction of pathogens into the patient, for example during:   * Surgical procedures * Insertion of Norplant implants * Pelvic examination of women in labour   Disposable surgical gloves are recommended for use.  **Single use examination gloves**  Single use means discard gloves after use. These should be worn for all procedures in which you will be in contact with intact mucous membranes, such as:   * IUCD insertion * Manual vacuum aspiration * Pelvic examination   Also where the primary purpose of wearing gloves is to reduce the risk of you being exposed to blood or other body fluids for example:   * When drawing blood * When working in the laboratory   **B) Gowns and Aprons**  These should be made of waterproof material and worn full size to  give maximum protection. They should be used when splashing of  blood or other body fluids or when any other potentially infectious  materials are anticipated, for example during:   * Surgical operations * While conducting deliveries * During intubations and sanctioning procedures * Any other procedure/activities where splashing is anticipated   **C) Masks and Eye Shields**  These provide some protection against airborne pathogens and shield  against splashes. They should be worn during dental surgery, when  conducting deliveries and endoscopies or in any other situations  where splashing or spattering is anticipated.  **D) Head gear and Boots**  Caps are worn full length to cover the head. Boots and shoe covers  should be waterproof and should be cleaned frequently. These should  be used in operative procedures. |

1. **Topic Summary**

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| Personal Protective Equipment are physical barriers used to prevent transmission of infection to the patient or from the patient to the persons attending them, for example, gloves, gowns, surgical masks and protective eye wear |

1. **Further Reading**

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| Nursing procedure manual |

**UNIT FIVE:**

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| Unit Name | PRE- AND POST-OPERATIVE CARE |

**Introduction**

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| Pre-operative assessment is necessary prior to the majority of elective surgical procedures, in order to ensure that the patient is fit to undergo surgery, to highlight issues that the surgical or anaesthetic team need to be aware of during the peri-operative period, and to ensure patients’ safety during their journey of care. In addition, unnecessary cancellations or complications due to inappropriate surgery may be avoided, in addition to costs both to the patient and health service. The post-operative management of elective surgical patients begins during the peri-operative period and involves the surgical team, anaesthetic staff, and allied health professionals. Appropriate monitoring and repeated clinical assessment are required, along with support for all major organ systems, including cardiorespiratory function, renal function and fluid and electrolyte balance, and awareness for signs of early surgical complications such as bleeding and infection . |

**Unit Objectives**

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| 1. understand patient counselling  2. understand pre-operative preparation  3. understand patient movement  4. patient activities of daily living |

**Unit Learning Requirements**

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| To proficiently complete this unit, you ought to make sure you spend quality time and purpose to;   1. Carry out all tasks within the sections and subsections 2. Participate in discussion forums as and when they are scheduled. 3. Participate in chat sessions as and when they are scheduled. |

**Topic One**

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| Topic name | Patient counselling and pre-operative care |

**Topic objective**

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| **Describe patient counseling and pre-operative care** |
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**Topic Content**

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| **pre-operative assessment**  Most patients undergoing elective surgery are subjected to routine history checks and clinical examinations by medical staff at the time that a decision is taken by both clinician and patient to undergo surgery. For most procedures other than those which are very minor, a formal pre-operative assessment consultation is usually led by a specialist nurse or a member of medical staff, and generally includes a review of the patient’s case notes, a detailed history and clinical examination, and additional tests and investigations.  **History**  Salient points in the history in patients who are presumed to be healthy is to identify any as-yet undetected illnesses which could have an adverse effect on the forthcoming surgery and peri-operative care. The history should focus on the indication for surgical procedures, allergies, and undesirable side-effects to medications or other agents, known medical problems, surgical history, major trauma, and current medications.  Common conditions which can affect peri-operative care include ischaemic heart disease, congestive cardiac failure, chronic respiratory disease, diabetes mellitus and liver or renal dysfunction . As anaesthetic drugs can have pronounced adverse effects on cardiovascular and respiratory systems, it is worthwhile enquiring about chest pain, dyspnoea, ankle swelling and palpitations. The presence of a cough, sputum production and any indication of airway obstruction will provide invaluable information. An excellent indicator of cardiorespiratory function is tolerance of exercise . A smoking history should also be taken as smokers are difficult to anaesthetise due to their upper airways being sensitive to the dry gases used during anaesthesia, and their risk of hypoxia is greater. Assessment and documentation of alcohol intake is required, as induction of liver enzymes by alcohol may shorten the action of anaesthetic drugs and may identify the risk of potential alcohol withdrawal. The use of recreational drugs such as intravenous opiates should also be recognised, as such patients may have poor venous access, may be at risk of septicaemia, and may pose a risk to the surgical team. Patients on long term steroids require adequate cover intra-operatively in order to avoid a hypotensive crisis.  **Physical Examination**  A general systems examination is performed to identify abnormalities of the cardiorespiratory system which would require further assessment. In particular, cardiac murmurs, additional heart sounds, and abnormal chest signs in patients with no previously documented pathology require investigation and/or referral to an appropriate specialist. Review of the gastrointestinal (GI) system identifies any abdominal masses and previous surgical scars. Skeletal malformations such as kyphoscoliosis can be detected on examining the musculoskeletal system. Local skin abnormalities should be documented and any issues should be highlighted to the surgical team.  Observations including heart rate and blood pressure are recorded. Brief examination of the airway provides valuable information regarding the feasibility of intubation. Several factors must be considered when assessing the airway. These include whether the patient is obese, has a short neck and small mouth, or whether or not there is any soft tissue swelling at the back of the mouth or if there are any constraints to neck flexion or extension. Cervical spine stiffness should be followed up with a plain radiograph to aid the anaesthetic team in decision-making regarding intubation.  **Investigations**  Most patients admitted for elective surgery undergo a range of routine pre-operative tests. Some of these tests are guided by the patient’s clinical needs, whilst others are done as a matter of routine. The purposes of routine pre-operative tests are to assess whether the patient may have any pre-existing health problems, to identify any medical conditions unknown to the patient, the prediction of post-operative complications and the establishment of a reference for comparisons if tests need to repeated at a later date.  *Chest Radiographs*  Overuse of pre-operative chest x-rays (CXR) has in the past led to inappropriate wastage of resources. Unexpected abnormalities are rare and seldom lead to changes in further management. In many cases, the radiologist’s report of the pre-operative chest radiograph is not available until after surgery , and the absence of achest radiograph pre-operatively has not been shown to be associated with an increase in post-operative morbidity or mortality .  Little evidence exists advocating the use of pre-operative chest X-rays prior to elective orthopaedic surgery. Radiographs should be sought when clinically indicated, or as requested by an anaesthetist. Chest x-rays should, however, be included in routine pre-operative tests for patients with a hip fracture . The National Institute for Clinical Excellence (NICE) does not recommend routine pre-operative chest X-rays for otherwise healthy patients unless cardiac surgery is to be performed, but states that the decision depends upon the clinical history (e.g. chronic obstructive pulmonary disease (COPD), asthma) and the pathology requiring surgery .  *Electrocardiograms (ECGs*)  ECGs can identify, amongst other things, underlying ischaemic heart disease, previous infarction, and abnormalities in heart rhythm. No clear consensus exists whether pre-operative ECGs should be performed. ECGs may provide the major, and perhaps only, indication as to whether the patient has previously suffered an unrecognised myocardial infarction, which within the preceding 6 months is a risk factor for life-threatening cardiac complications in the peri-operative period .  Barnard *et al.* recommend pre-operative ECGs in those over 60 years of age undergoing major surgery and in those displaying signs and symptoms of cardiovascular (ischaemic heart disease/hypertension) or respiratory disease. In patients with known or suspected coronary artery disease, ECGs should be performed pre-operatively, immediately post-surgery and on the first two days after surgery. In addition, patients with unstable coronary syndromes, significant arrythmias or severe valvular heart disease scheduled for elective non-cardiac surgery should have surgery cancelled or delayed until the cardiac issue has been clarified and treated . NICE guidelines for pre-operative tests and investigations in otherwise healthy patients state that pre-operative ECGs should be performed in patients younger than 60 years of age if they are asthmatic or a smoker, and in all those patients above the age of 80 years.  Full Blood Count  For those patients in whom anaemia is suspected, a full blood count (FBC) is recommended. Whether or not a patient requires a pre-operative FBC also depends on the complexity of the surgery to be performed. For those patients attending only for minor surgery it can be argued that an FBC is not required. It is required however if the proposed operation is expected to cause anything greater than minor blood loss and also in those patients over the age of sixty who will be undergoing major surgery . Pre-operative FBC also acts as a baseline for comparison with post-operative testing.  *Biochemistry*  Pre-operative serum biochemistry testing generally includes assessment of urea & creatinine and electrolytes. Abnormalities of serum potassium concentrations should be highlighted to anaesthetic staff pre-operatively and corrected where possible, due to a risk of cardiac arrest with agents such as suxamethonium . NICE recommends pre-operative renal function in patients older than 40 years undergoing major surgery . In addition to NICE, Barnard recommends a dipstick urine test in those older than 16 years to screen for evidence of diabetes. Pre-operative liver function tests should be performed in those with established cirrhosis or a history of liver disease, or excessive alcohol intake.  *Coagulation Screening*  Coagulation testing is often routinely undertaken in anticoagulated patients or patients to be started on anticoagulants. The activated partial thromboplastin time (APTT) is used to monitor unfractionated heparin, whereas the International Normalised Ratio (INR) is used for the monitoring of coumarin anticoagulants such as warfarin. Rohrer *et al*'s study from 1988 suggested that blanket use of routine coagulation testing in the pre-operative setting is unnecessary, and may result in needless further testing and perhaps a delay in surgery. This is also the viewpoint of NICE. Thus pre-operative clotting screens should only be performed in selective groups, namely those with a history of a bleeding disorder, liver disease, or malnutrition, or patients on anticoagulants (warfarin, heparin). |

**Topic Summary**

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| Most patients undergoing elective surgery are subjected to routine history checks and clinical examinations by medical staff at the time that a decision is taken by both clinician and patient to undergo surgery. For most procedures other than those which are very minor, a formal pre-operative assessment consultation is usually led by a specialist nurse or a member of medical staff, and generally includes a review of the patient’s case notes, a detailed history and clinical examination, and additional tests and investigations. |

**Topic One**

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| --- | --- |
| Topic name | Post- operative care |

**Topic objective**

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| Describe patient post-operative care |

**Topic Content**

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| The mainstays of post-operative care in general are regular assessment, selective monitoring and timely documentation. Further principles of post-operative care involve reviews of the major body systems, namely respiratory, cardiovascular and renal systems. Furthermore, sepsis must be controlled and sufficient pain relief must be provided. In order for a patient to be discharged from the post-operative recovery room and back to the ward, certain criteria need to be met.  Table 2.  Criteria for Patients to be discharged from the Post-Operative Recovery Room   |  | | --- | | •  The patient is fully conscious, responding to voice or light touch, able to maintain a clear airway and has a normal cough reflex | | •  Respiration and oxygen saturation are satisfactory (10-20 breaths/minute and SpO2>92%) | | •  The cardiovascular system is stable with no unexplained cardiac irregularity or persistent bleeding | | •  The patient’s pulse and blood pressure should compare with normal pre-operative values or should be at a level corresponding to planned post-operative care | | •  There should be adequate control of pain and vomiting with suitable analgesic and anti-emetic regimens prescribed | | •  Temperature should be within acceptable limits (>36°C) | | •  Oxygen and fluid therapy should be prescribed when required |   The first post-operative assessment should take place following a patient’s return from theatre. This acts as a baseline against which the patient’s condition can be assessed at a later date and identifies any problems that may have occurred on transfer from the operating department. This assessment should include the intraoperative history and post-operative instructions, circulatory volume status, respiratory status and cognitive state. Common causes of confusion in the postoperative period include infection, hypoxia, sedatives and other medications such as anticholinergics.  **Monitoring**  Monitoring of patients allows routine data to be collated and trends established, therefore making it more straightforward to detect any clinical deterioration. It also allows a patient’s response to treatment to be evaluated. Common parameters include temperature, pulse rate, blood pressure, respiratory rate, urine output, peripheral oxygen saturation and pain scores.  These variables should be measured multiple times during the day, depending on the type of surgery involved. Other examples of monitoring include ECGs, arterial blood gas analysis (ABGs) and central venous pressure (CVP) monitoring. In addition, assessment of drainage and bleeding should also be performed routinely.  *Cardiovascular Monitoring*  As the main significant post-operative complications in general surgical patients are cardiovascular and respiratory in nature, it is sensible that cardiorespiratory monitoring be made a priority. In general, maintaining a patient’s heart rate and blood pressure within normal limits will result in a satisfactory outcome. However, there are no clinical studies to indicate what is normal with respect to heart rate and blood pressure for individual patients in the post-operative period.  Hypertension is common post-operatively and can be due to various causes including pain, anxiety and discontinuing antihypertensive medication. Guidelines by The American College of Cardiology/American Heart Association recommend deferring surgery if the diastolic pressure is above 110 mm Hg and systolic is above 180 mm Hg.  Hypotension is also common post-operatively and has been defined as a systolic blood pressure below 90 mmHg . Causes include hypovolaemia due to bleeding or dehydration, or drug therapy.  Myocardial ischaemia in the first 48 hours after an operation is the single most important predictor of serious cardiac events, including cardiac death, myocardial infarction, unstable angina, congestive heart failure and serious arrhythmias. High risk procedures with a risk of cardiac event greater than 5% include cardiac and vascular surgery, or major pelvic/GI surgery in the presence of pre-existing vascular disease. The majority of elective orthopaedic surgery is classed as intermediate risk, with a cardiac risk of less than 5%.  *Respiratory Monitoring*  Pulmonary complications are an important and common cause of post-operative morbidity and mortality and are particularly common after major abdominal and thoracic surgery. Risk factors for the development of post-operative pulmonary complications include high body mass index (BMI), smoking status and the presence of COPD. Others include pre-operative respiratory illnesses, Intensive Care Unit (ICU) stay and mechanical ventilation in the post-operative period. In order to adequately observe respiratory function and to identify post-operative respiratory complications the respiratory rate, heart rate and conscious level should be monitored routinely. Indicators of respiratory complications include respiratory rate <10 or >25 breaths per minute; pulse rate >100 beats per minute and reduced conscious level.  Patients in whom there is a suspicion of post-operative pulmonary complications should have an arterial blood gas analysis, a sputum culture and ECG. A CXR should be performed on suspicion of major collapse, effusions, pneumothorax or haemothorax.  Diagnostic Criteria for Certain Respiratory Complications   |  | | --- | | **Respiratory failure:**   * type 1 - PaO2 < 8kPa (60 mm Hg), PaCO2 <6.6kPa (50 mm Hg) * type 2 - PaO2 < 8kPa (60 mm Hg), PaCO2 >6.6kPa (50 mm Hg) | | **Atelectasis:**   * pulmonary collapse clinically or on x-ray which may be subsegmental, segmental, lobar or pulmonary, without evidence of respiratory infection | | **Respiratory infection:**Any two of the following on two or more days:   * pyrexia > 38°C * positive sputum culture * positive clinical findings * abnormal chest x-ray - atelectasis/infiltrates | | **ARDS:**   * acute onset * bilateral infiltrates on chest x-ray * if PaO2 (kPa) / FiO2 is ≤ 26 |   Post-operative pulmonary complications can therefore be recognised early if vital signs are recorded accurately in the post-operative period. Any deterioration in these values should then necessitate the need for further investigations such as x-rays and ABGs.  *Fluids & Electrolytes*  The standard principles of fluid balance in the post-operative patient are to correct any pre-existing deficits, to replace unusual losses (e.g. from surgical drains, pyrexia) and to use the oral route wherever possible as there is not infrequently a delay in commencing oral intake after surgery. Particular patient groups susceptible to fluid or electrolyte disturbances include the elderly, those with pre-existing cardiovascular/cerebrovascular/renal disease and patients who have suffered a peri-operative myocardial ischaemic event.  In order to detect fluid and electrolyte abnormalities, patients must have their vital signs checked regularly. Hypotension, tachycardia, oliguria, confusion and tachypnoea may all be indications of hypovolaemia but also have other causes, including sepsis. Whenever a post-operative patient is hypovolaemic, it is important that haemorrhage be considered and to actively exclude this before attributing hypovolaemia to another cause.  Potential causes of hypovolaemia include haemorrhage, diarrhoea and vomiting, polyuria and fluid losses *via*drains. On the other hand, causes of fluid overload include excessive intravenous fluid administration and poor renal or cardiac function. This should be avoided as consequences may include pulmonary oedema. It is thus important to regularly check patients’ vital signs when administering intravenous fluids, so that it can be recognised early if the patient is getting too much or too little.  **Sepsis**  Sepsis is the systemic inflammatory response to infection and represents a progressive response to infection leading to a generalised inflammatory reaction and eventually end-organ dysfunction and/or failure. The development of systemic sepsis in a post-operative patient marks a serious decline in their condition. Therefore, early identification of patients at risk of developing sepsis and subsequent management is paramount . Matot *et al.* explain that some of the clinical features to look out when identifying sepsis include fever, signs of peripheral vasodilation, altered mental state, leucocytosis/neutropenia and unexplained tachycardia, tachypnoea or hypotension. Early identification and appropriate treatment of sepsis improves outcome. Without prompt intervention, severe sepsis may ensue.  **Neurovascular Assessment**  Circulation, sensation and movement (CSM) are evaluated by assessing the upper and lower extremities. Motor and sensory examination findings may be difficult to determine in the immediate post-operative period however, as regional blocks are frequently used. As a result, regular assessments are encouraged to demonstrate return of function. Assessment of all major nerves should be conducted since they the most common nerves to be injured and have a significant effect on patient recovery.  **Pain Control**  Post-operative pain can daily management of post-operative pain has been enhanced. Morphine is the most commonly used intravenous drug for pain, however other opioids have been used. The most frequently observed adverse effects of opioid-based are nausea and vomiting, pruritus, respiratory depression, sedation, confusion and urinary retention.  Other options available for post-operative analgesia include intrathecal and epidural analgesia. These may be provided either by using opioids, local anaesthetics or a combination of both. Intrathecal opioids are relatively straightforward to administer and can provide pain relief for twenty four hours or more after a single injection of intrathecal morphine.. However, this route of administration increases the risk for complications related to the indwelling epidural catheter, including dislodging, kinking or migration within the epidural space.  Opioids are commonly used in the post-operative period. Commonly used agents include morphine, fentanyl and pethidine. Intravenous infusion administration results in a more constant blood level however. Oral opioids can be very effective and can be used to rapidly wean a patient off parenteral therapy, thereby allowing earlier discharge from the hospital. Oxycodone as a controlled-release tablet can provide good pain control for up to 12 hours.  Other methods of providing analgesia also exist. A Cochrane review in 1998 concluded that paracetamol can be used for post-operative pain relief. Several reviews have since supported this, suggesting that paracetamol can provide effective pain relief for up to four hours post-operatively with few adverse side effects. Non-steroidal anti-inflammatory drugs (NSAIDs) can also be added to opioid treatment post-operatively as this can reduce morphine requirements and opioid-related side effects in the early post-operative period.  Wound infiltration with a local anaesthetic is a studies involving minor surgical procedures have discovered that wound infiltration with local anaesthetic provides superior analgesia, better pain scores, and superior reduction in opioid consumption. Long-acting local anaesthetics such as ropivacaine or bupivacaine are preferred as the analgesic effect is longer. |

**Topic Summary**

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| The mainstays of post-operative care in general are regular assessment, selective monitoring and timely documentation. Further principles of post-operative care involve reviews of the major body systems, namely respiratory, cardiovascular and renal systems. Furthermore, sepsis must be controlled and sufficient pain relief must be provided. In order for a patient to be discharged from the post-operative recovery room and back to the ward, certain criteria need to be met.  Table 2.  Criteria for Patients to be discharged from the Post-Operative Recovery Room   |  | | --- | | •  The patient is fully conscious, responding to voice or light touch, able to maintain a clear airway and has a normal cough reflex | | •  Respiration and oxygen saturation are satisfactory (10-20 breaths/minute and SpO2>92%) | | •  The cardiovascular system is stable with no unexplained cardiac irregularity or persistent bleeding | | •  The patient’s pulse and blood pressure should compare with normal pre-operative values or should be at a level corresponding to planned post-operative care | | •  There should be adequate control of pain and vomiting with suitable analgesic and anti-emetic regimens prescribed | | •  Temperature should be within acceptable limits (>36°C) | | •  Oxygen and fluid therapy should be prescribed when required |   The first post-operative assessment should take place following a patient’s return from theatre. This acts as a baseline against which the patient’s condition can be assessed at a later date and identifies any problems that may have occurred on transfer from the operating department. This assessment should include the intraoperative history and post-operative instructions, circulatory volume status, respiratory status and cognitive state. Common causes of confusion in the postoperative period include infection, hypoxia, sedatives and other medications such as anticholinergics.  Monitoring of patients allows routine data to be collated and trends established, therefore making it more straightforward to detect any clinical deterioration. It also allows a patient’s response to treatment to be evaluated. Common parameters include temperature, pulse rate, blood pressure, respiratory rate, urine output, peripheral oxygen saturation and pain scores.  These variables should be measured multiple times during the day, depending on the type of surgery involved. Other examples of monitoring include ECGs, arterial blood gas analysis (ABGs) and central venous pressure (CVP) monitoring. In addition, assessment of drainage and bleeding should also be performed routinely. |

**Further Reading**

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**Unit Activities**

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| --- | --- |
| **Review Questions** | **(Type here)** |
| **Performance task-** | **Quiz/assignment etc**  **(Type here)** |
| **Handout** | **(insert here)** |
| **Discussion** | **(Type discussion here)** |
| **Chat** | **(indicate time here)** |

**[***This is a section that is related to the Unit’s content. This section contains review questions, performance tasks, discussion forum and/or Chat tool in relation to the concluded unit. It houses the following subsections:*

1. ***Review Question –*** *These are questions that are meant to help the learner reflect on the content studied in the whole unit and self-assess level understanding.*
2. ***Performance Tasks –*** *These are tasks the learner can attempt based on the whole unit. They could either be* 
   1. *Main Tasks - These are assignments and quizzes and/or*
   2. *Sub Tasks – These could be group assignment or Clinical logs*
3. ***Handout –*** *A relevant additional text that the Subject Matter Expert feels would add value to the contents of the Unit, could be appended here. Maybe it could be case studies, research papers, etc***]**
4. ***Discussion forum tool –*** *This is a relevant tool where the lecturer/tutor can use to pose questions, give them afew days to research and share feedback from which they learn from one another’s responses.*
5. ***Chat tool*** *– To help the students and tutor hold a realtime online Q & A session.*

**NOTE**:

1. For every module unit, the first section [*course overview*] has to be developed then the units and topics within are subsequently developed with the sections mentioned added. Every unit must have the described subsections for uniformity’s sake.
2. You might want to determine whether there should be a minimum number of units and topics therein for every module for uniformity’s sake.
3. Training of the lecturers on how to develop the sections and their importance is necessary as well as other issues that come up during content development. For example, copyright laws.
4. Training of the learners on how to navigate through the platform is necessary too so that usability does not inhibit learning. A manual can be developed for this purposes too.
5. For purposes of developing content by the lecturers and availing it in an easier form for uploading purposes, it is prudent to provide formatting details. For example, font size, spacing, font type, margin, coverpage, etc.
6. For the learners, if the assignments shall be submitted, all the more reason why orientation is important and provision of necessary templates for example assignment submission templates among others.
7. You can decide whether to redesign the existing uploaded courses into this format or the subsequent ones to have the new format.