Midwifery Level III

NTQF Level III

Learning Guide -10

Unit of Competence: Provide Common Medical and Surgical Care in Maternal Health

Module Title: Provide Common Medical and Surgical Care in Maternal Health

LG Code: HLT MDW3 M10 LO3 LG2

TTLM Code: HLT MDW3 TTLM 0919v1

LO 2: Identify and manage surgical problems

Instruction Sheet	Learning Guide #02

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- ✓ Acute abdomen
- ✓ Hemorrhoid and supportive management
- ✓ Hernias
- ✓ Burn including Shock management
- ✓ Wound Car
- ✓ Managing operation room (OR) theater
- ✓ Operative care
- ✓ Identifying imbalance

This guide will also assist you to attain the learning outcome stated in the cover page.
Specifically, upon completion of this Learning Guide, you will be able to –

-identify, consult and refer Acute abdomen
-Identify, provide and manage Hemorrhoid
- identify and refer Hernias
-Identify and manage Burn cases
-describe Operation room theater techniques
-Provide Pre, intra and post-operative care
-Identify and manage Acid-base, fluid and electrolyte imbalance
-Describe and manage Wound care

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 14.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 8.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1-8).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2” in page 13.
10. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
11. Read the information written in the “Information Sheets 3”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
12. Ask your trainer the key to correction (key answers) or you can request your trainer to correct your work.
13. If you earned a satisfactory evaluation proceed to “Operation Sheet 1” in page 32; However, if your rating is unsatisfactory, see your trainer for further instructions or

go back to Information sheet 2.
14. Read the “Operation Sheet 1 and try to understand the procedures discussed.

Information Sheet-1	Acute Abdomen

1.1. Definition

-Acute abdomen is a condition that demands urgent attention and treatment. The acute abdomen may be caused by an infection, inflammation, vascular occlusion, or obstruction.

- An acute abdomen" denotes any sudden, spontaneous, non-traumatic disorder whose chief manifestation is in the abdominal area and for which urgent operation may be necessary. Because there is frequently a progressive underlying intra-abdominal disorder, undue delay in diagnosis and treatment adversely affects outcome.

- An acute abdomen must be suspected even if the patient has only mild or atypical complaints. The history and physical examination should suggest the probable causes and guide the choice of initial diagnostic studies. The clinician must then decide if in-hospital observation is warranted, if additional tests are needed, if early operation is indicated or not.

1.2. Common Causes of the Acute Abdomen

- **Gastrointestinal tract disorders**
  - *Nonspecific abdominal pain
  - *Appendicitis
  - *Small and large bowel obstruction
  - *Perforated peptic ulcer
  - *Incarcerated hernia
  - *Bowel perforation
  - * Meckel's diverticulitis
  - * Boerhaave's syndrome
  - *Diverticulitis
  - * Inflammatory bowel disorders
  - * Mallory-Weiss syndrome
  - *Gastroenteritis
  - *Acute gastritis
  - * Parasitic infections
- Liver, spleen, and biliary tract disorders
  - -Acute cholecystitis
  - - Acute cholangitis

- Hepatic abscess

-Ruptured hepatic tumor

-Spontaneous rupture of the spleen

- Splenic infarct

-Acute hepatitis

- Urinary tract disorders

-Ureteral or renal colic

-Acute pyelonephritis

- Acute cystitis

-Renal infarct

- Gynecologic disorders

-Ruptured ectopic pregnancy

-Twisted ovarian tumor

- Ruptured ovarian follicle cyst

-Acute salpingitis

- Dysmenorrhea

- Peritoneal disorders

- Intra-abdominal abscesses

-Primary peritonitis

-Tuberculosis peritonitis

1.3. History

- ✓ Location of Pain

-**visceral pain** :is elicited by distention, by inflammation or ischemia stimulating the receptor neurons, or by direct involvement (e.g., malignant infiltration) of sensory nerves.The centrally perceived sensation is generally slow in onset, dull, poorly localized, and protracted.

-**parietal pain** : is mediated by both C and A delta nerve fibers, the latter being responsible for the transmission of more acute, sharper, better-localized pain sensation. Direct irritation of the somatically innervated parietal peritoneum (especially the anterior and upper parts) by pus, bile, urine, or gastrointestinal secretions leads to more precisely localized pain

- **Referred pain** :denotes noxious (usually cutaneous) sensations perceived at a site distant from that of a strong primary stimulus.

- ✓ Spreading or shifting pain

-parallels the course of the underlying condition. The site of pain at onset should be distinguished from the site at presentation

- ✓ Mode of Onset and Progression of Pain

-The mode of onset of pain reflects the nature and severity of the inciting process.

- ✓ Character of Pain : -The nature, severity, and periodicity of pain provide useful clues to the diagnosis

- underlying cause. Sharp superficial constant pain due to severe peritoneal irritation is typical of perforated ulcer or a ruptured appendix, ovarian cyst, or ectopic pregnancy

- The gripping, mounting pain of small bowel obstruction (and occasionally early pancreatitis) is usually intermittent, vague, deep-seated, and crescendo at first but soon becomes sharper, unremitting, and better localized.

- gas stoppage sign : An occasional patient will deny pain but complain of a vague feeling of abdominal fullness that feels as though it might be relieved by a bowel movement. It is due to reflex ileus induced by an inflammatory lesion walled off from the free peritoneal cavity, as in retrocecal or retroileal appendicitis.

- ✓ factors that aggravate or relieve pain :
  - Pain caused by localized peritonitis, especially when it affects upper abdominal organs, tends to be exacerbated by movement or deep breathing
- ✓ Other Symptoms Associated with Abdominal Pain
  - -vomiting
  - Constipation
  - Diarrhea
- ✓ Other Specific Symptoms
  - Jaundice
  - hematemesis
  - hematuria

1.4. Other Relevant Aspects of the History

1.4.1.Gynecologic History

• The menstrual history is crucial to the diagnosis of ectopic pregnancy, mittelschmerz (due to a ruptured ovarian follicle), and endometriosis.

• A history of vaginal discharge or dysmenorrhea may denote pelvic inflammatory disease

1.4.2.Drug History

• Anticoagulants have been implicated in retroperitoneal and intramural duodenal and jejunal hematomas.

• Oral contraceptives have been implicated in the formation of benign hepatic adenomas and in mesenteric venous infarction

1.4.3.Family History

- often provides the best information about medical causes of an acute abdomen

1.4.4.Travel History may raise the possibility of:

- Amebic liver abscess .
- Hydatid cyst

1.4.5.Operation History

• Any history of a previous abdominal, groin, vascular, or thoracic operation may be relevant to the current illness.

1.5. Physical Examination

• The tendency to concentrate on the abdomen should be resisted in favor of a methodical and complete general physical examination.

• A systematic approach to the abdominal examination.

• One should search for specific signs that confirm or rule out differential diagnostic possibilities

1.5.1. Systemic signs:

-usually accompany rapidly progressive or advanced disorders associated with an acute abdomen.

-Extreme pallor, hypothermia, tachycardia, tachypnea, and sweating suggest major intra-abdominal hemorrhage (e.g., ruptured aortic aneurysm or tubal pregnancy).

-Fever:

- Constant low-grade fever is common in inflammatory conditions such as diverticulitis, acute cholecystitis, and appendicitis.
- High fever with lower abdominal tenderness in a young woman without signs of systemic illness suggests acute salphingitis.

1.5.2. **Examination of the acute abdomen** :

- **Inspection**: The abdomen should be thoughtfully inspected before palpation

- **Auscultation**: Auscultation of the abdomen should also precede palpation.Peristaltic rushes synchronous with colic are heard in mid small bowel obstruction and in early acute pancreatitis.

- **Coughing to elicit pain**: The patient should be asked to cough and point to the area of maximal pain.

- **Percussion**: Percussion serves several purposes. Tenderness on percussion is akin to eliciting rebound tenderness; both reflect peritoneal irritation and parietal pain

- **Palpation**: Palpation is performed with the patient resting in a comfortable supine position. Guarding is assessed by placing both hands over the abdominal muscles and depressing the fingers gently. If there is voluntary spasm, the muscle will be felt to relax when the patient inhales deeply through the mouth. With true involuntary spasm, however, the muscle will remain taut and rigid ("boardlike") throughout respiration.

-Tenderness that connotes localized peritoneal inflammation is the most important finding in patients with an acute abdomen.

-Carnett test: When the patient raises his or her head from the bed or examination table, the abdominal muscles will be tensed

1.5.3. Abdominal masses

- Are usually detected by deep palpation. Superficial lesions such as a distended gallbladder or appendiceal abscess are often tender and have discrete borders

- Even if a mass cannot be directly felt, its presence may be inferred by other maneuvers:

- ✓ Iliopsoas sign: A large psoas abscess arising from a perinephric abscess or perforated Crohn enteritis may cause pain when the hip is passively extended or actively flexed against resistance .
- ✓ Obturator sign :Similarly, internal and external rotation of the flexed thigh may exert painful pressure on a loop of the small bowel entrapped .
- ✓ Bump tenderness : Over the lower costal ribs indicates an inflammatory condition affecting the diaphragm, liver, or spleen or its adjacent structures.
- ✓ Inguinal and femoral rings; male genitalia: The inguinal and femoral rings in both sexes and the genitalia in male patients should be examined next.

- ✓ Rectal examination: Diffuse tenderness is nonspecific, but right-sided rectal tenderness accompanied by lower abdominal rebound tenderness is indicative of peritoneal irritation due to pelvic appendicitis or abscess.

1.6. Laboratory Investigations

- ➢ Blood Studies:
  - ✓ Hemoglobin, hematocrit, and white blood cell and differential counts taken on admission are highly informative
  - ✓ liver function tests (serum bilirubin, alkaline phosphatase, aspartate aminotransferase, alanine aminotransferase, albumin, and globulin.are useful to differentiate medical from surgical hepatic disorders and to gauge the severity of underlying parenchymal disease.
  - ✓ Clotting studies (platelet counts, prothrombin time, and partial thromboplastin time) and a peripheral blood smear. be requested if the history hints at a possible hematologic abnormality (cirrhosis, petechiae, etc)
- ➢ Urine Tests : Dark urine or a raised specific gravity reflects mild dehydration in patients with normal renal function. Hyperbilirubinemia may give rise to tea-colored urine that froths when shaken.
- ➢ Stool Tests :Warm stool smears :for bacteria, ova, and animal parasites may demonstrate amebic trophozoites in patients with bloody or mucous diarrhea

1.7. Differential Diagnosis

- The age and gender of the patient help in the differential diagnosis: Mesenteric adenitis mimics acute appendicitis in the young, gynecologic disorders complicate the evaluation of lower abdominal pain in women of childbearing age, and malignant and vascular diseases are more common in the elderly. Salphangitis, dysmenorrhea, ovarian lesions, and urinary tract infections complicate the evaluation of the acute abdomen in young women.

1.8. Preoperative Management

• After initial assessment, parenteral analgesics for pain relief should not be withheld. In moderate doses, analgesics neither obscure useful physical findings nor mask their subsequent development. Indeed, abdominal masses may become obvious once rectus spasm is relieved. Pain that persists in spite of adequate doses of narcotics suggests a serious condition often requiring operative correction.

•A nasogastric tube should be inserted in patients likely to undergo surgery and for those with hematemesis or copious vomiting, suspected bowel obstruction, or severe paralytic ileus.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. A Gynacologic disorder that causes an acute abdominal problem is? **(3 points)**
   A. Bowel perforation
   B. Splenic infract
   C. Acute cystitis
   D. Acute salphangitis

2.A localized pain of an acute abdomen in which the pain denoted by Noxious sensation perceived at a site distant from that of a strong primary stimulus is ? (3 points)
   A. Visceral pain
   B. Parietal pain
   C. Referred pain
   D. all of the above

3. The nature , severity and periodicity of an acute abdominal pain provide useful clues to the diagnosis of an acute abdomen (3 points)
   A. True
   B. False

4. Which aspect of history taking is relevant for the assessment of Acute Abdomen? (3 points)
   A. Gynecologic history
   B. Drug History
   C. Family history
   D. all of the above

5. Which position is comfortable for examination of acute abdomen using palpation? (3 points)
   A. Sims position
   B. Prone position
   C. Supine position
   D. Dorsal recumbant position

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

MCQ

1.___ 4.___
2___ 5.___
3___

Information Sheet-2	Hemorrhoid and supportive management

1.1 . Introduction

Haemorrhoids :

-Haem=blood
-Rhoos = flowing
-Pila= swelling

The actual term now a days used for this is Haemorrhoidal disease.

1.2. Anatomy:

- Beneath the epithelium in anal canal there is rich plexus of vascular tissue called corpus cavernosi recti, that connect arteries to veins.
-These vessels are normally supported by longitudinal muscle fibers (muscularis submucosa ani) which help to retain the vascular cushions in their position in the upper half of anal canal.
-There are 3 main vascular cushions (primarysites) in the anal canal(one on the left and anterior and posterior on the right)
-In 2/3 of pts these are at primary site and in 1/3rd of pts these are at other site called secondary sites

1.3. Path physiology

- Facors involved in the development of haemorhhoidal disease:
- ✓ Venous obstruction
- ✓ Prolapse of vascular cushions
- ✓ Heredity
- ✓ Geographical and dietary factors
- ✓ Anal sphincter tone
- ✓ Anal and rectal sensation
- ✓ Defecation habits

- Factors involved for the development of Venous obstruction
- ✓ The principal cause of haemorrhoidal disease seems to be the congestion and hypertrophy of internal anal cushions.
- ✓ Cushions congest because
  1. They fail to empty rapidly during the act of defecation.
  2. They are abnormally mobile.
  3. They are trapped by tight internal sphicter

1.4. Predisposing factors of venous obstruction

- ► Raised intra abdominal pressure during pregnancy, from ascites or pelvic tumor, or raised portal venous pressure with hepatic cirrhosis.

Piles of pregnancy: These are not necessarily abnormal.

Prolapse of vascular cushions:

Submucosal vascular cushions are supported by

Pectin bands(ligaments of park)

Muscularis submucosa

In normal defecation internal sphicter relaxes and there is outward rotation of vascular tissue and pectin bands.

In haemorrhoidal disease this normal rotation is disturbed due to the decrease in elastic tissue caused by;

-Increased Age
- Constipation
- Prolonged straining
- Endocrine reasons

- ► Heredity:

- No heredity evidence proved.
-family history is commonly recorded due to same customs, environment and diet.

► Geographic and dietry factors:

- > western society due to less fiber diet.

► Anal sphincter tone:

Numerous studies have shown that basal anal pressure are significantly higher in haemorroidal disease.

► Anal and rectal sensation:

Anal electro sensitivity and temperature sensations are reduced in patients with haemorrhoids.

► Defecation habits:

More than 10-15 min sitting for defecation

1.5. Epidemiology

- Sex:

-In hospital based studies Men > women

-In community based studies men = women

- Age:

-Increase with age

- Socioeconomic status and occupation:

- > high socioeconomic group
- > heavy laborer and occupations with prolonged sitting or standing

1.6. Degrees

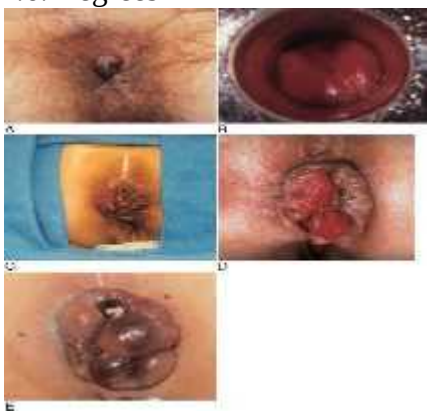

Fig 1.Degrees of haemorrhaidal disease

Where

B:First-degree bleeding without prolapse

C:Second-degree Prolapsed,reduced spontaneously

D:Third-degree prolapsed,requiring manual reduction

E:Fourth-degree fibrosed permanently prolapsed

1.7. Symptoms

1. Bleeding: Most common and earliest symptom
   : Bright red painless bleeding especially at the end of defecation is pathognomic of the disease
2. Prolapse and lump: Prolapse or lumps protruding through the anus are the real piles.
   :Protrusion with the spontaneous or self digital reduction is characteristic of haemorrhoidal disease.
3. Pain and discomfort: Haemorrhoids are usually painless.
   : If pain is there either think of a complication(thrombosed prolapsed internal haemorrhoids) or change the diagnosis.
4. Discharge and pruritis: A constant mucous discharge from the anus with or without bleeding is characteristic of prolapsed haemorrhoids

1.8. Types

- Internal
- External
- Interno-external

1.9. Complications

1. . Thrombosis and infection of internal cushions: Most painful complication.
:Thrombosis occurs when cushion is prolapsed and enlarged
2. Anemia: Rare and look for other causes
3. Perianal dermatitis: Due to the continuous mucous leakage and permanently prolapsed cushions
4. Thrombosis of external vascular channels: Tense hard and superficial swelling

1.10. Assessment

-History
- Inspection (to rule out other causes)
-Palpation
- Endoscopy(Proctoscopy and sigmoidoscopy)

1.11. Treatment

1.11.1.Medical management

- Advice
  - ✓ For minor symptoms
    - High fiber diet
    -- Thorough perianal lavage after defecation
  - ✓ Changing defecation habits

- Do not Neglect 1st urge to defecate in morning
-Don't insist on trying to pass the last portion of stool from rectum in the belief that it is not passed

- ✓ Diet manipiulation

-Bulking agents (high fiber diet) e.g ispaghol husk and methyl cellulose

- Topical agents

-Suppositories(shark liver oil, skin respiratory factor)
-Xylocain for pain
-Paraffin as lubricant to avoid rubbing

1.11.2. Invasive therapy

- Principles on which invasive therapy is based;

1. Prevention of Prolapse by mucosal fixation
2. Prevention of congestion by stretching or by dividing the internal sphincter
3. Excision of the engorged internal vascular channels

1.11.3. Injection Sclerotherapy

- Useful in 1st and 2nd degree
- 70% success rate
- Sclerosant causes aseptic inflammation and fibrosis in 2-3 weeks.

Technique:

- ✓ Rubber band is equipped by the help of loading cone.
- ✓ Pass proctoscope
- ✓ Visualize the cushion,the base of cushion lies 1.5-2cm above the dentate line
- ✓ Long shaft of the suction band equipment is introduced through the proctoscope.
- ✓ Hemorrhoid is sucked into the lumen of the inner drum.
- ✓ Handle is squeezed to advance the outer drum that releases the rubber band and applies it to the neck of haemorrhoid

1.12. Complications:

1. Pain (most common)

- If severe pain then removal of band and treatment with photocoagulation
    - ✓ Removal of the rubber band: Grasp the strangulated mucosa with forceps and attempt to rotate it so that the rubber band or at least the constricting groove is seen clearly then a small triangular blade is used to cut directly until the band snaps and mucosa returns to the normal tissue.
    - ✓ Alternatively the band can be removed by conventional suture removal scissors or application of crochet hook.

2. Bleeding.
3. Pelvic cellulitis

Photocoagulation

-The technology includes infrared radiation generated by tungsten halogen lamp which is focused on the tissue from a gold plated reflector housing through a polymer tubing.

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.Defecation habit is one of the predisposing factor for the development of haemorrhoidal disease (3 ppoints)

A. True

B. False

2.Which of the following is not a predisposing factor for haemorrhoidal disease? (3 points)

A. Increase intra abdominal pressure by pregnancy

B. High fiber diet

C. More than 10 -15 min sitting for defecation

D. None of the above

3.At risk group for haemorrhoidal disease (3 points)

A. Age increament

B. High socio-economic status

C. Occupational duty having long period standing

D. all of the above

4.Degree of haemorroidal disease in which prolapsed and require manual reduction ? (3 points)

A. First degree

B. Second degree

C. Third degree

D. Fourth degree

5.Most common and earliest symptom of haemorrhoidal disease is? (3 points)

A. Prolapse and lump

B. pain and discomfort

C. bleeding

D. Discharge and pruritis

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

MCQ

1.__
2__
3__
4__
5__

Information Sheet-3	Hernias

1.1. Definition

A hernia is a protrusion of a viscus or part of a viscus through an abnormal opening in the walls of its containing cavity

1.2. Anatomy

- The inguinal canal

- The inguinal canal is approximately 4 cm long and is directed obliquely inferomedially through the inferior part of the anterolateral abdominal wall.

-The canal lies parallel and 2-4 cm superior to the medial half of the inguinal ligament. This ligament extends from the anterior superior iliac spine to the pubic tubercle.

-The inguinal canal has openings at either end : –

- ✓ The deep (internal) inguinal ring is the entrance to the inguinal canal. It is the site of an out pouching of the transversalis fascia. This is approximately 1.25 cm superior to the middle of the inguinal ligament .
- ✓ The superficial, or external inguinal ring is the exit from the inguinal canal. It is a slitlke opening between the diagonal fibres of the aponeurosis of the external oblique

- Wall of the inguinal cannal:
  - ✓ The anterior wall is formed mainly by the aponeurosis of the external Oblique
  - ✓ The posterior wall is formed mainly by transversalis fascia
  - ✓ The roof is formed by the arching fibres of the internal oblique and transverse abdominal muscles.
  - ✓ The floor is formed by the inguinal ligament, which forms a shallow trough. It is reinforced in its most medial part by the lacunar ligament.
- Femoral Canal
  - ✓ The major feature of the femoral canal is the femoral sheath. This sheath is a condensation of the deep fascia (fascia lata) of the thigh and contains, from lateral to medial, the femoral artery, femoral vein, and femoral canal.
  - ✓ The femoral canal is a space medial to the vein that allows for venous expansion and contains a lymph node (node of Cloquet). Other features of the femoral triangle include the femoral nerve, which lies lateral to the sheath,

- Wall of The Femoral canal

-anterior is the inguinal ligament

- posterior is the iliopsoas, pectineal, and long adductor muscles (floor).

- Medial is lacunar ligament

-Lateral is femoral vessel

1.3. Predisposing factors

- ✓ All hernias occur at the site of WEAKNESS OF THE ABDOMINAL WALL which are acted on by repeated INCREASE in abdominal pressure .
- ✓ repeated INCREASE in abdominal pressure is usually due to:
  - -Chronic cough
  - -Straining
  - -Bladder neck or urethral obstruction
  - -Pregnancy
  - -Vomiting
  - -Sever muscular effort
  - -Ascetic fluid

1.4. Types

- -Inguinal
- -Femoral
- -Epigastric
- -Para umbilical
- -umbilical
- -Obturator
- -Superior lumbar
- -Inferioer lumbar
- -Gluteal
- -Sciatic
- -Incisional

1. Hernia through the inguinal canal
   - -Indirect Inguinal Hernia
   - -Direct Inguinal Hernia
2. Femoral Hernia
   Hernia medial to femoral vessels under inguinal ligament
3. Umbilical Hernia
   Hernia through the umbilical ring
4. Paraumbilical Hernia
   A protrusion through the linea alba just above or sometimes just below the umbilicus
5. Epigastric Hernia
   Protrusion of extraperitoneal fat through the linea alba anywhere between the xiphoid process and the umbilicus
6. Incisional Hernia
   Hernia through an incisional site
7. Lumber Hernia

occur through the inferior lumber triangle of Petit

I . Inguinal hernia

- ✓ History:
  - -Age (young vs. old)
  - -Occupation (nature ??)
  - -Local symptoms: Swelling, discomfort and pain
  - -Systemic symptoms: if there is obstruction or strangulation
- ✓ Examination:
  1. Inspection: for site, size, shape and color.
  2. Palpation: for surface, temp, tenderness, composition and reducibility.

3. Expansible cough impulse.

4.General exam: for common causes of increase intra abdominal pressure

- ✓ Indirect Versus Direct inguinal hernias
  - ◈ Indirect is the most common form of hernia and its usually congenital due to patent processus viginalis
  - ◈ Direct usually acquired occur in old men with weak abdominal muscles

1.5. Differential diagnosis of inguinal hernias

- ➢ Male:

1) Femoral hernia
2) Vaginal hydrocele
3) Spermatocele
4) Encysted hydrocele of the cord
5) Un-descended testis
6) Lipoma of the cord

- ➢ Female:

Hydrocele of the canal of nuck:

-Is a fluid filled distal part of the sac of an indirct hernia with narrow proximal part it present with a smooth fluctuant swelling with out a cough impulse which will transilluminate

II. • Femoral hernia:

-Small femoral hernia may be unnoticed by the patient or disregarded for years perhaps until the day it strangulates. Adherence of the greater omentum sometimes causes a dragging pain. Rarely a large sac is present .

- ✓ History

-Age ; uncommon in children , most common in old age female .

-Sex; women > men (but still commonest hernia in women the inguinal hernia)

The patient came with local symptoms

1- discomfort and pain

2- swelling in the groin

General ; femoral hernia is more likely to be strangulated than the inguinal hernia Multiplicity ; often bilateral.

- ✓ Femoral hernia versus inguinal hernia

Inguinal Hernia	**Femoral Hernia**
1.More common in male	1.more common in female
2.Pass through the inguinal canal	2.pass through the femoral canal
3.neck of the sac is above and medial the pubic tubericle	3.neck of the sac is below and lateral the pubic tubericle
4.less common to be strangulated	4.more common to be strangulated
5.can be treated without surgery	5. must be treated surgically
6.the two diagnostic sign of hernia +	6.the two diagnostic sign of hernia -
7. the sac mainly contain bowel	7. the sac mainly contain Omentum

- ✓ Differential diagnosis of femoral hernia
  1) Inguinal hernia

  2) saphena varix: a saccular enlargment of the termination of the long saphenous vein The swelling disappears completely when the patient lies flat there is impulse in coughing and fluid thrill and sometimes venous hum can be heard over a saphena varix

  3) Enlarge lymph node: fever + other lymph node enlargment
  4) Lipoma

III. Umbilical hernia

- ✓ Signs and symptoms
  -Age ; doesn't appear until the umbilical cord has separated and healed .
  -No specific symptoms
  -Have wide neck and reduce easily , rarely give intestinal obstruction.
  -Nature history ; 90 % disappear spontaneously during the first year.
- ✓ Examination
  - ◈ Inspection
    Site ; in the center of the umbilicus
    Size and shape ; size can vary from vary small to very large . Shape is usually hemispherical.
  - ◈ Palpation
    - Composition ; contain bowel , which makes it resonant to percussion .
    -They reduce spontaneously when the child lies down .
    -Reducibility ; easy Cough impulse; invariably present

IV. Acquired umbilical hernia

-Hernia through the umbilical scar , so it is a true umbilical hernia.
-Not common and is usually secondary to increase intra abdominal pressure.
The most common causes:
1- pregnancy
2- ascitis
3- ovarian cyst
4- fibrodis
5- bowel distention

- ✓ **Management and repair**
  - ❑ Pre- operative preparation:

  -Most pt are treated surgically
  -Increase IAP abnormalities (Chronic cough, Constipation, Bladder outlet obstruction) should be evaluated and remedied to extent possible before elective herniorrhaphy.
  -In case of intestinal obstruction and possible strangulation, Broad spectrum AB,NG suction may be indicated, correction of volume status & electrolytes.
  - ❑ Reduction
    - ➢ Uncomplicated:

    -Manual: Gentle pressure over hernia Gentle traction over the mass sedation and trendelenburg position.

- Complicated (strangulated):

- no attempt should be made to reduce the hernia because of potential reduction of gangrenous segment of bowel with the hernial sac.

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.The type of Hernia in which the Hernia occurs Medial to femoral vessels under the inguinal ligament is (3 points)

A. Umbilical hernia

B. Paraumbilical hernia

C. Femoral hernia

D. Epigastric Hernia

2.Protrusion of extraperitoneal fat through the linea alba any where between the xiphoid process and the umblicus is(3 points)

A. Incisional hernia

B. Epigastric hernia

C. Paraumbilical hernia

D. all of the above

3.Which one of the following is the differential diagnosis of Inguinal hernia in Females (3 points)

A. Femoral hernia

B. Spermatocele

C. Hydrocele

D. Lipoma of the cord

4. A patient having a problem of femoral hernia came with a local symptom of ? (3 points)

A. Discomfort

B. pain

C. swelling of the groin

D. all of the above

5.Which statement is true about Femoral hernia ? (3 points)

A. more common in male

B. must be treated surgically

C. less common to be strangulated

D. the sac mainly contain bowel

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

MCQ

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Information Sheet-4	**Burn including Shock management**

1.1. Introduction

-Burns are wounds produced by various kinds of agents that cause cutaneous injury and destruction of underlying tissue

-It may be defined as injuries resulting from the application of dry heat or chemical substances to the external surface of the body resulting in more or less destruction of tissues

-Human skin can tolerate tempratures up to 42 – 44^0 C But above these, the higher the temperature the more severe the tissue destruction

1.2.Types of Burns

- ✓ Thermal injury

  – Scald—spillage of hot liquids
  - flame burns

  – Flash burns due to exposure of natural gas, alcohol
- ✓ liquids

  –Contact burns—contact with hot metals /objects/materials
- ✓ Electrical injury
- ✓ Chemical burns—acid/alkali
- ✓ Cold injury—frost bite
- ✓ Ionizing radiation
- ✓ Sun burns

1.3. Classification of Burns

1-Degree 4 (first,second,third,fourth)
2-Thickness 2 (partial,full thickness)
3-Percentage 3 (mild,moderate severe)

1.3.1. DEPENDING ON DEGREE

a-First degree

- Epidermis is red and painful, No blisters
- Heals rapidly in 5-7 days
- By epithelialization without scarringl

b. Second degree:

-Red, painful ,with blisters,
- Heals in 14-21 days.
-Superficial burn heals, causing pigmentation

c. Third degree

- Deep burn heals, causing scarring,and pigmentation
- Charred, painless and insensitive
- Thrombosis of superficial vessels

d. Fourth degree

- Involves the underlying tissues—muscles, bones

1.3.2. DEPENDING ON THICKNESS OF SKIN INVOLVED

a. Partial thickness burns:

-It is either first or second degree burn which is red and painful, often with blisters.

b. Full thickness burns:

-It is third degree burns which is charred, insensitive, deep involving all layers of the skin

1.3.3. DEPENDING ON THE PERCENTAGE OF BURNS

a. Mild

• Partial thickness burns < 15% in adult or <10% in children.
• Full thickness burns less than 2%.
• Can be treated on outpatient basis.

b. Moderate:

• Second degree of 15-25% burns (10-20% in children).
• Third degree between 2-10% burns.
• Burns which are not involving eyes, ears, face, hand, feet, perineum

c. Major (severe):

• Second degree burns more than 25% in adults, in children more than 20%.
• All third degree burns of 10% or more.
• Burns involving eyes, ears, feet, hands, perineum.
• All inhalation and electrical burns.
• Burns with fractures or major mechanical trauma

1.4. JACKSON'S THERMAL WOUND THEORY

✓ **Zone of coagulation**

- Centre area of wound ,where all tissuses are damaged
- The necrotic area of burn where cells have been disrupted
-This tissue is irreversibly damaged at the time of injury

✓ **Zone of stasis**

-Surrounds the coagulation area ,some tissues are damaged
-The area immediately surrounding the necrotic zone.
- decreased tissue perfusion.
- can either survive(with good resuscitation) or go on to coagulative necrosis.
- Associated with vascular damage and vessel leakage
-Thromboxane A2, a potent vasoconstrictor is the main mediator
-Treatment aims to spare this zone to Prevent it's turnover to coagulative necrosis zone

✓ **Zone of hyperaemia**

-Unburned area surrounds the stasis but it is red due to inflamation
-is characterized by vasodilation from inflammation surrounding the burn wound
-contains the clearly viable tissue from which the healing process begins
-not at risk for further necrosis

1.5. 1ST24 HOURS AFTER INURY

• Occurs usually in the first 24 hours
• It's initial period of hypofunction manifests as:
(a) Hypotension
(b) Low cardiac output
(c) Metabolic acidosis
(d) Hypoventilation
(e) Hyperglycemia

1.6. SYSTEMIC RESPONSE TO BURN

• Metabolic
• Cardiac

- Renal
- Blood
- Immunologic
- Lungs
- GIT

1.7. Complications of Burn

- Cardiac
  - ✓ Cardiac output decreases due to
    1)Decreased preload induced by fluid shifts
    2)Increased systemic vascular resistance caused by both hypovolmia and systemic catecholamine release.
- RENAL
  - Renal blood flow and GFR decrease soon after injury due to hypovolemia, decreased cardiac output, and elevated systemic vascular
  --Oliguria and antidiuresis develops during 1st 12-24 hours
  - Followed by a usually modest diuresis as the capillary leaks seal, plasma volume normalizes, and cardiac output increases after successful resuscitation and coinciding with onset of the post burn hypermetabolic state, and hyperdynamic circulation.
- BLOOD
  - The red-cell mass decreases due to direct losses
  - Immediate, 1-2 hours after, and delayed, 2-7 days postburn, hemolysis occurs due to damaged cells and increased fragility
  - Anemia within 4-7 days is common
  - Anemia persists until wound healing occur
- INFECTIONS
  - -Streptococci (Beta haemolytic—most common)
  - Pseudomonas
  - Staphylococci
  - -Other gram-negative organisms

NB:- Burn size greater than 40 % TBSA, 75 % of all deaths are due to infection.

-Burn wound represents a susceptible site for opportunistic colonization by organisms

1.8. General Complications of Burns

- -Burn Shock
- Pulmonary complications due to inhalation injury
- Acute Renal Failure
- Infections and Sepsis
- Curling's ulcer in large burns over 30% usually after 9 day
- Extensive and disabling scarring
- Psychological trauma
- Cancer called Marjolin's ulcer, may take 21 years to develop

1.9. CAUSES OF DEATH

- Hypovolaemia (refractory and uncontrolled) and shock
- -Renal failure
- -Pulmonary oedema and ARDS
- -Septicaemia
- -Multiorgan failure
- Acute airway block in head and neck burns

Self-Check -4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.Human skin can tolerate temperature up to (3 points)

A. 50-----60 ^{0}c

B. 42-----44 ^{0}c

C.100 ^{0}c

D. 70-----80 ^{0}c

2.The type of burn resulted due to exposure of natural gas and alcohol is(3 points)

A. Electrical injury

B. Chemical injury

C. Thermal injury

D. Sun burns

3.The degree of burn characterized by Epidermis become red ,painful with blisters is (3 points)

A. First degree

B. second degree

C. Third degree

D. Fourth degree

4. Which degree of burn involved under a full thickness burn ? (3 points)

A. First degree

B. Second degree

C. Third degree

D. Fourth degree

5.Those burn injured cases having 40% of total body surface area involvement around 75% of the deaths was caused by ? (3 points)

A. Dehydration

B. Infection

C. Malnutrition

D. None of the above

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

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Information Sheet-5	Burn including Shock management

1.1.Definition

- A break in the skin or mucous membrane;An alteration in the integrity of the skin and underlying tissues

1.2. Causes :

1. Surgical incisions
2. Trauma
3. Pressure
4. Shearing force
5. Friction
6. Poor circulation

1.3. **Risk Factors for Developing a Wound**

-Broken skin
-Age (young or old)
-Nutritional Status
-Stress
-Hereditary
- Disease process (acute or chronic)
-Medical therapies - steroids, chemotherapy, radiation, diuretics

1.4. Types of wound :

1. Intentional - created for therapy i.e., surgical
2. Unintentional - resulting from trauma i.e., fall
3. Open wound - skin or mucous membrane is broken
4. Closed wound - tissues are injured but the skin is not broken
5. Clean wound - not infected, usually intentional
6. Contaminated wound - high risk of infection usually unintentional
7. Infected wound - (dirty wound) contains bacteria; signs of infection
8. Chronic wound - wound that does not heal easily; can be due to pressure or circulation
9. Partial-thickness wound - epidermis & dermis of the skin is broken (superficial)
10. Full-thickness wound - epidermis, dermis, subcutaneous tissue are involved and may involve muscle and bone (penetrating)

1.5. Description of Wounds

- Wounds can be described by cause:
  1. Abrasion - scraping or rubbing away of the skin
  2. Contusion - closed wound caused by a blow to the body
  3. Incision - open wound with clean straight edges
  4. Laceration – open wound with torn tissues and jagged edges
  5. Penetrating wound – skin and underlying tissue are pierced
  6. Puncture wound - open wound from a sharp object
- Skin Tears

-Occur most frequently in the elderly due to skin changes in the elastic fibers in the dermis, increased fragility of blood vessels, changes in the membrane between the epidermis & dermis, & thickening of collagen

-These changes cause the skin to age and the skin appears translucent, wrinkled, thin, dry, fragile & lacking tensile strength

1.6. Principles of tissue healing:

The body's ability to handle tissue trauma is influenced by:

-Extent of damage, i.e. skin intact or broken
-Person's state of health, i.e. nutritional status

-Body's response to trauma

-Healing is promoted when wound is free of foreign bodies and bacteria

1.7. Phases of wound healing

1.Inflammatory or Defensive Stage

- Starts when skin integrity is impaired and continues from 4 - 6 days

- Homeostasis - blood vessels constrict, platelets stop bleeding forming clots to scabs

- Inflammatory response - increased blood flow and vascular permeability causing redness & edema.

-White blood cells - arrive & clean cell of debris

-Epithelial cells - move to base of wound margins for 48 hours

2. Proliferative or Reconstruction Stage

- Closure begins on day 3 or 4 & continues for 2 - 3 weeks

-Fibroblasts with vitamin C & B for repair

- Collagen - provides strength and structure

- Epithelial cells - duplicate damaged cells

3.Maturation Stage

-Final stage of healing & may last for 1year as the scar strengthens

1.8. Types of wound healing

- Primary intention - Incision edges of a clean surgical incision remain close, tissue loss is minimal & skin quickly regenerates

- Secondary intention - Open wound with tissue loss and jagged edges, there is a gap between the edges, granulation tissue gradually fills in the area of defect with scar tissue

-Tertiary intention-Sometimes called delayed intention or closure

-Surgical wounds are left open 3 - 5 days & then stapled or sutured closed.

1.9. Wound Healing Influencing Factors

-Age

-Nutrition

- Obesity

- Extent of wound

- Wound stress

-Circulating oxygen

-Smoking

- Drugs

-Chronic diseases

1.10. Signs & Symptoms of infection

1. Erythema and edema
2. Painful and tender
3. Drainage & odor - tan, cream, green, yellow
4. Fever
5. Rash
6. Change in WBC
7. Loss of appetite
8. Mucous membrane sores
9. Elderly: confused, agitated, incontinent

1.11. Wound Drainage

- The exudate deposited in or on tissue surfaces during inflammatory & destructive phases of healing.

- Drainage must leave the wound for healing to occur

- Trapped drainage can lead to infection and other complications

Self-Check -5	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.Medical therapies are a risk factor for developing a wound (3 points)

A. True

B. Fals

2.The type of wound characterized by high risk of infection and usually unintentional type is(3 points)

A. Open wound

B. Contaminated wound

C. Infected wound

D. Chronic wound

3.A closed wound caused by a blow to the body is (3 points)

A. Abrasion

B. Contusion

C. Incision

D. Lacerations

4. The phase of wound healing in which it starts when skin integrity is impaired and continues from 4-6 days ? (3 points)

A. Inflammatory stage

B. Proliferative stage

C. Maturation stage

D. None of the above

5.Type of wound healing in which sometimes termed as delayed intention or closure is? (3 points)

A. Primary intention

B. secondary intention

C. Tertiary intention

D. None of the above

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

MCQ

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Operation Sheet 1	Manage shock

steps to manage shock:

step 1.body positioning (lying down the victim / if the victim is unconscious put in side lying position)

step 2. Regulating Body Temperature(Keep the victim warm enough to avoid or over come chilling)

step 3 Administering Fluids(Give fluids by mouth if there is no medical help near by, discontinue fluids if the victim becomes nauseated or vomits , Don't give fluid by mouth if: Victim is unconscious)

Operation Sheet 2	Manage second degree burn

Steps to manage second degree burn:

step 1.Immerse the burned part in cold water.

step 2• Apply freshly ironed cloths that have been wrung out in ice water.

step 3• Blot to remove and dry gently.

step 4• Apply dry sterile gauze or clean cloth as a protective bandage.

step 5• Do not break blisters or remove tissue.

step 6• Do not use an antiseptic preparation, ointments, spray, or home remedy on a severe burn.

step 7• If the arms or legs are affected keep them elevated

Operation Sheet 3	Manage third degree burn

Steps to manage third degree burn:

step 1.Do not remove adhered particles of charred clothing.

step 2• Cover burns with thick, sterile dressings or a freshly ironed or laundered sheet or other household linen.

step 3• If the hands are involved, keep them above the level of the victim's heart.

step 4• Keep burned feet or legs elevated (the victim should not be allowed to walk).

step 5• Have victims with face burns sit up or prop them up and keep them under continuous observation for breathing difficulty.

step 6• Do not immerse an extensive burned area or apply ice water over it, because cold may intensify the shock reaction.

step 7• Arrange transportation to the hospital as quickly as possible.

step 8• If medical help or trained ambulance personnel does not reach for an hour or more and the victim is conscious and not vomiting give him a weak solution of salt and soda at home.

step 9• Do not apply ointment, commercial preparations, grease or other home remedies

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time allowed for procedure one -three is 30min for each

You are required to perform :

Task 1: manage a victim developing shock accident

Task 2: manage a victim developing second degree burn

Task 3: manage a victim developing third degree burn

Information Sheet-6	Managing operation room (OR) theater

- Introduction

what is operation theater?

• An operating theater (also known as an operating room, operating suite, theatre operation suite or OR) is a facility within a hospital where surgical operations are carried out in an aseptic environment.

• Historically, the term "operating theatre" referred to a non-sterile, tiered theater or amphitheater in which students and other spectators could watch surgeons perform surgery.

•The operating theatre is a dynamic and complicated area, where the safety of patients' undergoing surgery requires great priority.

- Theatre design consideration:
  - -The prevention of wound infection.
  - - The safety of patients and staff
- Design features

• Designing a safe environment incorporates features that prevent or control the risk of:

- Infection
- -Fire,
- - Explosion
- -Chemical hazards and
- - Electrical hazards

•Well-devised traffic patterns:

- - Material-handling systems,
- - Disposal systems,
- - Positive-pressure
- - Well-dispersed clean ventilation, and
- - High-flow, unidirectional ventilation systems for special applications all contribute to a safe surgical environment.

- Traffic Flow

-Traffic patterns in the surgical suite, a three-zone designation of areas within the surgical suite facilitates appropriate movement of patients and personnel.

1. Unrestricted areas are those in which personnel may wear street clothes, and traffic is not limited.
2. In semi-restricted areas, such as processing and storage areas for instruments and supplies, as well as corridors leading to the restricted areas of the surgical suite, personnel must wear surgical attire and patients must wear gowns and hair coverings.
3. Restricted areas include operating rooms and clean core and scrub sink areas .Surgical attire and masks are required in these areas when there are open sterile supplies or scrubbed.

-The flow of supplies should be from the clean core area through the operating rooms to the peripheral corridor.

- Soiled materials should not re-enter the clean core area. Soiled linen and trash collection areas should be separated from personnel and patient traffic areas for infection control purposes.

- Ventilation

• Appropriate ventilation systems aid in the control of infection by minimizing microbial contamination.

• Temperatures in an operating room should be maintained between 68° and 73° F (20° to 23° C), with relative humidity of 30% to 60% to reduce bacterial growth and suppress static electricity.

• Temperatures in that range allow for comfort of the surgical team and are tolerated by most patients.

• Each operating room should have individual temperature controls to accommodate patient safety, as when increased warmth is required for patients at high risk for inadvertent hypothermia during operative procedures.

- Emergency Signals

• Every surgical suite should have an emergency signal system that can be activated inside each operating room.

• A light should appear outside the door of the room involved, and a buzzer or bell should sound in a central nursing or anaesthesia area.

• The signals should remain on until the alarm is turned off at the source.

• All personnel should be familiar with the system and should know both how to send a signal and how to respond to it. Such a system, restricted to use in life threatening emergencies, saves invaluable time in bringing additional personnel and resources for assistance.

- Operating department comprises:
  - • Rest rooms
  - • Changing rooms
  - • Teaching rooms
  - • Storage
  - • Reception areas
  - • An operating suite
- An Operating Suite
  - Is one functioning unit of a department:
    - • An anesthetic room
    - • Clean preparation room
    - • Scrub-up area
    - • Operating theatre
    - • Sluice room
    - • Exit bay
- OT Attire

Purpose

-The primary purpose of operating theatre attire is to instil a sense of discipline in those working in the operating theatre, and to identify the operating theatre as a separate clean area.

- It is also to ensure that clean clothes are worn when operating on the patient to prevent harmful bacteria.

-Upon arrival in the operating theatre suite, all personnel working in the OT will change out of their street clothes and into theatre attire and closed toed shoes.

-Those that work in the OT but are not part of the scrub team do not need to wear anything more than head cover.

-Those working in the OT and are part of the scrub team including working in the layup area will wear:

- ✓ Head cover
- ✓ Plastic apron
- ✓ Surgical mask

- Components of Attire

• Each item of OT attire is a specific means of protecting the patient from the sources of contamination and risk of infection.

- • Body Cover
- • Surgical Mask
- • Head Cover
- • Gown
- • Gloves

- Eye Protection
- Shoes and Shoe Covers

Self-Check -6	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.Every surgical suite should have an emergency signals system that can be activated inside each operating room. (3 points)

A. True

B. False

2.Which statement is/are true about Operating room theater ? (3 points)

A. It is a dynamic and complicated area

B. a facility within a hospital

C. It is an amphitheater in which a surgeon perform a surgery

D. all of the above

3.Temperature in an operating room should be maintained b/n (3 points)

A. 10 ^{0}C to 20 ^{0}C

B. 20 ^{0}C to 23 ^{0}C

C. 30 ^{0}C to 33 ^{0}C

D. 40 ^{0}C to 43 ^{0}C

4. ------- are those in which personnel may wear street clothes and traffic is not limited ? (3 points)

A. Restricted area

B. Semi-restricted area

C. Unrestricted area

D. None of the above

5.Operating department comprises (3 points)

A. Rest rooms

B. changing rooms

C. teaching rooms

D. all of the above

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

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Information Sheet-7	Operative care

Phases of perioperative care
-Pre-operative
-Intra-operative
-Post-operative

1. Pre operative Care

✓ Defn

-Care rendered to the patient from the time the decision is made for surgical intervention to the time the patient is transfer to the operating room.
- begins with the decision to perform surgery and continues until the client has reached the operating area.

✓ GOAL OF CARE

-To prepare the patient physically, psychologically ,spiritually and legally.

✓ PHYSICAL PREPARATION

1. Develop nursing history
2. Physical assessment (P. E, V/ S, Lab. Examination)
3. Assessment for risk factors
4. Preparation of the operative site
   I. Skin preparation
      a. scrubbing or taking a bath
      b. shaving or hair removal

   II. Gastrointestinal tract preparation:
      a. NPO (Nothing per Orem)
      b. Bowel clearance

   III. Genitourinary tract preparation-
5. Some patients may benefit from a sleeping pills or tranquilizer

✓ Psychological and spiritual preparation

-Patients are often fearful or anxious about having surgery.
1.It is often helpful for the patient to express their concerns
2. Family needs to be included in psychological preoperative care
3.Pastoral care or religious affair assistance
- Children may be especially fearful :
1.They should be allowed to have a parent with them as much as possible
2.Encouraged to bring a favorite toy or blanket to the hospital on the day of surgery

✓ Legal preparation

- Informed consent or operative permit - is the process of informing the patient about surgical procedure and its benefits the risk, and possible complication the anesthesia, and other treatment option.

✓ **Purpose of informed consent**

1.To ensure that the patient understands the nature of the treatment.
2.To indicate that the patient's decision was made without pressure.
3.To protect the patient against unauthorized procedure.
4.To ensure that the procedure is performed on the correct body part.
5.To protect the surgeon and hospital against legal action by a patient who claims that an authorized procedure was performed.

✓ **Obtaining a consent**

1.Adult patient with sounds mind sign consent
2.Patient should be properly informed. Signature is obtained with the patient's complete understanding.

3. The surgeon is responsible for obtaining the consent.
4.Older client and minors , mentally ill, need a legal guardian to sign the consent form.
5.The nurse may witness the clients signing of the consent
6.If patient is unable to write, thumb mark is acceptable if there is a witness to his mark.
7.Emancipated minors.

- ✓ **Validity of a consent**

1.Written permission is required by law
2.Adult mentally healthy are competent to sign their consent
3.Minors – (18 and below) parents or legal guardian signed
4.Mentally ill- parents or legal guardian, appointed by the court
5.Emergency- (if patient is unconscious or no legal guardian ,the medical practitioner is expected to act in the patient's best interests until family can be found.
6.A witness to the patient's signature is required.
7.If the patient is unable to write a thumb mark is acceptable if there is a witness to his mark.

- ✓ **Patient education**

1.A vital component of the surgical experience.
2.Designed to help the patient understand the surgical experience to minimize anxiety and promote full recovery from surgery and anaesthesia.
3.Preoperative patient education maybe offered through conversation, discussion, audiovisual aids or videos & demonstrations.

- ✓ **Pre-operative medication**

-To aid in the administration of an anesthetic
- minimize respiratory tract secretions and changes in heart rate
-to relax the patient and reduce anxiety.

2. Intraoperative care

-Intraoperative care is patient care during an operation and ancillary to that operation. Activities such as monitoring the patient's vital signs , blood oxygenation levels, fluid therapy, medication transfusion, anesthesia, radiography, and retrieving samples for laboratory tests, are examples of intraoperative care.
- includes the entire duration of the surgical procedure, until transfer of the client to the recovery area.
-The intraoperative phase extends from the time the client is admitted to the operating room, to the time of anesthesia administration, performance of the surgical procedure and until the client is transported to the recovery room or postanesthesia care unit (PACU)
-What is the focus during the intraoperative phase of surgery? Preventing patient injuries and complications is the focus of all team members during the intraoperative phase of surgery.

- Surgery Preparation

-Patients who receive general anesthesia, which renders them unconscious, must refrain from eating or drinking for at least 8 hours before surgery. Most instructions indicate that nothing is to be taken by mouth after midnight, on the night before the procedure.

Intra operative complications:
1.Hypoventilation
2.Oral trauma
3.Hypotension
4.Cardiac dysrhythmia
5.Hypothermia
6.Peripheral nerve damage
7.Malignant hyperthermia

3.Postoperative care

- begins with admission to the recovery area and continues until the client receives a follow up evaluation at home, or is discharged to a rehabilitation unit.

- Post operative note and orders

-The patient should be discharged to the ward with comprehensive orders for the following:

- Vital signs
- Pain control
- Rate and type of intravenous fluid
- Urine and gastrointestinal fluid output
- Other medications
- Laboratory investigations

- The patient's progress should be monitored and should include at least:
  - A comment on medical and nursing observations
  - A specific comment on the wound or operation site
  - Any complications
  - Any changes made in treatment
- Aftercare: Prevention of complications
  - Encourage early mobilization:
    - ✓ Deep breathing and coughing
    - ✓ Active daily exercise
    - ✓ Joint range of motion
    - ✓ Muscular strengthening
    - ✓ Make walking aids such as canes, crutches and walkers available and provide instructions for their use
- Ensure adequate nutrition
- Prevent skin breakdown and pressure sores:
  - o Turn the patient frequently
  - o Keep urine and faeces off skin
- Provide adequate pain control

► **Discharge note**

-On discharging the patient from the ward, record in the notes:

- Diagnosis on admission and discharge
- Summary of course in hospital
- Instructions about further management, including drugs prescribed.

-Ensure that a copy of this information is given to the patient, together with details of any follow-up appointment.

- Postoperative Management

If the patient is restless, something is wrong.

❖ Look out for the following in recovery:

- Airway obstruction
- Hypoxia
- Hemorrhage: internal or external
- Hypotension and/or hypertension
- Postoperative pain
- Shivering, hypothermia
- Vomiting, aspiration
- Falling on the floor
- Residual narcosis

❖ The recovering patient is fit for the ward when:

- Awake, opens eyes
- Extubated
- Blood pressure and pulse are satisfactory

• Can lift head on command
• Not hypoxic
• Breathing quietly and comfortably
• Appropriate analgesia has been prescribed and is safely established

- Post operative pain relief

• Pain is often the patient's presenting symptom. It can provide useful clinical information and it is your responsibility to use this information to help the patient and alleviate suffering.

• Manage pain wherever you see patients (emergency, operating room and on the ward) and anticipate their needs for pain management after surgery and discharge.

• Do not unnecessarily delay the treatment of pain; for example, do not transport a patient without analgesia simply so that the next practitioner can appreciate how much pain the person is experiencing. Pain management is our job.

Self-Check -7	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:
1._____begins with the decision to perform surgery and continues until the client has reached the operating area. (3 points)

A. Preoperative care

B. Intra-operative care

C. Post-operative care

D. all of the above

2.---------- is the process of informing the patient about surgical procedure and its benefits , the risk and possible complications of anesthesia ? (3 points)

A. Operation sheet

B. Informed consent

C. Operation theater

D. none of the above

3.Which of the following is responsible for obtaining the consent ? (3 points)

A. Lab technicians

B. OR -nurse

C. Surgeon

D. Anesthetist

4. Pre-operative patient education may be offered through (3 points)

A. Conversation

B. audio-visual aids

C. demonstration

D. all of the above

5.Patient who receive general anesthesia which renders them unconscious must refrain from eating or drinking for at least -------- hours before surgery (3 points)

A. 4

B. 6

C. 8

D. 10

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

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Information Sheet-8	Identifying imbalance

1.1. Acid-base imbalance

For optimal functioning of cells :

- Acids and bases in the body must be in balance.

-We all consume every day food and drinks which contain acids, metabolism produces also acids

-pH< 7.35 acidosis

-pH > 7.45 alkalosis

-The body response to acid-base imbalance is called compensation

-May be complete if brought back within normal limits

-Partial compensation if range is still outside norms.

- Body pH Balance :
  - -Chemical blood buffers:
  - -Lungs
  - -Cells
  - -Kidneys
  - -Defenses against changes in hydrogen concentration (getting acidotic.)
- You get acidotic every day :
  - -While living, eating and drinking...there is..Production of 1 mmol of fixed acid/kg body weight per day (60 kg=60 mmol/day)
- Human Acid-base Homeostasis
  - -Tight regulation:
  - -CO_2 tension
    - by respiratory excretion (of volatile acids)
  - -Plasma bicarbonate [HCO_3-]
    - By renal HCO_3- reabsorption and Elimination of protons produced by metabolism
  - -pH is determined by CO_2 tension and [HCO_3-]
- pH Review
  - -pH = - log [H+]
  - -H+ is really a proton
  - -Range is from 0 - 14
  - -If [H+] is high, the solution is acidic; pH < 7
  - -If [H+] is low, the solution is basic or alkaline ; pH > 7
  - -Acids are H+ donors.
  - -Bases are H+ acceptors, or give up OH- in solution.
- Acids and bases can be:
  - -Strong – dissociate completely in solution
    - HCl, NaOH
  - -Weak – dissociate only partially in solution
    - Lactic acid, carbonic acid
- The Body and pH
  - -Homeostasis of pH is tightly controlled
  - -Extracellular fluid = 7.4
  - -Blood = 7.35 – 7.45
  - -< 6.8 or > 8.0 death occurs
  - -Acidosis (acidemia) below 7.35
  - -Alkalosis (alkalemia) above 7.45
- Small changes in pH can produce major disturbances

- Most enzymes function only with narrow pH ranges
-Acid-base balance can also affect electrolytes (Na+, K+, Cl-)
-Can also affect hormones

- The body produces more acids than bases
  - Acids take in with foods
  -Acids produced by metabolism of lipids and proteins
  -Cellular metabolism produces CO2.
  -$CO2 + H20 \leftrightarrow H2CO3 \leftrightarrow H+ + HCO3-$
- Control of Acids

1-Buffer systems
-Take up H+ or release H+ as conditions change
-Buffer pairs – weak acid and a base
-Exchange a strong acid or base for a weak one
-Results in a much smaller pH change

2. Respiratory mechanisms
   - Exhalation of carbon dioxide
   -Powerful, but only works with volatile acids
   -Doesn't affect fixed acids like lactic acid
   -$CO2 + H20 \leftrightarrow H2CO3 \leftrightarrow H+ + HCO3-$
   -Body pH can be adjusted by changing rate and depth of breathing

3. Kidney excretion
   - Can eliminate large amounts of acid
   -Can also excrete base
   -Can conserve and produce bicarb ions
   -Most effective regulator of pH
   -If kidneys fail, pH balance fails

- Compensation

-If underlying problem is metabolic, hyperventilation or hypoventilation can help : respiratory compensation.

-If problem is respiratory, renal mechanisms can bring about metabolic compensation

- Acidosis

-Principal effect of acidosis is depression of the CNS through ↓ in synaptic transmission.

-Generalized weakness
-Deranged CNS function the greatest threat
-Severe acidosis causes :
- ✓ Disorientation
- ✓ coma
- ✓ death

- Alkalosis

-Alkalosis causes over excitability of the central and peripheral nervous systems.

-Numbness
-Lightheadedness
-It can cause :
- ✓ Nervousness
- ✓ muscle spasms or tetany
- ✓ Convulsions
- ✓ Loss of consciousness
- ✓ Death

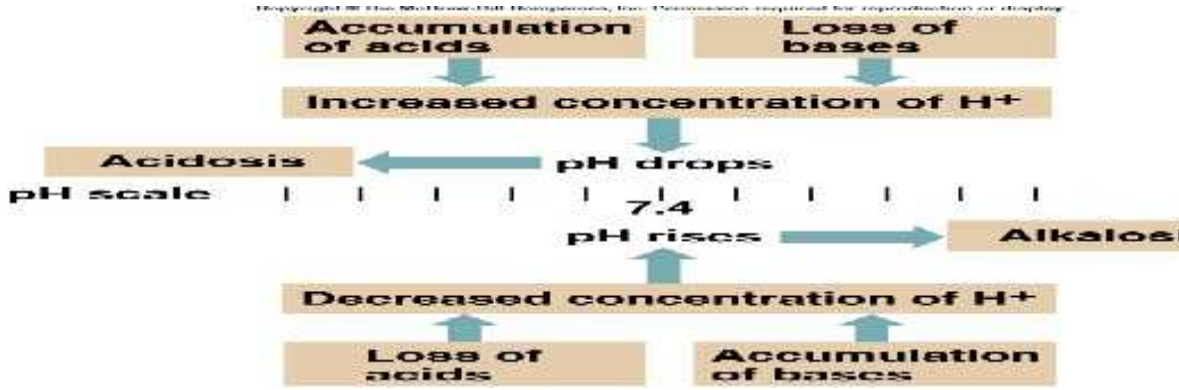


fig 1 shows accumulation of acid and loss of base

1.1.1. **Respiratory Acidosis**

-Carbonic acid excess caused by blood levels of CO_2 above 45 mm Hg.

-Hypercapnia – high levels of CO2 in blood

- ► Classification
  - ✓ Acute conditons:
    - oAdult Respiratory Distress Syndrome
    - o Pulmonary edema
    - o Pneumothorax
  - ✓ Chronic conditions:

- Depression of respiratory center in brain that controls breathing rate – drugs or head trauma

-Paralysis of respiratory or chest muscles

-Emphysema

- ► Compensation for Respiratory Acidosis
  - Kidneys eliminate hydrogen ion and retain bicarbonate ion
- ► Signs and Symptoms of Respiratory Acidosis
  - Breathlessness
  - Restlessness
  - Lethargy and disorientation
  - Tremors, convulsions, coma
  - Respiratory rate rapid, then gradually depressed
  - Skin warm and flushed due to vasodilation caused by excess CO2
- ► Treatment of Respiratory Acidosis
  - Restore ventilation
  - IV lactate solution
  - Treat underlying dysfunction or disease

1.1.2. **Respiratory Alkalosis**

- ➢ Introduction
  - Carbonic acid deficit
  - pCO2 less than 35 mm Hg (hypocapnea)
  - Most common acid-base imbalance
  - Primary cause is hyperventilation
- ➢ Conditions that stimulate respiratory center:
  - Oxygen deficiency at high altitudes
  - Pulmonary disease and Congestive heart failure – caused by hypoxia
  - Acute anxiety
  - Fever, anemia
  - Early salicylate intoxication
  - Cirrhosis

-Gram-negative sepsis

- Compensation of Respiratory Alkalosis
  - Kidneys conserve hydrogen ion
  -Excrete bicarbonate ion
- Treatment of Respiratory Alkalosis
  - Treat underlying cause
  -Breathe into a paper bag
  -IV Chloride containing solution – Cl- ions replace lost bicarbonate ions

1.1.3. **Metabolic Acidosis**

Bicarbonate deficit - blood concentrations of bicarb drop below 22mEq/L

- Causes:
  -Loss of bicarbonate through diarrhea or renal dysfunction
  -Accumulation of acids (lactic acid or ketones)
  -Failure of kidneys to excrete H+
- Symptoms of Metabolic Acidosis
  -Headache, lethargy
  -Nausea, vomiting, diarrhea
  -Coma
  -Death
- Compensation for Metabolic Acidosis
  -Increased ventilation
  -Renal excretion of hydrogen ions if possible
  -K+ exchanges with excess H+ in ECF
  -(H+ into cells, K+ out of cells)
- Treatment of Metabolic Acidosis
  -IV lactate solution

1.1.4. **Metabolic Alkalosis**

• Bicarbonate excess - concentration in blood is greater than 26 mEq/L

- ✓ Causes:
  -Excess vomiting = loss of stomach acid
  -Excessive use of alkaline drugs
  -Certain diuretics
  -Endocrine disorders
  -Heavy ingestion of antacids
  -Severe dehydration
- ✓ Compensation for Metabolic Alkalosis

- Alkalosis most commonly occurs with renal dysfunction, so can't count on kidneys

-Respiratory compensation difficult – hypoventilation limited by hypoxia

- ✓ Symptoms of Metabolic Alkalosis

-Respiration slow and shallow
-Hyperactive reflexes ; tetany
-Often related to depletion of electrolytes
-Atrial tachycardia
-Dysrhythmias

- ✓ Treatment of Metabolic Alkalosis

-Electrolytes to replace those lost
-IV chloride containing solution
-Treat underlying disorder

1.2. Fluids and Electrolytes imbalance

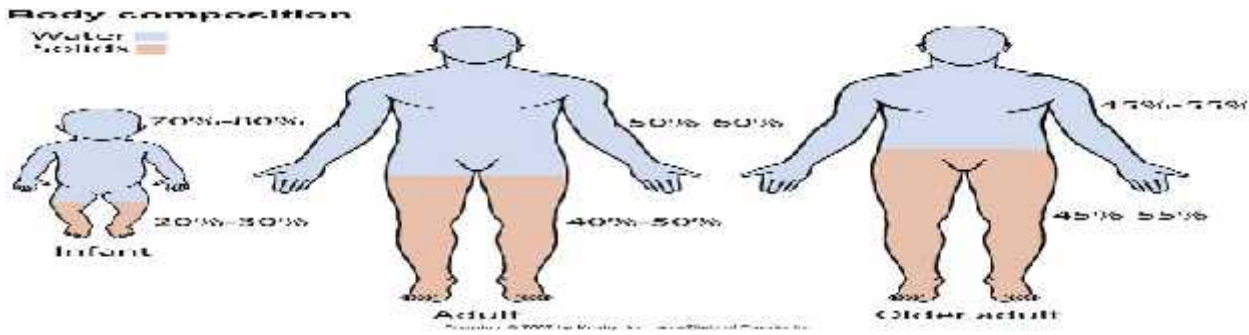


Fig 2 shows water content of the body

Water Balance in Infants

- ✓ Infants & young children
  -Greater need for water
  -More vulnerable to alterations
  -Infants have greater & more rapid water loss
- ✓ Water & electrolyte disturbances occur more frequently & more rapidly
  -Children adjust less promptly to these alterations
- ✓ Body Surface Area (BSA)

-BSA of premature neonate 5x more than older child or adult, 2-3x more in newborn

-Longer GI tract in infancy source of relatively greater fluid loss

- ✓ Metabolic Rate

-Higher in infancy
-Greater production of metabolic wastes

- ✓ Kidney Function

-Immature at birth
-Inability to concentrate or dilute urine
-More likely to become dehydrated or over hydrated

- ✓ Fluid Requirements

-Ingest & excrete greater amount of fluid/kg of body weight
-Maintenance requirements include both water & electrolytes

Dehydration in Children

- Common causes:
  -Gastroenteritis (most common)
  -n/v/d
  -Diabetic ketoacidosis
  -Extensive burns

Assessing for Dehydration in Children

fig 3 shows dehydration assessment in children

Earliest detectable sign:

-Skin & mucous membranes
-Fontanels

-Extremities
-Skin elasticity
-Capillary refill
-Sensorium (irritability to lethargy)
-Heart rate
-Eyes
-Urine output

Midwife Responsibilities in Children with Dehydration

-Assessment
-Accurate I&O
-1 gm wet diaper weight = 1 ml urine
-Oral rehydration management
-Parenteral fluid therapy

Water Intoxication in Children

- ✓ Can occur during
  -Acute intravenous (IV) water overloading
  -Feeding of incorrectly mixed formula
  -Excess water ingestion
- ✓ Manifestations:
  -Irritability
  -Somnolence
  -HA
  -Vomiting
  -Diarrhea
  -Seizures

Gerontologic Considerations in Fluid

-Structural changes in kidneys
-Hormonal changes
-Loss of subcutaneous tissue
-Reduced thirst mechanism

1.2.1. **Sodium**

Plays a major role in:

-ECF volume and concentration
-Generation and transmission of nerve impulses
-Acid–base balance

- ➢ Sodium Imbalances: Hypernatremia
  - Elevated serum sodium
  -Causes hyperosmolality
  -cellular dehydration
  - ✓ Manifestations
  -Treat underlying cause
  -If oral fluids cannot be ingested, IV solution of 5% dextrose in water or hypotonic saline
  -Diuretics
  -Reduce level gradually
- ➢ Sodium Imbalances: Hyponatremia
  -Results from loss of sodium-containing fluids or from water excess
  - ✓ Management Hyponatremia
    -Caused by water excess
    Fluid restriction is needed
    -Severe symptoms (seizures)
    Give small amount of IV hypertonic saline solution (3% NaCl)

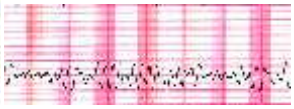
1.2.2. Potassium

-Major ICF cation
-Necessary for:
-> Transmission and conduction of nerve and muscle impulses
->Maintenance of cardiac rhythms
->Acid–base balance

- Potassium Imbalances: Hyperkalemia
  - High serum potassium caused by:
    -Massive intake
    -Impaired renal excretion
    -Shift from ICF to ECF
  - Common in massive cell destruction
    -Burn, crush injury, tumor, lysis
  - Hyperkalemia in Acidosis

-As blood [H+] rises in cases of acidosis, more H+ ions are pumped intracellularly in exchange for K+ ions that are pumped extracellularly to maintain electrical neutrality.

- Clinical manifestations

- Management of Hyperkalemia
  -Eliminate oral and parenteral K intake
  -Increase elimination of K
  -Force K from ECF to ICF by IV insulin or sodium bicarbonate
  -Reverse membrane effects of elevated ECF potassium by administering calcium gluconate IV

- Hypokalemia

Low serum potassium caused by:
- Abnormal losses of K+ via the kidneys or gastrointestinal tract
-Magnesium deficiency
-Metabolic alkalosis

- **Management of Hypokalemia**
  - KCl supplements orally or IV
  -Should not exceed 10mEq/hr

1.2.3. Calcium

- Characteristics
  -Obtained from ingested foods
  -Inverse relationship with phosphorus
  -Blocks sodium transport
  -Stabilizes cell membrane
- Functions
  -Transmission of nerve impulses
  -Myocardial contractions

-Blood clotting
-Formation of teeth and bone
-Muscle contractions

- Balance controlled by:
  - Parathyroid hormone
  -Calcitonin
  -Vitamin D
- Calcium Imbalances Hypercalcemia
  High serum calcium levels caused by:
  -Hyperparathyroidism (two thirds of cases)
  -Malignancy
  -Vitamin D overdose
  -Prolonged immobilization

❖ Calcium Imbalances: Hypercalcemia
- Manifestations
  - Dec. excitability
  - Skeletal muscle
  -Cardiac muscle
  -Nervous system
- Management of Hypercalcemia
  -Excretion of Ca with loop diuretic
  -Hydration with isotonic saline infusion
  -Synthetic calcitonin
  -Mobilization

❖ Hypocalcemia
  Low serum Ca levels caused by:
  -Decreased production of PTH
  -Acute pancreatitis
  -Multiple blood transfusions
  -Alkalosis
  -Decreased intake
- Manifestations
  -Positive Trousseau's or Chvostek's sign
  -Laryngeal stridor
  -Dysphagia
  -Tingling around the mouth or in the extremities
- Diagnoses of Hypocalcemia
  -Risk for injury
  -Potential complication: fracture or respiratory arrest
- Management of Hypocalcemia
  -Treat cause
  -Oral or IV calcium supplements
  -Not IM to avoid local reactions
  -Treat pain and anxiety to prevent hyperventilation-induced respiratory alkalosis

Self-Check -8	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.We all consume every day food and drinks which contain acids. (3 points)

A. True

B. False

2.The body response to acid-base imbalance is termed as ? (3 points)

A. Immunity

B . Compensation

C . Regulation

D Deprivation

3.Acids in our body produced by a metabolism of (3 points)

A. Carbohydrate

B. Minerals

C. Lipids

D. Water

4. High level of CO_2 concentration in the blood is termed as (3 points)

A. Hypernatreamia

B. Hypercapania

C. Hypercalcaemia

D. Hyperkalemia

5.Which one of the following is helpful for blood clotting ? (3 points)

A. Sodium

B. Potassium

C. Calcium

D. None of the above

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

MCQ

1.__
2__
3__
4__
5__

Operation Sheet 4	Manage fluid and electrolyte imbalance

Steps to manage third degree burn:

step 1. Assess the patient
step 2.Accurately measure I&O of the patient
step 3.administer Oral rehydration management
step 4. administer Parenteral fluid therapy

LAP Test	Practical Demonstration

Name: _____ Date: _____
Time allowed for procedure one -three is 30min for each
You are required to perform :
Task 1: manage a victim developing fluid and electrolyte imbalance

List of Reference Materials

1- Brunner & Suddarth's Textbook of Medical -Surgical Nursing , 10th edition