ELIMINATION NEED

Abstract

Urination is the process by which the urinary bladder is emptied and it involves the kidneys, ureters and bladder for the elimination process. Urine is composed of majorly water, i.e. 96%. The rest 4% are organic and inorganic compounds. There are various factors that affect the process of urination and due to which there are evident of alterations in the urination process. These alterations are retention and incontinence. Nurses play a significant role in various procedures such as providing bedpan to a patient, inserting catheter or condom drainage. Elimination of bowel contents take place through the digestive system, after the important electrolytes and water is reabsorbed in the large bowel. $3/4^{th}$ of feces is composed of water and $1/4^{th}$ of it consists solid waste. There are a number of factors, which affect the elimination process. Constipation is a condition in which the frequency of defecation is reduced and the stool becomes hard and dry. This can be caused due to many reasons. Diarrhea is a condition in which an individual passess watery stool. Also the frequency is increased. This condition is opposite to that of constipation. Flatulence is the accumulation of gaseous contents in the GI tract. Nurses take part in the procedures which facilitate bowel elimination. These procedures can be passing of flatus tube, enema, suppositories, bowel wash, diversion ostomies or the digital evacuation of the feces.

Keywords: elimination, need.

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I. ELIMINATION

Elimination may be defined as the removal of waste material from the body like urine, faeces, sweat, discharge etc. through the intestine, kidneys, lung and skin.

II. URINARY ELIMINATION

Urinary elimination is defined as expulsion of waste products from the body through the urinary system.

1. **Physiology of Urine Elimination:** The process of urine elimination begins in the kidneys, which are responsible for filtering waste products and excess substances from the blood to form urine. The functional unit of the kidneys is the nephron. Blood enters the nephron through a network of tiny blood vessels called glomeruli. These glomeruli filter water, electrolytes, waste products, and other substances from the blood, forming a fluid called the glomerular filtrate. After filtration, the glomerular filtrate moves through the nephron's tubules, where vital substances like water, glucose, electrolytes, and amino acids are reabsorbed back into the bloodstream. This process is essential to maintain the body's electrolyte balance and ensure that essential substances are not lost in the urine. In addition to reabsorption, the nephrons also secrete certain substances, such as hydrogen ions, potassium ions, and drugs, into the tubules. This secretion process helps the kidneys maintain the body's acid-base balance and eliminate any substances that need to be removed from the bloodstream. As the glomerular filtrate progresses through the nephron's tubules, the kidneys have the ability to concentrate or dilute the urine, depending on the body's needs. This is primarily controlled by the hormone antidiuretic hormone (ADH) or vasopressin, which regulates the reabsorption of water in the collecting ducts of the nephron. Once the urine is formed in the kidneys, it travels down the ureters, which are tubes that connect the kidneys to the bladder. The bladder serves as a storage reservoir for urine until it is ready to be expelled from the body. The bladder wall is muscular and can expand to accommodate increasing volumes of urine. When the bladder fills to a certain capacity, sensory receptors in the bladder wall signal the brain that it is time to empty the bladder. The brain then sends signals to the bladder's muscular wall, triggering the micturition reflex. The external urethral sphincter, a ring-like muscle around the urethra, relaxes, and the detrusor muscle of the bladder contracts, pushing urine out through the urethra and out of the body.

2. **Composition of Urine:** Human urine consists primarily of **water** (95%) with **organic solutes** including urea, creatinine, uric acid and trace amounts of enzymes, carbohydrates, hormones, fatty acids, pigments and mucins, and **inorganic ions** such as sodium (Na^{+}), potassium (K^{+}), chloride (Cl^{-}), magnesium (Mg^{+2}), calcium (Ca^{+2}), ammonium (NH_4^{+}), sulphates (SO_4^{-2}) and phosphates (e.g. PO_4^{-3}).

    - **Organic Compounds:**
      Urea: 25-35 gm
      Creatinine: 1.6 gm
      Uric acid: 0.4-10 gm
      Hippuric acid: 0.7 gm

Indican: 0.01 gm
Ketone bodies: 0.04 gm
Other substances (Carbohydrates, fatty acid, mucus, enzymes, hormones): 2.9 gm

- **Inorganic Compounds:**
  Na^{+}, Cl^{-} : 15 gm
  K^{+} : 3.3 gm
  SO_4^{-2} : 2.5 gm
  H_2PO^{-4}, HPO_4^{-2}, PO_4^{-3} : 2.5 gm
  NH_4^{+} : 0.7 gm

3. Characteristics of Urine

- **Volume:** 1000-2000ml/24hrs. but may vary according to season and water intake. E.g. in summer output is less and in winter output is more.
- **Color:** A freshly voided specimen is pale yellow, straw-colored or amber, depending on its concentration.
- **Turbidity and Appearance:** Fresh urine should be clear or translucent. As urine stands and cools, it becomes cloudy. Normal urine is clear with no deposits. Cloudy appearance is due to ketone bodies (diabetes).
- **Odor:** Normal urine smell is aromatic. As urine stands, it often develops an ammonia odor because of bacterial action.
- **pH Value:** The normal pH is about 6.0, with a range of 4.6 to 8.
- **Specific Gravity:** This is a measure of the concentration of dissolved solids in the urine. The normal range is 1.010 to 1.025.
- **Constituents:** Organic constituents of urine include urea, uric acid, creatinine, urine pigments and undetermined nitrogen. Inorganic constituents are ammonia, sodium, chloride and traces of iron, phosphorus, sulphur, potassium and calcium.

4. Factors Influencing Urinary Elimination

- **Fluid Intake**: The amount and type of fluids a person consumes can directly impact urinary elimination. Adequate fluid intake promotes urine production, while dehydration can lead to reduced urine output and concentrated urine.
- **Fluid Loss:** The body loses fluids through sweating, breathing, and other processes, which can affect urine volume. Excessive fluid loss, such as during sweating in hot weather or physical activity, can lead to decreased urine output.
- **Kidney Function:** The kidneys play a vital role in filtering and producing urine. Any conditions that affect kidney function, such as kidney disease or infections, can impact urinary elimination.
- **Bladder Capacity:** The bladder's ability to hold urine influences urinary elimination patterns. Certain conditions, such as an overactive bladder or bladder obstruction, can affect bladder capacity and lead to frequent or incomplete voiding.
- **Hormonal Factors:** Hormones like antidiuretic hormone (ADH) and aldosterone regulate the body's fluid balance and influence urine production. Changes in hormone levels can affect urinary elimination.

- **Age:** Urinary elimination patterns can vary with age. For example, infants have more frequent urination due to their small bladder capacity, while elderly individuals may experience decreased bladder capacity and urinary incontinence.
- **Medications:** Some medications, such as diuretics, can increase urine output, while others may affect bladder function or cause urinary retention.
- **Urinary Tract Infections (UTIs):** Infections in the urinary tract can cause pain, discomfort, and changes in urinary elimination patterns, such as increased urgency and frequency.
- **Psychological Factors:** Emotional stress or anxiety can influence urinary elimination. Some people may experience increased urinary frequency during times of stress.
- **Neurological Factors:** The nervous system controls bladder function. Neurological conditions or injuries affecting the nerves involved in urinary control can lead to urinary retention or incontinence.
- **Pregnancy:** During pregnancy, hormonal changes and pressure on the bladder from the growing uterus can affect urinary elimination.
- **Prostate Enlargement:** In men, an enlarged prostate can obstruct urine flow and lead to urinary retention.
- **Cultural and Environmental Factors:** Cultural norms and access to restroom facilities can influence urinary elimination habits.

III. RETENTION OF URINE

Retention of urine means that the urine is retained in the bladder.

1. Causes of Retention of Urine:

- **Urethral Obstruction:** Obstruction of the urethra from within or from outside can lead to retention of urine e.g. enlarged prostate gland, stricture of the urethra etc.
- **Decreased Stimulation of the Muscle of Bladder:** A lack of muscle tone and muscle spasm can lead to retention of urine as seen in injury or paralysis of the spinal nerves, dullness following shock, anaesthesia or alcoholism.
- Pressure on the bladder by faecal impaction, fetus in utero pelvic tumors etc. can lead to retention of urine.
- Poor fluid intake.
- Surgery and trauma on the urinary structures may interfere with micturition.
- Change in the living patterns can lead to retention of urine. Change in the daily routines, strange environment, lack of privacy etc. experienced by the clients during illness and hospitalization can lead to retention of urine.
- Some medications such as analgesics and tranquillizers which suppress the central nervous system will also interfere with micturition by diminishing the effectiveness of the neural reflex.

2. **Prevention and Treatment of Retention of Urine:** Before resorting to catheterization or even reporting that a client cannot pass urine, an intelligent nurse will use her knowledge and skill to aid the client to empty the bladder by natural means. Methods used in including natural urination are:

- Assist the client to his or her normal position for voiding.

- Provide privacy.
- Offer a bedpan or urinal that is warm. A bedpan that is cold to touch may cause contraction of the perineal muscles.
- Foster the muscles relaxation by providing necessary physical support to the client and by relieving pain.
- Local application of heat to the perineum and lower abdomen by pouring warm ater or by the application of hot water bottles or by a sitz bath can foster muscle relaxation and thereby the act of micturition.
- Provide any assistance when the client feels the need to void. By waiting for bedpan, the desire to void may pass off. Offer bedpan or urinal at regular intervals.
- Provide enough time for micturition.
- Reassurance and emotional support are helpful to relax the client.
- A hot enema, **if permitted,** may relieve the retention of the urine.
- Give fluids freely unless contraindicated.

IV. INCONTINENCE OF URINE

Urinary incontinence is the inability of the urinary sphincters to control the passage of the urine from the bladder.

1. Causes of Incontinence of Urine

- Sphincter damage
- Weak perineal muscles
- Tumors e.g. enlarged prostate
- Urinary tract infection
- Strictures
- Faecal impaction
- Neurological conditions
- Effects of narcotics, sedatives and alcoholism
- Paralysis of the body
- Old age
- Unconsciousness

2. Prevention and Treatment of Incontinence of Urine

- Establish a regular voiding schedule for the client e.g. every 2 hours whether he or she feels the urge or not.
- Increase the physical activity.
- Perineal exercises.
- Arrange for toilet or bedpan within the easy reach of the client.
- Medical and surgical correction of the causative factors e.g. treatment of the urinary tract infections, correction of the anatomic problem.
- **Bladder Training Program:** The fluid intake is to be maintained between 2000 to 3000ml per day. Fluids are carefully spaced through the day and are limited before bedtime, so that urine production is reduced during the night.

- **Condom Drainage:** A male client with incontinence of urine can be safely managed with condom drainage.

V. SPECIMEN

A specimen is a small sample or part taken to show the nature of the whole, as a small quantity of urine for urinalysis or a small fragment of tissue for a microscopic study.

1. Purposes of Collection of Specimen

- To understand the importance of specimen collection
- To develop skill in collection of different specimens
- To differentiate the variation from normal to abnormal in sickness

2. Types of Urine Specimen

The urine specimens collected for various examinations are given below:

- Collection of mid-stream urine
- Routine microscopic culture
- 24 hours urine
- Pregnancy test
- Double voided specimen

3. Observation of Urine Specimens: Each time the client's urine is handled it should be observed for its normal characteristics as it helps the nurse to detect any variations in its normal characteristics. The normal and abnormal characteristics of urine are given below:

Characteristics of Urine	Normal	Abnormal
Volume	1000-2000ml/24hrs. but may vary according to season and water intake. E.g. in summer output is less and in winter output is more	Abnormal increase in volume is called polyuria which is found in Diabetes Mellitus patients. Oliguria is less than 500ml/24hrs. which is found in heart and kidney diseases and shock conditions. Anuria is absent or scanty urine found in renal failure
Color	A freshly voided specimen is pale yellow, straw-colored or amber, depending on its concentration	Urine is darker than normal when it is scanty and concentrated. Urine is lighter than normal when it is excessive and diluted. Certain drugs, such as B-complex, L-dopa etc. alter the color of urine

Turbidity and appearance	Fresh urine should be clear or translucent. As urine stands and cools, it becomes cloudy. Normal urine is clear with no deposits. Cloudy appearance is due to ketone bodies (diabetes)	Cloudiness observed in freshly voided urine is abnormal and may be due to the presence of red blood cells, white blood cells, bacteria, vaginal discharge, sperm or prostatic fluid
Odor	Normal urine smell is aromatic. As urine stands, it often develops an ammonia odor because of bacterial action	Some foods cause urine to have a characteristic odor. E.g. asparagus causes urine to have a strong, musty odor. Urine high in glucose content has a sweet odor. Urine that is heavily infected has a fetid odor
pH value	The normal pH is about 6.0, with a range of 4.6 to 8	Certain foods tend to produce acidic urine, for e.g. meat and canberry juice. A high protein diet causes urine to become excessively acidic. Certain foods tend to produce alkaline urine, such as citrus fruits, dairy products and vegetables, especially legumes.
Specific gravity	This is a measure of the concentration of dissolved solids in the urine. The normal range is 1.010 to 1.025	Concentrated urine will have higher than normal specific gravity and diluted urine will have lower than normal specific gravity. In the absence of a kidney disease, a high specific gravity usually indicates dehydration and a low specific gravity indicates over hydration
Constituents	Organic constituents of urine include urea, uric acid, creatinine, urine pigments and undetermined nitrogen. Inorganic constituents are ammonia, sodium, chloride and traces of iron, phosphorus, sulphur, potassium and calcium	Abnormal constituents of urine include blood, pus, albumin, glucose, ketone bodies, casts, gross bacteria and bile

VI. PROVIDING BEDPAN/URINAL

1. **Definition:** Offering a bedpan to meet the bowel elimination need of a bedridden patient.

2. **Types:**
   - Regular bedpan
   - Fracture bedpan

3. **Purposes:**
   - To facilitate bowel elimination in a bedridden patient
   - To collect specimen

4. **Principle:** Buttocks should be firmly attached against the bedpan

VII. NURSING CARE OF CLIENT WITH CONDOM DRAINAGE

Condom drainage is a method of managing the continence in male patients in which a condom is used to attach to a plastic drainage tube and is rolled over the penis. The tube, from the other end is connected to a drainage bag.

The condom drainage can be applied overnight only or it can be a continuous process. It generally varies according to the patient's needs.

1. Purposes of Condom Drainage

- Urine collection and controlling incontinence.
- Allow the client to perform physical activity while the client still has urinary incontinence.
- Prevent the skin from moisture due to leaking urine, thus preventing bedsores.
- To prevent UTIs resulting due to invasive procedures such as indwelling catheter.

2. Special Consideration

- While securing the condom, it should be taken care that it is firm but not tight because that may stop the blood flow to the penis.
- The condom should not be twisted as it can obstruct the urinary flow.
- Assessment of penis for any swelling or discoloration should be done.
- Check for the urine output and flow in the bag.
- The condom must be replaced as prescribed by the physician. In certain settings, the condom is changed as regularly as daily.
- Provide skin care, to avoid irritation to the client and any infection.
- Documentation is must.
- Perform an evaluation to assess for any deviations from the normal.
- Report the deviations to the physician, if any.

VIII. URINARY CATHETERIZATION

Urinary catheterization is a procedure where a catheter (hollow tube) is inserted into the bladder to drain or to collect urine. There are 3 main types of urinary catheterization that is:

- Intermittent
- Retention/Indwelling catheterization
- Suprapubic catheterization

1. **Intermittent Catheterization:** It is defined as a procedure performed medically in a situation when a patient is in need of catheterization, but for a shorter period of time.

It can be done easily by patient at home or by a nurse in a hospital setting. The major indication for intermittent catheterization is neurogenic bladder. The time duration can range from 2-3 hours to 4-6 hours.

2. Benefits

- To help regain control of bladder
- Prevents reflux of urine
- Prevention of dribbling of urine

3. Special Consideration

- Check for any signs of infection. The signs can include burning sensation while urinating, pain or physical changes in the urine.
- Make sure that the client is taking adequate fluids orally.
  As the catheterization is done, the urine is collected and assessed if there is presence of any blood in urine. The urine is assessed for any other physical changes.
- The client can be suggested to consume acidic juices such as cranberry or prunes.

4. Indwelling Catheterization: Indwelling catheter, also called Folley's catheter is defined as a device, which helps in the drainage of urinary bladder.

5. Suprapubic Catheterization: It is the placement of a drainage tube into the urinary bladder just above the pubic symphysis. This is typically performed for individuals who are unable to drain their bladder via the urethra.

6. Indications

- Urinary retention when urethral catheterization is not feasible.
- When the urethra is damaged or injured.
- If the pelvic floor muscles are weakened, causing a urethral catheter to fall out.
- After surgeries that involve the bladder, uterus, prostate or nearby organs.

7. Contraindications

- Non-distended bladder and bladder malignancy.
- Active skin infection, coagulopathy, osteomyelitis of the pubis.

8. Complications

- Bowel injury
- Bleeding and vascular injury
- Obstruction of the tube and failure to enter the bladder during the initial procedure

9. Role of Nurse in Urinary Catheterization: As far as the role of nurse is concerned, the nurse has to take measures to avoid infection of the urinary tract. The nurse also takes care that the urine outflow is adequate. For that, the client must maintain a good fluid intake.

- **Fluid:** The nurse has to encourage the patient for the intake of a good amount of fluid orally. It is advisable to drink up to 3 L of fluids every day for a patient with indwelling catheter, unless contradicted due to any disease condition. As the patient's intake is high, accordingly the output will also be high. The urine thus helps to flush the bladder and urethra and prevents infection due to urinary stasis. The flushing of bladder and urethra helps to remove any obstruction, if present.
- **Diet:** To reduce the risk of urinary tract infection, the urine must be acidic in nature. Also, acidic urine prevents the formation of calculi. Food products which promote the urine to turn acidic must be promoted by the nurse. These items are eggs, meat, cranberry, plums, and prunes. On the other hand milk and milk products turn the urine alkaline.
- **Hygiene:** Perineal care is advised. However, no specific cleaning is required. Routine hygiene practices have to be followed by the patients. The nurse can guide the family or the patient on how to perform perineal and catheter care and if necessary, the nurse can even assist them with the procedure.
- **Catheter changing:** The catheter or tubing is not changed on a regular basis. If the catheter and drainage system is impaired, or there is some evidence of collection of certain salts in the form of sediments in the tube, the catheter can be changed. Regular insertion of new catheter can injure the perineum and promote the chances of infections.
- **Input-output:** The nurse has to maintain the documentation where the accurate input and output is mentioned to assess the hydration status of patient and the urinary functions.

10. Removal of the Urinary Catheter

Types	Removal
Foley's	• Wear clean gloves • Empty the uro bag and then with the help of syringe and needle deflate the balloon by withdrawing the fluid from it and hold the two gauze piece in non-dominant near to the perineum, in such a way that catheter is in the centre. • Now withdraw the catheter with dominant hand. • Throw the catheter and uro bag as per BMW policy of the hospital.
Condom Drainage	• Wear gloves, empty the uro bag and note down the output. • Roll down the condom drainage and dispose of the condom drainage apparatus.
Suprapubic Catheter	• Wear clean gloves • Remove the dressing and discard • Wash hands and wear sterile gloves clean the site of insertion of suprapubic catheter and deflate the balloon near the tip of the catheter and remove the catheter while patient is exhaling • Pull the purse string at the incision site and close the opening • Apply paraffin gauze and sterile dressing on it to seal the air entry • Discard the apparatus as per BMW policy.

IX. BLADDER IRRIGATION

Bladder irrigation is a procedure used to flush sterile fluid through a catheter into the bladder. Bladder irrigation helps remove and prevent blood clots in bladder.

1. Purpose

- To flush clots and debris out of the catheter and bladder
- To instil medication to bladder lining.
- To restore patency of the catheter.
- To prepare the bladder surgery as a preoperative measure.
- To promote healing
- To relieve congestion and pain in case of inflammatory condition of cystitis.
- To cleanse the bladder from decomposed urine bacteria, excess mucus and pus.

2. Indications

- Acute urinary retention (e.g. blood clots)
- Chronic obstruction that causes hydronephrosis
- Hygienic care of bedridden patients

3. Contraindications

- Blood at the meatus. Insertion of the catheter can worsen an underlying injury.
- Gross hematuria
- Urethral pain or discomfort
- Low bladder volume

4. Nurses Responsibilities

Before the Procedure:

- Explain the procedure to the patient
- Obtain informed consent
- Monitor the vital signs
- Assist the patient to supine position with legs extended and flat on the bed (for Male) and supine position with legs spread in stirrup position (for female)
- Flush the three way retention catheter
- Clean the perennial area

After Procedure

- Place the patient flat on bed
- Monitor the vital sign and intake output chart
- Wash and replace the all articles in the utility room
- Record and reporting

5. Complication:

- Allergic reaction

- Blood in urine
- Injury to the urethra
- Kidney damage (with long-term indwelling catheters)
- Infection of the urinary tract.

X. URINARY DIVERSIONS

Urinary diversion is defined as the process by which the urine flow is diverted. It is a surgical procedure in which the urine is diverted and re-routed from kidneys and is directed to body part other than the bladder. Through diversions, a new pathway is built for the urine to bypass and thus, urine exits from a new site.

1. Indications

- Tumor of the urinary bladder
- Pelvic malignancy
- Any birth anomaly
- Injury or trauma to the urinary bladder
- Other conditions that cause damage to the urinary tract

2. Types: There can be two types or categories through which urine can be diverted from its original pathway, i.e. continent and continent

- **Incontinent:** In the type of diversion, an appliance from outside is impaired for the urine to drain and contain since there no control on how the urine passes. The passage is to under the control. It is not essential that the urinary bladder has to be removed. There are various examples of incontinent urinary diversion. These are ureterostomy, phrostomy, vesicostomy and ileal conduit.

  - **Ureterostomy:** In this type of diversion, small stoma informed on the side of abdomen, one or both ureters are brought to surface directly. As the stoma is created, a direct port of entry is provided for the microorganism to enter into the body. These stomas also impair urinary drainage.
  - **Nephrostomy:** The diversion when the urine is diverted to the stomas from the kidneys.
  - **Vesicostomy:** In this case, micturation from the urethra isn't possible. However, the bladder is not excised: Ureters remain attached to the bladder and an opening is attached with the bladder wall through surgical manipulations.
  - **lleal conduit:** In this case, a small portion of ileum is removed. The end of the intestine is attached again. A pouch like structure is formed as the one end of removed portion is sutured. A stoma is created as the other end is brought out of the abdominal wall. This is the most common kind of diversion performed, in which the urine is drained through the ileal pouch

- **Continent**
  - Unlike the incontinent diversion, the continent diversion helps the patient to control the urine flow. This can be done either by the intermittent catheterization of inner reservoir, i.e., Kock pouch or by straining during voiding (neobladder).

- A reservoir for urine is formed inside the body using the part of ileum. If a patient has undergone this procedure, there may be certain problems due to body image and sexuality. However, these activities are resumed shortly after the procedure.
- In the **'Kock' pouch**, small nipple valves are created as the tissue is doubled backward in the reservoir, the junction where the pouch and skin connect and the ureter and pouch connect.
- The valves fill up with the urine, which prevents the leakage and reflux of urine.
- The pouch can be emptied by inserting a catheter by the patient himself at a regular interval. In between the catheterization, the stoma is covered using a small dressing for the protection purpose. This dressing also prevents the spoilage of cloths.
- **Neobladder:** In neobladder, the original bladder is replaced with a piece of ileum since the bladder could be diseased or damaged beyond repair. This piece of ileum, acting as the bladder is then sutured to the urethra and thus, the patient can void easily with complete control over the voiding process.

3. Maintenance of Urinary Diversions

- It is nurse's responsibility to assess the client's fluid intake and urine output.
- Also, the nurse must observe the urine and assess if there are any notable changes seen. These changes can be in reference to the color, odor, cloudiness etc.
- As stoma is created, the nurse must take care of the stoma and the skin adjoining it. Help the patient in taking care of the skin and avoiding any irritation.
- Strategies should be made to manage the stoma and prevent infection.

4. Care of the Patient before Urinary Diversion

- Assess cognitive ability of the patient
- Explain the procedure and expected outcome
- Prepare the patient for the stoma
- Give enema to the patient and provide preoperative care

5. Care of the Patient after Urinary Diversion

- Monitor intake output
- Assess the output from the stoma, i.e. urine color
- First day it will be pink in color, which will become clear on third day
- Evaluate the skin on stoma and surrounding area
- Capacity building of family and patient will be done to take care of the diversion

XI. BOWEL ELIMINATION

Bowel elimination or defecation is the expulsion of faeces from the anus and the rectum.

1. **Physiology of Bowel Elimination:** The process of bowel elimination begins with the ingestion of food and liquids. Food enters the mouth, where it is broken down into

smaller pieces through chewing and mixed with saliva to initiate the digestion process. Once in the stomach, the food mixes with gastric juices that contain enzymes and hydrochloric acid, which break down proteins, fats, and carbohydrates into smaller molecules that can be absorbed by the body. From the stomach, the partially digested food (chyme) moves into the small intestine, where the majority of nutrient absorption takes place. The small intestine is lined with villi and microvilli, which increase the surface area for efficient absorption of nutrients into the bloodstream. The process of digestion and nutrient absorption in the small intestine takes several hours. During this time, nutrients, such as glucose, amino acids, and fatty acids, are absorbed into the bloodstream to be transported to various cells and organs in the body. After passing through the small intestine, the remaining undigested and unabsorbed material (fiber, waste, and water) enters the large intestine or colon. The main functions of the large intestine are to absorb water and electrolytes from the remaining material and to form feces. As water and electrolytes are absorbed, the material in the large intestine becomes more solid, and feces are formed. Feces consist of undigested food residues, gut bacteria, cellular debris, and waste products. Feces are stored in the rectum, the lower part of the large intestine, until it is time for elimination. The rectum stretches to accommodate the accumulating fecal material. When the rectum is sufficiently distended, it triggers the defecation reflex. The internal anal sphincter relaxes involuntarily, and the person becomes aware of the need to defecate. The external anal sphincter is under voluntary control and allows the person to choose the appropriate time and place for bowel elimination. During bowel elimination, the external anal sphincter relaxes voluntarily, allowing the feces to be expelled from the body through the anus.

2. Composition of Normal Faeces

- Water: 75%
- Solids: 25%
- Bacteria: 30%
- Undigested food fibre and dried constituents of digestive juices: 30%
- Fat: 10-20%
- Inorganic matter: 10-20%
- Protein: 3%

3. Characteristics of Stool

- **Volume:** Variable. Usually 100-300 gm/day.
- **Color:** Infant- Yellow, Adult- Brown.
- **Odor:** Aromatic; may be affected by foods ingested.
- **Consistency:** Soft, semi-solid and formed.
- **Shape:** Formed stool is usually about 1 inch (2.5cm) in diameter and has the tubular shape of the colon, but may be larger or smaller, depending on the condition of the colon.
- **Constituents:** Waste residues of digestion: bile, intestinal secretions, shredded epithelial cells, seeds, meat fibres and fat may be present in small amounts.

4. Factors Affecting Bowel Elimination

- **Age and Development:** There is marked variation between infants and the elderly. Bowel control develops only after eighteen months. In the elderly, lack of muscle tone (atony) of the smooth muscles of the colon can result in slow peristalsis and constipation or stools become harder or some elderly people have decreased sphincter control, resulting in urgency of stools.

- **Daily Patterns:** This includes timing, frequency, position and place. Any change affects the person's routine. It is difficult to defecate when seated on a bedpan and embarrassment may further inhibit defecation. Also, for many people, defecation is a private affair, which can only be done easily in the comfort of one's own bathroom. Defecation in a shared hospital room with only a curtain separating one from a roommate or other persons may be extremely difficult.

- **Lifestyle:** Many individuals, family and socio-cultural variables influence a person’s usual elimination habits.

  - The long-term effect of bowel training may result in a person accepting bowel elimination as a normal life process, and establishing a regular habit of defecating.
  - Preoccupation with bowel elimination, which may lead to an irregular pattern of defecation, or a feeling that bowel elimination is a dirty process.
  - The availability of toilet facilities, embarrassment about odours, and the need for privacy also affect faecal elimination patterns.
  - The language used to talk about bowel elimination or reluctance to discuss it at all, individual responses to involuntary passage of flatus (gas), and so forth, vary widely among individuals.

- **Diet:** High-fibre foods increase the bulk in faecal material. As the bulk of faeces expands, it places pressure on the intestinal wall, which serves as a stimulus for peristalsis. When faecal material moves quickly through the intestine, there is less time for water to be reabsorbed and the resultant stool is soft and easily passed. Certain foods are difficult or impossible for some people to digest. This inability results in digestive upsets and, in some instances, the passage of watery stools. Irregular eating can also impair regular defecation. Individual who eat at the same time every day have regularly timed physiologic response to food intake and a regular pattern of peristaltic activity in the colon. Spicy foods can produce diarrhea and flatus in some individuals.

  In addition to high-fibre, bulk-producing foods, other general food classifications that influence bowel elimination include the following.

  - **Constipating foods:** Processed cheese, lean meat, eggs and low-fibre foods.
  - **Foods with laxative effect:** Certain fruits and vegetables (for example, prunes); bran, chocolate, spicy foods, coffee.
  - **Gas-producing foods:** Onions, cabbage, beans and cauliflower.

- **Fluids:** Daily fluid intake of 2000 to 3000 ml facilitates elimination. When fluid intake is inadequate, and output (urine or vomitus, for example) is excessive for some reason, the body continues to reabsorb fluid from the chyme as it passes along the colon. As a result, the chyme becomes drier than normal, resulting in hard faeces. In addition, reduced fluid intake slows the chymes passage along the intestines, further increasing the re-absorption of fluid from the chyme.

- **Activity and Muscle Tone:** Exercise improves gastrointestinal motility and muscle tone, while inactivity decreases the tone of abdominal and perineal muscles. Weak abdominal and pelvic muscles are often ineffective in increasing the intra-abdominal pressure during defecation or in controlling defecation. Weak muscles can result from lack of exercise, immobility or improved neurological functioning. Patients who are on prolonged bed rest are prime candidates for constipation.

- **Psychological Factors:** When people are anxious, diarrhea is expected and when they are depressed, constipation occurs. Strong emotion is thought to cause constipation by inhibiting intestinal peristalsis through the action of epinephrine and the sympathetic nervous system. Stress can also cause a spastic bowel (spastic or hypertonic constipation or an irritable colon). Associated with this type of constipation are abdominal cramps increased amounts of mucus and alternating periods of constipation and diarrhea.

- **Pathological Conditions:** Many pathologic conditions result in change of bowel elimination.

  - Spinal cord injuries and head injuries decrease sensory stimulation for defecation.
  - Impaired mobility limits the patient's ability to respond to the urge to defecate.
  - Stools that are ribbon-like in appearance are due to tumour in the colon.

  Changes in characteristics and frequency are the first clinical manifestations of a disease. The evaluation of stools is an important task for a nurse.

- **Medications:** Some types of medications may affect normal bowel elimination and narcotic analgesics characteristics.

5. Common problems in Bowel Elimination:

- **Constipation:** It refers to the passage of small, dry hard stool or the passage of no stool for a period of time. The causes are irregular defecation habits, inappropriate diet, insufficient fluid, insufficient exercises and increased psychological stress.
- **Faecal impaction:** It is a mass or collection of hardened faeces in the folds of the rectum. The causes are prolonged retentions and accumulation of faecal material, poor defecation habits and constipation and medication.
- **Diarrhea:** It refers to the passage of liquid faeces and an increased frequency of defecation or it is the discharge of frequent loose stool to the rapid passage of content through the intestines. The causes are emotional stress and infection.
- **Faecal incontinence:** It refers to loss of voluntary ability to control faecal and gaseous discharge through the anal sphincter or inability to control the expulsion of

faeces. The causes are spinal cord trauma and tumors of the external sphincter muscles.

- **Flatulence:** It is the presence of excess gas in the intestine and leads to stretching and inflation of the intestines. Air or gas in the gastrointestinal tract is called flatus.

XII. CONSTIPATION

It refers to the passage of small, dry hard stool or the passage of no stool for a period of time.

1. Causes of Constipation

- **Low Fiber Intake:** A diet low in fiber can contribute to constipation. Fiber adds bulk to the stool and helps it move more smoothly through the digestive tract. Insufficient fiber intake can lead to slower bowel movements and difficulty passing stools.
- **Inadequate Fluid Intake:** Not drinking enough water and staying hydrated can lead to harder stools that are difficult to pass.
- **Lack of Physical Activity:** A sedentary lifestyle or lack of regular physical activity can slow down bowel movements and contribute to constipation.
- **Medications:** Certain medications, such as opioids, antacids containing aluminum or calcium, antidepressants, and some antihistamines, can cause constipation as a side effect.
- **Changes in Routine or Diet:** Traveling, changes in daily routines, or alterations in dietary habits can disrupt the bowel patterns and lead to constipation.
- **Bowel Obstruction:** Physical blockages or obstructions in the colon or rectum, such as from tumors, can cause constipation.
- **Irritable Bowel Syndrome (IBS):** IBS is a functional gastrointestinal disorder that can cause constipation, along with other symptoms like abdominal pain and bloating.
- **Pregnancy:** Hormonal changes and pressure on the intestines during pregnancy can lead to constipation in some women.
- **Neurological Conditions:** Certain neurological disorders, such as multiple sclerosis or Parkinson's disease, can affect the nerves that control bowel movements and lead to constipation.
- **Underlying Medical Conditions:** Certain medical conditions, including hypothyroidism, diabetes, and inflammatory bowel disease, can contribute to constipation.
- **Anal or Rectal Issues:** Conditions like anal fissures, hemorrhoids, or rectal prolapse can cause pain and discomfort during bowel movements, leading to a fear of passing stools and resulting in constipation.
- **Overuse of Laxatives:** Long-term and excessive use of laxatives can lead to dependency and decreased natural bowel function, ultimately worsening constipation.
- **Emotional Stress:** Stress and anxiety can influence bowel movements and contribute to constipation.

2. Sign and Symptoms of Constipation

- Infrequent bowel movements
- Straining to have bowel movements

- Hard and/or small stools
- Sense of incomplete evacuation after bowel movements
- Lower abdominal discomfort
- Abdominal bloating, occasionally distension
- Anal bleeding or fissures from the trauma caused by hard stools
- Occasionally diarrhea due to obstruction of the colon by hard stool
- Rarely colonic perforation
- Psychological distress and/or obsession with having bowel movements
- Chances to have haemorrhoids and rectal prolapsed

3. Prevention and Management of Constipation

- **Increase Fiber Intake:** Consuming an adequate amount of dietary fiber can promote regular bowel movements. Fiber adds bulk to the stool, making it easier to pass. Good sources of fiber include fruits, vegetables, whole grains, legumes, and nuts.
- **Stay Hydrated:** Drinking plenty of water and staying well-hydrated can soften the stool and prevent constipation. Aim to drink at least 8-10 glasses of water per day, or more if you are physically active or in a hot climate.
- **Regular Physical Activity:** Engaging in regular physical activity, such as walking, jogging, or yoga, can help stimulate bowel movements and improve bowel function.
- **Establish a Routine:** Try to establish a regular time for bowel movements, as the body often responds well to consistency and routine.
- **Avoid Holding Back:** When you feel the urge to have a bowel movement, try not to delay or hold it back. Ignoring the urge can lead to stool hardening and increased difficulty in passing stools.
- **Include Probiotics:** Probiotics are beneficial bacteria that can help maintain a healthy balance of gut flora, which may aid in digestion and bowel regularity.
- **Limit Processed Foods and Red Meat:** Processed foods and red meat are often low in fiber and can contribute to constipation. Reducing their intake and opting for healthier food choices can be beneficial.
- **Limit Foods That Can Cause Constipation:** Some foods, like dairy products and those high in fat or sugar, may contribute to constipation in some individuals. Be mindful of your diet and identify any trigger foods that may worsen constipation.
- **Use Laxatives Sparingly:** Laxatives should be used as a last resort and only under the guidance of a healthcare professional. Overuse of laxatives can lead to dependency and worsen the condition.
- **Address Underlying Medical Conditions:** If constipation is a symptom of an underlying medical condition, such as hypothyroidism or irritable bowel syndrome (IBS), proper management of the condition may help alleviate constipation.
- **Manage Stress:** Chronic stress can affect digestion and bowel function. Practice stress-reducing techniques, such as meditation, deep breathing exercises, or yoga.
- **Seek Medical Advice:** If constipation is persistent, severe, or accompanied by other concerning symptoms, seek medical advice for a thorough evaluation and appropriate management.

XIII. DIARRHEA

It refers to the passage of liquid faeces and an increased frequency of defecation or it is the discharge of frequent loose stool to the rapid passage of content through the intestines.

1. Causes of Diarrhea

- **Infections:** Bacterial, viral, and parasitic infections are among the most common causes of acute diarrhea. Contaminated food, water, or poor hygiene can lead to these infections. Common pathogens include norovirus, rotavirus, Salmonella, Escherichia coli (E. coli), and Campylobacter.
- **Food Poisoning:** Consuming contaminated or spoiled food can lead to food poisoning, resulting in diarrhea and other gastrointestinal symptoms.
- **Gastroenteritis:** Gastroenteritis refers to inflammation of the gastrointestinal tract, often caused by viral or bacterial infections. It is a common cause of acute diarrhea.
- **Traveler's Diarrhea:** This type of diarrhea is commonly acquired during travel to regions with different hygiene standards and food/water contamination. It is usually caused by bacterial or parasitic infections.
- **Antibiotic Use:** Taking antibiotics can disrupt the balance of beneficial gut bacteria, leading to diarrhea. This is known as antibiotic-associated diarrhea.
- **Food Intolerances:** Some people may experience diarrhea due to intolerance to certain foods, such as lactose intolerance (inability to digest lactose) or gluten intolerance (celiac disease).
- **Irritable Bowel Syndrome (IBS):** IBS is a functional gastrointestinal disorder that can cause symptoms like diarrhea, abdominal pain, and bloating.
- **Inflammatory Bowel Disease (IBD):** Conditions like Crohn's disease and ulcerative colitis, which fall under the category of inflammatory bowel disease, can cause chronic diarrhea due to inflammation of the intestinal lining.
- **Medications:** Some medications, such as laxatives, antacids containing magnesium, and certain cancer treatments, may cause diarrhea as a side effect.
- **Excessive Alcohol Consumption:** Drinking large amounts of alcohol can irritate the intestines and lead to diarrhea.
- **Anxiety and Stress:** Emotional stress and anxiety can influence bowel movements and may trigger diarrhea in some individuals.
- **Medical Conditions:** Certain medical conditions, such as hyperthyroidism, diabetes, and pancreatic disorders, can cause chronic diarrhea.
- **Gallbladder Issues:** Problems with the gallbladder, such as gallstones or inflammation, can disrupt normal digestion and lead to diarrhea.

2. Sign and symptoms of Diarrhea

- Abdominal pain
- Cramping
- Frequency of stools (more than 3/day)
- Hyperactive bowel sounds or sensations
- Loose or liquid stools
- Urgency

3. Nursing Care in Diarrhoea

- **Assessment:** The nurse will assess the patient's overall health, including vital signs, hydration status, and the frequency and characteristics of diarrhea. The nurse will also inquire about any recent travel, medication use, or potential exposure to infections to help determine the cause of diarrhea.
- **Fluid and Electrolyte Balance:** Diarrhea can lead to dehydration and electrolyte imbalances. The nurse will monitor the patient's fluid intake and output and assess for signs of dehydration, such as dry mouth, decreased urine output, and sunken eyes. Intravenous fluids may be administered to restore fluid and electrolyte balance, especially if the patient is severely dehydrated.
- **Nutrition:** The nurse will assess the patient's nutritional status and provide guidance on dietary adjustments. A balanced diet with easily digestible foods and foods rich in potassium and sodium may be recommended to help replace lost nutrients.
- **Isolation Precautions:** Depending on the cause of diarrhea, the nurse may implement isolation precautions to prevent the spread of infectious agents. Standard precautions and specific isolation measures may be used as needed.
- **Medication Administration:** The nurse may administer prescribed medications to manage symptoms or treat the underlying cause of diarrhea. These may include antidiarrheal medications, antibiotics (if diarrhea is caused by a bacterial infection), or medications to control pain and discomfort.
- **Hygiene and Infection Control:** Proper hand hygiene is essential to prevent the spread of infections that may cause diarrhea. The nurse will educate the patient and caregivers on handwashing techniques and other infection control measures.
- **Skin Care:** Frequent diarrhea can cause skin irritation and breakdown around the perianal area. The nurse will provide gentle cleaning and apply a barrier cream to protect the skin from further damage.
- **Monitoring and Documentation:** The nurse will closely monitor the patient's condition, including vital signs, bowel movements, fluid intake, and output. Detailed documentation of these assessments is crucial to track progress and inform the healthcare team.
- **Patient Education:** The nurse will educate the patient and their caregivers about the importance of maintaining hydration, proper nutrition, and infection control practices. Patients should be advised on when to seek medical attention if symptoms worsen or if there are signs of dehydration.
- **Emotional Support:** Diarrhea can be distressing for the patient, especially if it is persistent or severe. The nurse should provide emotional support and reassurance to the patient and address any concerns or anxieties they may have.
- **Follow-up and Discharge Planning:** As the patient's condition improves, the nurse will collaborate with the healthcare team to plan for discharge. This may include providing instructions for continued care at home, follow-up appointments, and recommendations for a gradual return to a normal diet.

4. Types of Specimen of Faeces

- Routine microscopic culture
- Occult blood
- Ova and cyst

5. Observation of Specimen of Faeces

- **Color:** The color of the stool can vary depending on factors such as diet, medications, and the presence of certain substances or conditions. Normal stool color can range from light brown to dark brown. Unusual colors, such as black, red, pale, or green, may indicate specific health issues.
- **Consistency:** The consistency of the stool can range from solid to liquid. Normal stool is typically soft and formed. Diarrhea presents as loose or watery stools, while constipation results in hard, dry stools.
- **Odor:** Stool may have a characteristic odor due to the presence of bacterial action during digestion. However, extremely foul-smelling stool might indicate certain infections or malabsorption issues.
- **Blood:** The presence of blood in the stool, either visible or occult (hidden), can be a significant indicator of gastrointestinal problems, such as bleeding ulcers, hemorrhoids, or inflammatory bowel disease.
- **Mucus:** Small amounts of mucus in the stool are considered normal. However, excessive mucus may suggest inflammation or irritation in the gastrointestinal tract.
- **Undigested Food:** Identifying undigested food particles in the stool may suggest inadequate digestion or malabsorption issues.
- **Parasites and Worms:** The presence of parasites or worm segments in the stool might indicate an intestinal parasitic infection.
- **Fat Content:** Excessive fat content in the stool (steatorrhea) may indicate malabsorption of fats, which can be associated with conditions like pancreatic insufficiency or celiac disease.
- **Ova and Parasite (O&P) Examination:** This test involves looking for the presence of ova (eggs) and parasites under a microscope, which helps diagnose specific parasitic infections.
- **Bacterial Culture:** In cases of suspected bacterial infections, a stool culture can identify the specific bacteria responsible.

XIV. FLATULENCE

It is the presence of excess gas in the intestine and leads to stretching and inflation of the intestines. Air or gas in the gastrointestinal tract is called **flatus.**

1. Causes of Flatulence: Gas can be caused by certain foods. People may have gas if they:

- Eat foods that are hard to digest, such as fibre. Sometimes, adding more fibre into the diet can cause temporary gas.
- Eat or drink something their body cannot tolerate. For example, some people have lactose intolerance and cannot eat or drink dairy products.

2. Other Common Causes of Gas are

- Antibiotics
- Irritable bowel syndrome
- Inability to absorb nutrients properly (malabsorption)
- Inability to digest nutrients properly (maldigestion)
- Swallowing air while eating

3. Signs and Symptoms of Flatulence

- Abdominal swelling, distension or bloating
- Bad breath
- Belching
- Change in bowel habits
- Constipation
- Diarrhea
- Heartburn
- Nausea with or without vomiting

4. Procedure of Passing of Flatus Tube

- Check the doctor's order
- Assess the perineum of the client
- The client is placed in a comfortable position preferably sim's or side lying position and most suited position is side lateral
- The flatus tube is taken and any lubricating agent is applied on the tip
- Wash hands and separate the buttocks
- About 4-6 inches of the tube is inserted inside the rectum and the other end of tube, which is free, is placed in water in a kidney tray
- The bubbling present in the water indicates the passage of gas
- This procedure should not last >20 minutes. However, it can be repeated every 3-4 hours to prevent any rectal injury
- Wash hands and clean and dry the anal area

5. Nursing Care in Flatulence

- Observation of vital signs
- Assess the level of pain
- Set a comfortable position
- Give a warm compress on the area of the abdomen

XV. ENEMA

Enema is the introduction of solution into rectum and sigmoid colon. It is the injection of fluid into the lower bowel through the rectum for the purpose of cleaning or to provide medication or nourishment.

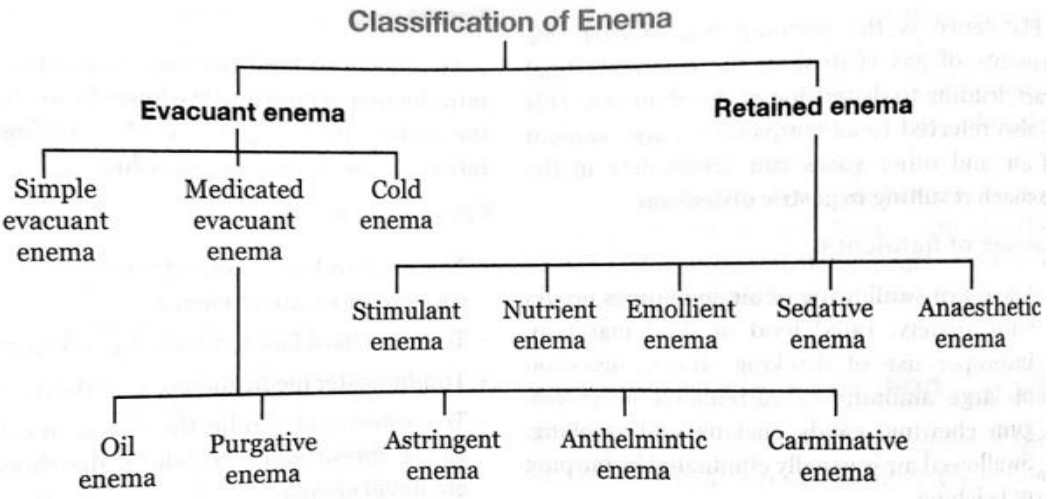
1. Indication of Enema

- Stimulate the bowel movement and cleaning the large bowel e.g. Soap and water enema
- Stimulate peristalsis
- Relieving flatulence or distension
- Soothing irritated mucosa of the colon
- To supply fluids and nutrients

2. Purposes of Enema

- To remove faecal matter
- Relieve constipation and gaseous distension
- Establish normal bowel function
- Relieve straining on defecation
- Emptying bowel before diagnostic tests, surgery and childbirth

3. Types of Enema



4. Evacuant Enema (Cleansing Enema): This type of enema is given to clean the bowel and patient holds it for **5-10 minutes** minimum.

Left lateral position is the most suitable position for any enema. However, in case of high bowel enema, knee chest position may be given.

- **Simple Enema:** This enema in given for many purposes such as for the stimulation of defecation and for the treatment of constipation

  Other purposes:
  - To relieve flatulence
  - Helps in relieving urinary retention
  - Before surgeries or X-ray, to clean the bowel
  - For stimulation of uterus and initiating contractions

  In this enema either soap water or normal saline can be used.

- **Medicated enema:** It is when addition of some agent is done in the water like glycerine or oils.

  - **Oil Enema:** In case the patient is suffering from severe constipation, oil enema can be provided to soften the fecal matter. This enema is also given in postrectal surgeries to facilitate the first bowel movement to avoid strain and injury. Oil

enema has to be followed by soap and water enema. In oil enema, oils such as **olive oil, sweet oil, and castor oil along with olive oil** in the proportion of 1:2 can be given. The solution has to be at least 115 ml and can range up to 175 ml.

- **Purgative Enema:** The enema which helps in increasing the intestinal motility (contraction of bowel) for active evacuation of bowel contents is purgative enema. This results in the irritation of the mucus lining and stimulation of gut movements. To administer this enema, solutions such as **pure glycerin, glycerin along with water, or glycerin along with castor oil** can be given. There is a special classification of this enema, called **the 1-2-3 enema**. In this **magnesium sulfate, glycerin and water** are used in the quantities of **30 ml, 60 ml. and 90 ml** respectively.
- **Astringent Enema:** In case the inner lining of gut is inflamed or is bleeding, this enema helps in lessening mucus discharge, contracting the blood vessels and providing temporary relief from the inflammation. Such symptoms are present in case the patient has dysentery or colitis. This enema can be useful in those cases. **Alum, tannic acid or 2% silver nitrate** can be used in these enemas.
- **Anthelmintic Enema:** If there is presence of worms inside the intestine, this enema is given as a treatment. Soap and water enema should precede this enema. After cleansing the bowel with soap and water enema, the worms can come directly in contact with an anthelmintic enema. A **hypertonic saline or quassia infusion** can be used for this enema.
- **Carminative Enema or Antispasmodic Enema:** This enema is used for the release of gaseous contents of abdomen and thus helps in the relieving of distension. For the administration of this enema, solutions such as **turpentine. Tr. Asafoetida and milk and molasses** can be used.

- **Cold Enema:** When a patient suffers from high body temperature, most probably this enema is given. This enema is also given if a patient suffers from heat stroke However, this can lead to an extreme decrease in body temperature leading to hypothermia.

5. **Retention Enema:** It is type of enema which patient needs to hold for **30-minute or more**. In case of nutrient enema the nutrients shall be absorbed through intestine then only the enema will be effective.

- **Stimulant enema:** As the name suggests, the enema is given to stimulate the patient in case of shock, collapse or opium poisoning. Stimulating agents such as **black coffee or brandy** can be given as retention enema.
- **Sedative enema:** To induce sleep, sedative drugs such as **potassium bromide or paraldehyde** is given in the form of enema.
- **Anesthetic enema:** Drugs such as **avertin** (150-300 mg/kg body weight) are administered to induce an anesthetic effect in a client.
- **Emollient enema:** A bland solution is introduced in the rectum to assess if the patient is having diarrhea and for soothing purpose. This is called emollient enema. **Starchy solutions** are used for the enema.
- **Nutrient enema:** In order to introduce food, fluids inside the body, nutrient enema is administered.

6. General Instructions for giving Enema

- The appropriate size catheter or rectal tube need to be used.
- The rectal tube needs to be smooth and flexible.
- The rectal tube is lubricated with a water soluble lubricant or with Vaseline to facilitate insertion and to decrease irritation of the rectal mucosa.
- The temperature of the solutions needs to be adjusted according to the purpose of the enema.
- The amount of the solution need to be administered depends upon the type of the enema and age and size of the person.
- Left lateral position should be provided to the client.
- The height of the cane should be adjusted to regulate the flow of solution according to the type of enema administered.
- The length of time that the enema solution is retained will depend upon the purpose of enema and the ability of the client to contract the external sphincter to retain the solution.
- Make sure the whole apparatus used for the administration of enemas is in a good working condition.
- Regulate the flow of fluid according to the type of the enema.
- If the rectum is impacted, attempt to remove the faecal matter with a gloved finger. The bowels should be cleaned out by a simple enema before giving retention enema.
- Prevent air from entering into the rectum.
- Listen to the complaints of the client and do not ignore any discomfort however small they are.
- Pre-packed enemas will have their own instruction which need to be followed unless there are other instructions from the physician.

7. Nursing Assessment

- Check for the diagnosis of the client
- Look for the date of surgery, if performed or scheduled
- Assess if the client is in sound mind to follow any instructions
- Check the type of enema that has been ordered by the physician
- See if the doctor has ordered to collect any sample or specimen
- Examine the rectal area
- See if any assistance is required, and if required, call a help
- Gather all the articles required

8. After Care

- The fluid should be retained inside the anal cavity for about 15-30 minutes
- Provide bedpan when required. Assist the client in reaching the bathroom
- Observe the client and the results of enema
- If doctor has ordered for obtaining samples, collect them
- Provide and assist the client in perineal care
- Take all the articles and disinfect them. Store them in their appropriate place
- Wash hands and document the procedure

XVI. SUPPOSITORIES

Suppositories are defined as a form of medication, solid in nature, which melts or dissolves inside the body due to the body's temperature. The suppositories are inserted inside the body's cavities such as rectum, vagina and urethra. Since the suppositories are semisolid and meant to melt at room temperature, they are stored in cool places, such as refrigerator. If not kept inside the refrigerator, insertion becomes difficult.

There are different types of suppositories such as glycerine suppositories, dulcolax suppositories.

After Care:

- It is the responsibility of the nurse to ensure the comfort of the patient after the procedure
- Clean and tidy up the patient
- Observe the patient
- Document about the type of suppository, timing of insertion and the effect of suppository, timing of evacuation of bowel

XVII. BOWEL WASH

1. **Definition:** Washing out of colon with large quantities of solution, to clear the colon of faeces is called bowel wash.

2. **Purposes:**

- To prepare colon for specific surgical or diagnostic procedures
- To dilute and remove toxic agents that may be present in large intestine
- To reduce temperature in hyperpyrexia and heat stroke
- To supply fluid and electrolytes that are absorbed from intestine
- To stimulate peristalsis
- To relieve inflammation
- To keep the individual clean in case of fecal incontinence

3. **Contraindications**

- Bleeding hemorrhoids
- Chronic diarrhea
- Rectal surgeries/infection
- Intestinal obstructions
- Rectal polyps
- Massive colon carcinoma
- Loose anal sphincter
- Debilitation
- Anal fistula
- Intestinal diverticulum
- Painful skin lesions around anus

4. Temperature of the Solution

- For cleansing purpose 104^0 F
- For reducing temperature 80-90^0 F

5. Digital Evacuation of Impacted Feces: The digital evacuation of impacted feces is defined as the process in which the fecal material is broken into portions digitally and then removed in portions.

Before the procedure is initiated, it is suggested that oil enema should be given and the patient must hold it for 30 minutes. After the digital evacuation is done, remaining fecal matter can be removed using a clear enema or by using a suppository.

XVIII. COLOSTOMY CARE

A Colostomy is an artificial opening created in the bowel through abdominal wall by which stool passes through. It may be temporary and permanent. The colostomy (colon – large intestine) opening is called a stoma. Stool passes through the stoma into a pouch attached to the stoma on the outside of the abdomen.

1. Definition of Colostomy Care: Colostomy care is a procedure in which the stoma around the skin is cleansed, bag is emptied, and hygiene is maintained to prevent irritation and infection.

2. Definition of Colostomy: A surgically created opening between the colon and the abdominal wall to allow fecal elimination is called colostomy. It may be a temporary or permanent diversion. A colostomy may be placed in any segment of the large intestine (colon) which will influence the nature of fecal discharge. Transverse and descending colostomies are the most common types. The large intestine is the terminal portion of the GI tract. Structurally cecum, colon, rectum and anal canal are the four major regions of the large intestine.

3. Types of Colostomy

- **Ascending Colostomy:**
  - An ascending colostomy empties from the ascending colon.
  - The ascending colostomy is placed on the right side of the abdomen.
  - The output is liquid which contains digestive enzymes.
  - Drainable pouch and skin protection is essential

- **Transverse Colostomy:**
  - It is in the upper abdomen, either in the middle or toward the right side of the body.
  - It produces a malodorous, mushy drainage because some of the liquid has been reabsorbed.

- **Descending Colostomy:**
  - Lower left side of the abdomen.

- A descending colostomy produces increasingly solid fecal drainage.
- Most often, output is firm and can be controlled.

- **Sigmoid Colostomy:**
  - Done few inches lower than descending colostomy
  - Stools from sigmoidostomy are of normal of formed consistency, and the frequency of discharge can be regulated.
  - And odors can usually be controlled.

XIX. STOMA

A stoma is the part of the intestine (small or large) that is brought above the abdominal wall to become the outlet for discharge of intestinal waste.

A normal stoma is generally pink -red in color and moist. Initially in the double barreled colostomy the proximal and distal loops of bowel are sutured together for about 10 cm and both ends are brought up onto the abdominal wall, slight bleeding may occur when the stoma is touched and this is considered normal. A person does not feel the stoma because there are no nerve endings in the stoma.

Stoma constructions are described as single, loop, divided, or double barreled colostomies.

- The single stoma is created when one end of bowel is brought out through an opening onto the anterior abdominal wall.
- In the loop colostomy, a loop of bowel is brought out onto the abdominal wall and supported by a plastic bridge or by a piece of rubber tubing. A loop stoma has two openings: the proximal or afferent end, which is active, and the distal or efferent end, which is inactive. The loop colostomy is usually performed in an emergency procedure and is often situated on the right transverse colon. It is a bulky stoma that is more difficult to manage than a single stoma.
- The divided colostomy consists of two edges of bowel brought out onto the abdomen but separated from each other .The opening from the digestive or proximal end is the colostomy. The distal end in this situation is often referred to as a mucous fistula, since this section of bowel continues to secrete mucus. The divided colostomy is often used in situations where spillage of feces into the distal end of the bowel needs to be avoided. In the double barreled colostomy the proximal and distal loops of bowel are sutured together for about 10 cm and both ends are brought up onto the abdominal wall.

1. Purposes

- To establish a regular pattern of leakage.
- To observe stoma and surrounding skin.
- To prevent leakage
- To empty the pouch content.
- To prevent intestinal obstruction.
- To prevent excoriation of skin around the stoma.
- To educate the patient and family regarding care of colostomy and collecting bag.

2. **Indication:** Patients who have colostomy/ileostomy stoma with pouch.

3. **General Instructions**

- Use the right size pouch and skin barrier opening.
- Change the pouching system regularly.
- Be careful when pulling the pouching system away from the skin.
- Clean the skin around the stoma with water.
- Watch for sensitivities and allergies to the adhesive, skin barrier, paste, or pouch material.
- The colostomy bag should empty when it is one – third to one – half full of flatus of feces as they become heavy and have increased risk of spillage.
- Flatus may cause a pouch to balloon out this requires immediate attention because if flatus is not released, the pouch may separate from the skin barrier causing seepage or fecal contents or release of fecal odor. Open the clamp and release the flatus.
- Measure the patient's fluid intake and output.
- Stoma site should be always dry. Presence of moisture increases the chance for candida or yeast infection.
- Return of peristalsis causes an increase in flatus, advice patients that this is indicative of bowel functioning, also tell them to avoid gas- containing food since there is no way to voluntary control passing of flatus.

4. **Health Education:** Colostomy care is an essential aspect of living with a colostomy. A colostomy is a surgical procedure that involves creating an opening in the abdomen, through which the end of the large intestine (colon) is brought to the surface of the skin to form a stoma. Waste material is then eliminated from the body through this stoma. The following are some health talks on colostomy care:

- **Maintaining Hygiene:** It is crucial to keep the stoma and the skin around it clean and dry to avoid irritation, infection, and other skin problems. Use lukewarm water and a mild soap to clean the stoma and the skin around it. Pat the skin dry with a soft towel and avoid using any harsh or perfumed products that can cause irritation.
- **Proper Appliance Fit:** An appropriately fitting colostomy appliance is essential to prevent leakage and maintain comfort. Ensure that the appliance is not too tight or too loose, as this can cause irritation and discomfort.
- **Regular Appliance Changes:** Depending on the type of colostomy, the frequency of appliance changes will vary. It is essential to follow the schedule recommended by your healthcare provider. Be sure to change the appliance if it starts to leak or if you notice any skin irritation or redness.
- **Diet and Hydration:** A balanced and nutritious diet and adequate hydration are important for maintaining overall health and preventing constipation. Consult with your healthcare provider or a registered dietitian for specific dietary recommendations based on your individual needs.
- **Exercise:** Exercise is essential for maintaining overall health and promoting bowel function. Speak with your healthcare provider about appropriate exercise options based on your individual needs.

- **Emotional Support:** Living with a colostomy can be emotionally challenging. It is essential to seek support from family, friends, or support groups to cope with the changes that come with living with a colostomy.

XX. CONCLUSION

The process of elimination is a fundamental aspect of human physiology, essential for maintaining overall health and well-being. It encompasses the removal of waste materials and toxins from the body through various systems, including the urinary and digestive systems. The urinary system efficiently filters the blood, removing metabolic waste and excess substances, while regulating fluid and electrolyte balance. Proper urinary elimination is crucial for maintaining homeostasis, preventing fluid overload, and supporting normal kidney function. The digestive system, on the other hand, facilitates the breakdown and absorption of nutrients from ingested food while eliminating undigested material as feces. Adequate bowel elimination is necessary for nutrient absorption, preventing constipation, and ensuring the health of the gastrointestinal tract. Both urinary and bowel elimination are influenced by numerous factors, including diet, hydration, physical activity, and various medical conditions. Maintaining healthy elimination habits, such as drinking enough water, consuming a balanced diet, and staying physically active, is essential for optimal bodily functions. Furthermore, recognizing the signs and symptoms of abnormal elimination patterns, such as constipation or diarrhea, is critical in identifying potential health issues. Timely medical intervention and appropriate nursing care can help prevent complications and ensure proper management of elimination problems. Understanding and supporting the body's elimination needs play a vital role in promoting overall health and enhancing the quality of life for individuals. By fostering healthy elimination habits and addressing any challenges that arise, healthcare professionals can contribute significantly to the well-being of their patients.

