

Unit-13

Elimination

Elimination

- The urinary and Gastro intestinal systems together provide for the elimination of body wastes.
- The urinary system filters and excretes urine from the body, thereby **maintaining fluid, electrolyte, and acid-base balance.**
- Normal bowel function provides for the regular elimination of solid wastes.
- During periods of stress and illness, clients experience alterations in elimination patterns.
- Nurses assess for changes, identify problems, and intervene to assist clients with maintaining proper elimination patterns

PHYSIOLOGY OF ELIMINATION

- The urinary system is composed of the kidneys, ureters, bladder, and urethra.
- The kidneys form the urine, the ureters carry urine to the bladder, the bladder acts as a reservoir for the urine, and the urethra is the passage way for the urine to exit the body.
- The GIT(gastro intestinal tract) is composed of the stomach, small intestine, large intestine, and rectum.
- The small intestine absorbs nutrients, the large intestine absorbs fluids and the remaining nutrients, and the distal portion of the large intestine collects and stores the remaining solid waste until elimination occurs.

Urinary Elimination

- **Micturition, voiding and urination** all refers to the process of emptying the urinary bladder.
- Urine collects in the bladder until **pressures stimulate special sensory nerve ending in the bladder wall called stretch receptor.**
- This occurs when the adult bladder contains between **250 and 450ml of urine**. In children **50 to 200ml** stimulates the nerves.
- **Urinary retention:** - when a person unable to void even though the bladder contains an excessive amount of urine.

Factors affecting voiding

Factors affecting **volume of urine formed and process of voiding** are

- ✚ **Growth and development:** changes throughout the life cycle
- ✚ **Psychosocial factors:** helps stimulate the micturition reflexes include privacy , normal position, sufficient time
- ✚ **Fluid and food intake**
 - Certain fluids such as alcohol increases fluid out put
- ✚ **Medication** e.g. chlorothiazide, furosemide increases urine formation

Cont...

 **Muscle tone and activity:** exercising regularly will have good muscle tone, increased body metabolism and a good urine production.

➤ The presence of an indwelling catheter can lead to poor bladder muscle tone.

 **Pathological conditions:** - affects the formation and /or excretion of urine.

- Febrile condition can interfere with urine formation b/s the body losses excessive fluid through perspiration.
- Hypertrophy of prostate gland can interfere with the ability to empty the bladder

Cont'd...

Surgical and diagnostic procedure:-

Some surgical and diagnostic procedure can affect the passage of urine

- **Spinal anesthesia** affect the passage of urine b/s they decrease the client's awareness of the need to void.

Altered Urine Production

- **Polyuria (Diuresis):-** refer to the production of abnormally large amounts of urine by the kidney such as **2500 ml/day for an adult.**

Cont...

Polyuria can be the result of

- Excessive fluid intake
 - The ingestion of substances containing caffeine and alcohol.
 - Diabetes mellitus
 - Hormone imbalance (deficiency of anti diuretic hormone)
 - ✚ Other sign often associated with *diuresis* are ***polydipsia, dehydration and weight loss.***
- **Oliguria and anuria:** - Oliguria refers to voiding scant amount of urine such as **less than 500ml in 24hour.**

Cont...

- **Anuria:** - refers to an adult's voiding less than 100ml/day.
- Both anuria and Oliguria can result from kidney disease, severe heart failure, burns and shock.

Altered Urinary Elimination

- ✓ ***Frequency and nocturia:*** - frequency is generally considered voiding at frequent intervals that is often than usual.
 - Frequency without an increase in fluid intake may be the result of **cystitis** , **stress or pressure on the bladder** (because of pregnancy).

Cont...

- ✓ **Nocturia (nycturia):-** is increase frequency at night that is **not a result of an increased in fluid intake.**
- ✓ **Urgency:-** urgency is the feeling that the person must void.
 - There may or may not be a great deal of urine in the bladder but the person feels a need to void immediately.
 - Urgency accompanies **psychological stress and irritation of urethra.**

Cont...

- ✓ ***Dysuria***: -voiding that is either painful or difficult.
 - It can accompany a **stricture** (decrease in caliber) at the urethra, **urinary infection and injury** to the bladder and /or urethra.

- ✓ ***Enuresis***: - is repeated involuntary urination in children beyond the age when voluntary bladder control is normally acquired usually **4 or 5 years of age.**

Cont...

- ✓ ***Urinary incontinence:*** - **incontinence is a symptom not a disease.**
- ✓ ***Urinary retention:*** - is the accumulation of urine in the bladder with associated inability of the bladder to empty itself.
 - Prolonged retention leads to stasis (a slowing of flow) and stagnation of urine which increase the possibility of UTI

Urinary Catheterization

- Urinary catheterization is introduction of a tube (catheter) through the urethra into the urinary bladder.
- Is performed only when absolutely necessary **for fear of infection and trauma.**
- Note:- strictly a sterile procedure i.e. the nurse should always follow aseptic technique

- ***Types of catheter***- it has different variety of size, materials, and types.
- types of catheter are
 - Straight (plain or Robinson)
 - Retention (Foley, indwelling)
- Catheters can also differ in the ***number of lumens*** they have
 - Straight catheter -has **single** lumen
 - Double lumen catheter- has **two** lumens
 - Triple lumen catheter – has **three** lumens.

Cont...

- In double lumen catheter, one lumen is used to inflate balloon at the end of the catheter and the other lumen is to drain urine.
- The triple lumen catheter provides an additional lumen for the **instillation of irrigating solutions.**

Cont...

- **Indwelling catheter**:-if there is continuous drainage of urine, an indwelling urethral catheter is used.
 - It is also called retention or **Foley** catheter.
 - are used for gradual decompression of an over distended bladder, for intermittent bladder drainage and for continuous bladder drainage.
 - It has a balloon
- **Intermittent or straight catheter**
 - ✓ is used to drain the bladder for shorter period of time **(5-10min)**.
 - ✓ clients can be taught to insert and remove intermittent catheter themselves.

Indications of urinary catheterization

- To relieve urinary retention or incontinence
- To obtain sterile urine specimen
- To measure the amount of post void residual urine for monitoring
- To empty the bladder before, during and after surgery.
- In case of bladder obstruction
- For a patient with neurologic disorders (unconscious patients)
- For bladder irrigation or decompression

Contraindications

- Urethral trauma
- Pelvic fracture
- Scrotal hematoma

Complications of catheterization

- ❑ Urethral trauma from friction during insertion
- ❑ Infections(renal inflammation, pyelonephritis, cystitis, etc) from ascending infection following the catheter

Alternatives for internal urethral catheterization

There are two alternatives

- 1. Suprapubic catheterization:**-it is occasionally used for continuous drainage.
 - This type of catheter is inserted through a **small incision above the pubic area directly into the urinary bladder.**
- 2. Condom catheter:** - when **voluntary control of urination is not possible for male clients** (if there is urinary incontinence)
 - ❖ soft, pliable device made of plastic or rubber material is applied externally to the penis.

Equipments necessary for catheterization

- Catheter with appropriate size
- syringe (10cc)
- Sterile gloves (ky-jelly)
- Sterile drape & tubing
- Cleansing solution eg. savlon
- Cotton swab screen
- Forceps
- sterile water
- lubricant
- collecting bag
- plaster
-
-

Procedure

- Gather the necessary equipment & explain the procedure to the client
- Position the client in supine position **with legs spread and feet together**
- Open catheterization kit
- Prepare sterile field, don sterile gloves
- Check balloon for patency
- Apply lubricant to **2-5cm of the distal part of the catheter**
- Apply sterile drape & bed protection materials (rubber sheet).

Cont...

- In female separate the labia, & in male hold the penis straight with non-dominant hand.
- Cleanse periurethral mucosa with cleansing solution
- Pick the catheter , identify the urethral meatus and gently insert until urine come and additionally 2-5 cm beyond where the urine started flowing
- Inflate balloon with 10cc of sterile liquid/ water.

Cont...

- Gently pull the catheter until inflation balloon snug against the bladder neck
- Connect the catheter to the drainage system & secure it to thigh or abdomen
- Place drainage bag below level of the bladder
- Evaluate catheter function & amount, color, odor, quality of urine
- Remove gloves & wash your hands.
- Document what you have done

1. Selecting an appropriate catheter

May be made of

- Plastic_ for one week
- Latex_ 2-3weeks (rubber)
- Silicon_ for 2-3 month
- Select the type of material in accordance with the estimated length of the catheterization period.

2. Determine appropriate catheter size

- ✓ Are determined by diameter of lumen.
- ✓ Graded on French scale or number
- ✓ Catheter size depends on the size of the urethral canal
 - **#8-10fr_ children**
 - **#14-16fr_ female adults**
 - **#18fr_ adult male**

Cont...

3. Determine appropriate catheter length by the client gender

- For adult male _ **40cm catheter**
- For adult female _ **22cm catheter**

4. Select appropriate balloon size

- **5-10ml _for adults**
- **3-ml _ for children**

Catheterization using intermittent/ a straight catheter

Catheterization using a straight or plain catheter for female

- introducing plain or straight catheter through the female urethra to the urinary bladder

Purpose

- To relieve discomfort due to bladder distention
- To obtain a sterile urine specimen
- To empty the bladder prior to surgery

Equipment Sterile

1. Sterile plain catheter
rubber or plastic
2. A bowl for antiseptic
3. Gauze
4. Sterile towel(3#)
5. forceps 3#
6. Sterile receiver
7. Kidney dish
8. Sterile urine
specimen container if
needed

Clean

- ❖ Rubber and draw
sheet
- ❖ Antiseptic solution
- ❖ Receiver
- ❖ Flash light
- ❖ Screen
- ❖ Specimen form

Procedure

1. Explain procedure to the patient
2. Screen the bed
3. Wash hands
4. Turn blanket and bedspread down to foot of bed
5. Turn top linen up wards to the patient's chest to protect from complete exposure.
6. Place patient in dorsal recumbent position with the knees flexed and thigh apart then
7. Put rubber and draw sheet under buttocks, cover patient with the linen(if patient soaked use examination glove)
8. Apply disposable glove
9. Clean starting from mid thigh with clean warm water and soap and dry the area
10. Open sterile field

Cont'd...

11. Done sterile gloving
12. Create a sterile field and Drape the client with a sterile drape (bottom far side nearside pubic area)
13. Prepare the equipment and Put receiver for urine near the genital area
14. Place sterile equipment on drape between patient tight
15. Prepare the equipment and Put receiver for urine near the vulva.
16. Use nondominant hand to separate labia until the catheter is inserted
17. Wash the outer skin folds then inner labia and urethral meatus with antiseptic solution from front to back. (Starting from outer proceeding to inside) 29

Cont'd...

18. Put forceps in the receiver kidney dish
19. Wash and Rinse the area well from outer skin folds then inner labia and urethral meatus **finally with distil water from front to back.**
20. Put forceps in the receiver kidney dish
21. Dry with dry gauze the outer skin folds then inner labia and urethral meatus from front to back
22. Put forceps in the receiver kidney dish
23. Lubricate the insertion tip of the catheter (5-7 cm)
24. Expose the urinary meatus adequately by retracting the tissue or the labia minora in an upward direction

Cont'd...

25. Gently insert the catheter into meatus until urine is noted. **Continue inserting for 2..5 to 5cm additional.**
26. Remove catheter after desired duration or all expected urine expelled
27. Measure urine, dry area with dry gauze, remove bed protection
28. Position patient comfortable and cover
29. Remove and clean equipment
30. Send specimen to the laboratory

Male plain or straight urinary catheterization

Defn: Introducing plain or straight catheter through the male urethra to the urinary bladder

Equipment

Sterile

1. 2 Sterile plain catheter rubber or plastic
2. A bowl for antiseptic
3. Cotton swab
4. Gauze
5. Large sterile fenestrated towel
6. Sterile towel
7. forceps (3)
8. Sterile receiver
9. Kidney dish
10. Lubricant
11. Sterile urine specimen container if needed

Cont'd...

Clean

1. Rubber and draw sheet
2. Antiseptic solution
3. Receiver
4. Measuring jug
5. Flash light
6. Screen
7. Specimen forms

Procedure

1. Explain procedure to the patient
2. Screen the bed
3. Wash hands
4. Turn top linen up wards to the patient's Umbilicus and blanket and bed spread up to mid-thigh.
5. Place patient in dorsal recumbent position with the knees flexed and thigh apart then put rubber and draw sheet under buttocks, cover patient with the linen
6. Wash the perennial area with warm water and soap
7. Wash hands

Cont'd...

8. Open sterile field
9. Put on sterile gloves
10. Place sterile towel under the patient and fenestrated towel over the patient thigh
11. Prepare antiseptic swabs and Pick up penis with non-dominate hand protract foreskin if not circumcised, grasp directly behind glans and spread meatus between forefingers and thumbs.
12. Cleanse penis using circular motion, starting over meatus and working down wards glans, repeat procedure twice using new swabs always by the help of forceps.

13. Pick up catheter, lubricated **at least 7.5cm** from distal end. Draw penis upwards and forwards at 90 degree angle to the leg insert the catheter, lower penis when feeling resistance at an angle of 60 degree
14. Insert catheter about **18-20cm** till urine flow
15. Remove catheter, replace foreskin to avoid complication
16. Remove catheter measure urine, dry area with dry cotton swab, remove bed protection, position ,patient comfortable and cover
17. Remove and clean equipment
18. Send specimen to the laboratory

Note

- If resistance is encountered during insertion do not force. Ask the client to take deep breath, relax the external sphincter (slight resistance is normal)
- *Dorsal recumbent*: Female for a better view the urinary meatus and reduce the risk of catheter contaminates.
- Male_ allows greater relaxation of the abdominal and perennial muscles and permits easier insertion of the tube.
- Straight catheter: - is a single lumen tube with a small eye or opening about (1.25cm) from the insertion tip.

Inserting a Retention (Indwelling) Catheter

- Retention (Foley) catheter; Contains a second smaller tube throughout its length on the inside, this tube is connected to a balloon near the insertion tip.

Purpose

- To manage incontinence
- To provide for intermittent or continuous bladder drainage and irrigation.
- To prevent infection.
- To measure urine output needs to be monitored hourly.

Insertions of indwelling catheter for male patient

- ✓ introductions of indwelling catheter through the male urethra in to the bladder

Purpose

- To prevent retention by use of an indwelling catheter
- To prevent frequent catheterization in case where pt is unable to pass urine
- To prevent bed sore in case of urine incontinence
- To prevent infection in cases of perineal operation

Equipment

sterile

1. Indwelling catheter rubber or plastic
2. A bowl for antiseptic
3. Cotton swab
4. Gauze
5. Large sterile fenestrated towel
6. Sterile towel
7. Forceps (3)
8. Sterile receiver
9. Kidney dish
10. Syringe
11. Sterile water
12. Lubricant
13. Sterile urine specimen container if needed

Clean

- Rubber and draw sheet
- Antiseptic solution
- Receiver
- Urinary drainage bag
- Screen
- Adhesive plaster

Procedure

1. Explain procedure to the patient
2. Screen the bed
3. Wash hands
4. Turn top linen up wards to the patient's chest to protect from complete exposure.
5. Place patient in dorsal recumbent position with the knees flexed and thigh apart then put rubber and draw sheet under buttocks, cover patient with the linen
6. Wash the perennial area with warm water and soap

7. Wash hands
8. Prepare sterile trolley
9. Uncover patient,
10. Put on sterile gloves, place sterile towel under the patient and fenestrated towel over the pt thigh
11. Test balloon before insertion on sterile field with recommended amount of sterile water
12. Prepare antiseptic swabs and Pick up penis with non-dominant hand retract foreskin if not circumcised, grasp directly behind glans and spread meatus between forefingers and thumbs.
13. Cleanse penis using circular motion, starting over meatus and working down wards glans, repeat procedure twice using new swabs always by the help of forceps.

Cont'd...

14. Pick up catheter, lubricated at **least 7.5cm** from distal end. Draw penis upwards and forwards at 90 degree angle to the leg insert the catheter, lower penis when feeling resistance at an angle of 60 degree
15. When catheter is inserted, **inflate the balloon with 5-15ml** as indicated on catheter
16. Pull gently on the end of the catheter to be sure it will not leave the bladder then **push back 2cm to relieve pressure from sphincter**
17. Attach drainage tube to catheter and drainage bag
18. Tie tube and drainage bag to the bed ,put the bottle below the patient level
19. Cover and comfort the patient
20. Return the equipment
21. Wash hands and document the procedure

Insertions of indwelling catheter for Female patient

- Introduction of the indwelling catheter through the female urethra to the bladder

Purpose

- To prevent retention by use of an indwelling catheter
- To prevent frequent catheterization in case where pt is unable to pass urine
- To prevent bed sore in case of urine incontinence
- To prevent infection in cases of perineal operation

Equipment

Sterile

1. Indwelling catheter rubber or plastic
2. A bowl for antiseptic
3. Cotton swab
4. Gauze
5. Large sterile fenestrated towel
6. Sterile towel
7. Forceps (3)
8. Sterile receiver
9. Kidney dish
10. Syringe
11. Sterile water
12. Lubricant

Clean

1. Rubber and draw sheet
2. Antiseptic solution
3. Receiver
4. Urinary drainage bag
5. Screen
6. Adhesive plaster

Procedure

1. Explain procedure to client and Provide for privacy
2. Set the bed to a comfortable height to work, and raise the side rail on the side opposite you.
3. Assist the client in dorsal recumbent position with the knees flexed and thigh apart then put rubber and draw sheet under buttocks, cover patient with the linen
4. Drape client's abdomen and thighs.
5. Ensure adequate lighting of the perineum.

Cont...

6. Wash hands, don disposable gloves, and wash perineal area from the mid thigh.
7. Remove gloves and wash hands.
8. bring urine collection bag ready for attaching near to side of bed
9. Done sterile gloving
10. Create a sterile field and Drape the client with a sterile drape (bottom far side nearside pubic area)
11. Prepare the equipment and Put receiver for urine near the genital area
12. Place sterile equipment on drape between patient thigh

Cont'd...

13. Prepare the equipment and Put receiver for urine near the vulva.
14. Use nondominant hand to separate labia until the catheter is inserted
15. Wash the outer skin folds then inner labia and urethral meatus with antiseptic solution from front to back. (Starting from outer proceeding to inside)
16. Put forceps in the receiver kidney dish
17. Wash and Rinse the area well from outer skin folds then inner labia and urethral meatus finally with distil water from front to back. ⁴⁹

Cont'd...

18. Put forceps in the receiver kidney dish
19. Dry with dry gauze the outer skin folds then inner labia and urethral meatus from front to back
20. Put forceps in the receiver kidney dish
21. Lubricate the insertion tip of the catheter (**5-7 cm in**)
22. Expose the urinary meatus adequately by retracting the tissue or the labia minora in an upward direction
23. Gently insert the catheter into meatus until urine is noted. **Continue inserting for 2.5 to 5cm additional.**
24. After catheter insertion, the balloon is inflated to hold the catheter in place within the bladder.

50

25. Instruct the client to **immediately report discomfort or pressure during balloon inflation; if pain occurs, discontinue the procedure, deflate the balloon, and insert the catheter further into the bladder.**
26. Gently pull the catheter until the retention balloon is snugged against the bladder neck (resistance will be met) re-push back 2cm after the test
27. If laboratory test is prescribed, collect some amount of urine in the sterile specimen bottle straight from the catheter

Cont...

28. Secure the catheter to the abdomen or thigh and connect to drainage tube
29. Place the drainage bag below the level of the bladder.
30. Remove gloves, dispose of equipment, and wash hands.
31. Help client adjust position.
32. Assess and document

Removal

- Withdraw the solution or air from the balloon using a syringe and remove gently.

Applying a Condom Catheter

- The condom catheter is an external drainage system to collect urine from male clients who have incontinence

Purpose

- Provide a means of collecting urine and controlling incontinence without the risk of infection that an indwelling urinary catheter imposes

Equipment

- Condom catheter kit with adhesive strip
- Urinary drainage bag/bed pan
- Clean gloves
- Basin with warm water and soap
- Towel and washcloth

Procedure

1. Wash hands and apply gloves.
2. Select an appropriate condom catheter.
3. Cleanse the penile shaft.
4. Inspect the penile shaft for excessive hair.
5. Inspect the penis for altered skin integrity.
6. Stretch the shaft of the penis and unroll the condom to the base of the penis.
7. Follow product directions for the application of the sealant
8. Attach the condom to the drainage apparatus, either a leg bag or bedside drainage bag.
9. Remove gloves and wash hands.
10. **Remove and reapply the condom catheter every 24 to 48 hours, or when leakage occurs.**

Bladder Irrigation (open and closed method)

- it is the washing out of the bladder to clear the catheter and/or the bladder.

Purpose

- To clean the bladder before operation depending on the surgeons order
- To arrest bleeding from the bladder
- To clean the catheter from mucous or blood clots
- To clean bladder from pus

Precaution

- Care should be taken not air into the bladder as it may cause spasm
- **Not more than 100-300ml** must be instilled at a time after bladder operation capacity may be limited.
- If the catheter is blocked by blood clots, a suction of the catheter must be proceed the irrigation

Equipment

- a complete set to catheterization
- A sterile bladder syringe for open method
- Irrigation solution **e.g. normal saline or cold solution to stop bleeding**
- Irrigation solution in a bag, infusion set, Y-piece, urine drainage tube and bag
- clamp for closed method
- Receiver with plaster to put the catheter end (open method)
- Rubber and draw sheet
- clamp
- pail/bucket/
- glove

Procedure for open method

1. Insert catheter as in catheterization
2. If catheter is already in the bladder
3. Put bed protection
4. Draw solution in the syringe
5. Clamp catheter, attach syringe in the catheter, place drainage tube on a swab
6. Decamp instill the solution gently into the bladder
7. With draw syringe, put end of catheter on the receiver which is placed on the bed protection
8. Repeat this procedure 2-3 times or more until the return solution is clear
9. Clean catheter and drainage tubing with a swab and connect it again

Cont'd...

Closed method

1. Prepare solution bag with IV set
2. Connect Y-place to the catheter and secure IV set to one end of the "Y" and drainage tube to the other end
3. Intermittent irrigation clamp the drainage tube and let irrigation solution run in the bladder (**100-200ml**) then close the set and open the drainage tube empty the bladder.
4. Repeat this procedure as often as necessary
5. Empty the collection bag frequently
6. Subtract the irrigation solution from the total urinary output if balance

Cont...

- Some agencies recommend the use of **sterile normal saline at room temperature for both catheter and bladder irrigations.**
- To irrigate the adult **bladder 100ml** is commonly used and for the entire irrigation of **catheter 200ml** is normally required.

Suprapubic catheter care

- ✓ A Suprapubic catheter is inserted through the abdominal wall above the symphysis pubis into the urinary bladder.

Purpose

- to prevent bladder infection
- To keep skin integrity

Care of clients with Suprapubic catheter

- Regular assessment of the client's urine, fluid drainage system.
- Skin care around the insertion site involves sterile technique.
- Periodic clamping of the catheter preparatory to removing it and measurement of residual urine.
- **Leaving the catheter open to drainage for 48 to 72 hours then clamping the catheter for 3 to 4 hour periods during the day the client can void satisfactory amounts.**
- Dressing should be changed whenever they are soiled.
- A small amount of iodine is used.

Bowel elimination

Bowel elimination

- ✓ The process of normal fecal elimination is not completely understood.
- ✓ It relies on the consistency of the stool (fecal material), intestinal motility, compliance and contractility of the rectum, and competence of the anal sphincters.

Gastrointestinal Tract

- The GI system begins at the mouth and ends at the anus.
- The small intestine in the adult is approximately **22 feet long**.
- The small intestine is responsible for the **digestion and absorption of nutrients, vitamins, minerals, fluids, and electrolytes.**
- The **digestive chyme** (mixture of partially digested food and secretions) travels to small bowel by segmental contractions and peristaltic waves.

- The small intestine joins the large bowel (colon) at the **ileocecal valve**
- This valve works in conjunction with **ileocecal sphincter** to control emptying of contents from the small intestine into the colon and to prevent regurgitation of digestive chyme from the large to small bowel.

Fecal Elimination

Defecation

- is the expulsion of feces from the anus and rectum.
- It is also called a bowel movement.
- It is normally initiated by two defecation reflexes.
 1. As the peristaltic waves approach the anus, the internal anal sphincter becomes inhibited from closing and if the external sphincter is relaxed defecation occurs this is called the **intrinsic defecation reflex**.
 2. The second reflex called **parasympathetic defecation** reflex
 - When the nerve fibers in the rectum are stimulated ; signals are transmitted to the spinal cord and then back to the descending and sigmoid colon and the rectum

Characteristics of normal feces

- **Color:** in adult- brown; in infant- yellow
- **Consistency:** - formed soft semisolid moist
- **Shape:** - cylindrical (contour of rectum) about **2.5 cm in diameter in adults.**
- **Amount:** - varies with diet.
- **Odor:** affected by ingested food and person's own bacterial flora.
- **Constituents:** - small amount of undigested roughage, sloughed dead bacteria and epithelial cell ,fat ,protein dried constituent of digestive juices.

Factors that affect defecation

- **Age and development:-** some control of defecation starts at **1½ to 2 years of age**; nervous and muscular systems are well developed to permit bowel control.
- **Diet:-** certain foods are difficult for some people to digest
 - ✚ Gas producing foods such as **cabbage, onion, banana and apple.**
 - ✚ Laxative producing foods such as **chocolate and alcohol**
 - ✚ constipation producing food such as **cheese, pasta, egg and lean meat.**

Cont...

- **Fluid:** - healthy fecal elimination requires a daily fluid intake of 200 to 300ml.
- **Activity;** -stimulate peristalsis thus facilitating the movement of chime along the colon.
- **Psychological factors:** - Anxious or angry people experienced increased peristaltic activity and subsequent nausea or diarrhea.
 - ✓ Depressed people may experience slowed intestinal motility, resulting in constipation
- **Life style:** - early bowl training may establish the habit of defecating at regular time.

Medication: Repeated administration of morphine and codeine cause constipation.

 - Iron tablets: constipation
 - Laxatives – stimulates bowel activity and so assist fecal elimination

Cont...factors affect defecation

- **Diagnostic procedure:** - barium (used in radiological exam) presents a further problem. It hardens if allowed remaining in the colon producing **constipation and sometimes an impaction**.
- **Anesthesia and surgery:** - surgery that involves direct handling of the intestine can cause **temporary cessation of the bowel movement. This condition is called paralytic ileus.**
- General anesthesia cause the normal colonic movements to cease or slow by blocking parasympathetic stimulation to the muscles of the colon.
- **Pathological condition:-**spinal cord injuries and head injuries can decrease the sensory stimulation for defecation.
- **Irritants:** - spicy food, bacterial toxins and poisons can irritate the intestinal tract and produce diarrhea and large amounts of flatus.
- **Pain :-**Client who experience discomfort when defecating often suppress the urge to defecate to avoid the pain.

Common fecal elimination problems

six common problems related to fecal elimination.

- 1. Constipation:** - refers to the passage of small ,dry hard stool or the passage of no stool for a period of time.
- Careful assessment of person's habit is necessary before a diagnosis of constipation

Causes or factors contribute to constipation

- Irregular defecation habit
- Over use of laxative
- Inappropriate diet
- Insufficient fluid

Cont'd...

2. Fecal impaction: - is a mass or collection of hardened feces in the folds of the rectum

Causes of fecal impaction

- Poor defecating habit and constipation
- Barium used in radiologic exam
- Lack of activity
- Weakened muscle tone

3. Diarrhea: - refers to the passage of liquid feces and increased frequency of defecation

Cont...

4. **Fecal incontinence:** - refers to loss of voluntary ability to control fecal and gaseous discharge through the anal sphincter.

There are two types fecal incontinence

- **Partial incontinence** altered ability to control **flatus or to prevent minor soiling**
- **Major incontinence** altered ability to **control feces of normal consistency**.
 - ✓ It is associated with impaired functioning of anal sphincter , spinal cord trauma and tumors of external anal sphincter.
 - ✓ It is an emotionally distressing problem that an ultimately lead to social isolation.

5. Flatulence

- air or gas in Gastro intestinal tract is called flatus.
- **Flatulence** is the presence of **excessive flatus** in the intestine and leads to stretching and inflation of the intestines.
- Most gases that are swallowed are expelled through the mouth by **belching**.

6. Helminthes: -**They cause faulty digestion, intestinal inflammation, intestinal obstruction and anemia.**

Promoting regular defecation

The nurse can help the client achieve regular defecation by attending

✚ Privacy

➤ Privacy during defecation is extremely important

✚ Timing

➤ Client should be encouraged to defecate when the urge is recognized

✚ Nutrition and fluids: -

- instruct constipated patients to drink hot liquids and fruit juices include fiber in diet
- For client who has flatulence, **limit carbonated beverage, chewing gum, gas forming foods such as cabbage, beans.**

✚ Regular exercise helps client develop a regular

Enema

- ✓ is the introduction of fluid into ***rectum and sigmoid colon*** for **cleansing, therapeutic or diagnostic purposes.**

Purpose:

- For emptying-Soap solution enema
- For diagnostic purpose- (Barium enema)
- For introducing drug/substance - (retention enema)

Solution used:-

- Normal saline
- Soap solution - soap 1gm in 20ml of H₂O
- Epsom salt 15gm-120gm in 1000ml of H₂O

Mechanisms of some solutions used in enema

- + Tap water: increase peristalsis by causing mechanical distension of the colon
- + Soap solution: increases peristalsis due to irritating effect of soap to the luminal mucosa of colon.
- + Epsom salt:- causes flow of ECF(extra cellular fluid) to the lumen causing mechanical distension resulting peristalsis

Classified into:-

- Cleansing(evacuation)
- Retention
- Carminative/relieving discomfort of gas/
- Return flow enema

Cleansing enema/evacuating enema/

- is the cleansing of a portion of the bowel by insertion of fluid rectally

Purpose

- + To relieve gas, constipation or fecal impaction
- + To cleanse the bowel prior to surgery, childbirth, or diagnostic examination.
- + To evacuate/empty/ the bowel in patients with neurologic dysfunction.
- + Evacuates feces in clients with hemiplegia, quadriplegia or paraplegia
- + Delivers medication

Types of liquid used for cleansing enema

1. Tap water = 500 to 1000 cc
2. Soap solution = 500 to 1000 cc
3. Normal saline - made by mixing one teaspoon of salt in a liter of water usually contain 1000cc of normal saline.
4. Epsom salt 15 gm - 120 gm in 1000 cc of water

Precautions

- ✓ No need to use too much soap - this may produce severe irritation of the membrane of the colon.
- ✓ Tap water must be administered consciously for infants or adults **who have altered kidney or cardiac reserve this is to avoid water intoxication.**

Contraindications

- Rectal surgery
- Rectal /anal/ cancer
- Rectal infection

for a patient with appendicitis

Rectal /Anal/ fissure

Equipment

- 1.Container for solution
- 2.Solution at temperature for adult 40-430c
- 3.Bath thermometer for infant (37.70c)
- 4.Water proof material /mackintosh/
- 5.Screen, bath blanket, towel
- 6.Enema cane with tube
- 7.Gauze to apply lubricant /swab/
- 8.Bed pan and toilet tissue
- 9.IV pole/stand
10. Gloves
11. Receiver /kidney dish/
12. Lubricant
13. Rectal tube /catheter /
14. Clamp, connector, funnel

Cont...

Guidelines

- Enema for adults are usually given at **40-43°C and children at 37 °C**
- Hot-cause injury to the bowel mucous
- Cold- may trigger a spasm of the sphincter muscles

The amount of solution to be administered depends on:

- ❖ Kind of enema
- ❖ The age of the person and
- ❖ The personal ability to retain the solution

Cont...

Age

- 18months
- 18mont-5yrs
- 5-12 yrs
- 12yrs and older

Amount

50-200ml
200-300ml
300-500ml
500-1000ml

- ✓ The rectal tube should be appropriate: is measured in French scale

Age

Size

- **Infants/small child-----10 -12fr**
- **Toddler -----14 -16fr**
- **School age child-----16 -18fr**
- **Adult's -----22-30fr**

Procedure

- Inform the patient about the procedure.
- Put bed side screen for privacy.
- Attach rubber tube with enema cane with nozzle/syringe/ and stop cock or clamp.
- Place the patient in the left lateral position with the right leg flexed for adequate exposure of the anus (facilitate the flow of solution by gravity in to the sigmoid and descending colon which are on the side).
- Fill the enema cane with 1000cc of solution for adults.

Cont...

- Lubricate about **5cm of the rectal tube** facilitate insertion through the sphincter and minimize trauma.
- Hung the cane at least 45cm from bed or 30cm from patient on the stand.
- Place a piece of mackintosh under the bed
- Make the tube air free by releasing the clamp and allowing the fluid to run down little to the bed pan and clamp to prevents unnecessary distention.
- Lift the upper buttock to visualize the anus.

Cont'd...

- **Insert the tube**

- **7-10cm in adult smoothly and slowly.**

- **5-7.5 cm in the child.**

- **2.5-3.75cm in an infant.**

- Raise the solution container and open the clamp to allow fluid to flow.

- Administer the fluid slowly. if client complains of fullness or pain **stop the flow for 30 second** and restart the flow at a slower rate

Cont...

- Do **not allow** all the fluid to go as there is a possibility of air entering the rectum or when the client **cannot hold any more and wants to defecate**
- Remove bed pan clean the rectal tube.
- Document the procedure.

Note

- ✓ If resistance is encountered at internal sphincter, ask the clients to take a deep breath then run a small amount of solution (relaxes the internal anus sphincter)

Retention enema

- Administration of solution to be **retained in rectum for short or long period**
- The fluid usually medicine is retained in rectum for short or long period- for local or general effects

E.g. oil retention enema, antispasmodic enema

Principles:

- is given slowly by means of a rectal tube
- The amount of fluid is usually **150-200cc**
- Cleansing enema is given after the retention time is over

Cont...

Purpose

- To supply the body with fluid
- To give medication E.g. stimulants(paraldehyde) or antispasmodic
- To soften impacted fecal matter.
- Other equipment is similar except the **tube for retention enema is smaller in width.**

Procedure of retention enema

- Similar with the cleansing enema but the enema should be administered very slowly and always be **preceded by passing a flatus tube**

Note

- Most **medicated retention enema must be preceded by a cleansing enema/flatus tube**
- **Elevate foot bed** to help patient retain enema.
- Kinds of solution used are **plain water, normal saline, glucose 5% , soda bicarbonate 2-5%.**
- **Olive oil 100-200cc to be retained for 6-8hours is given for sever constipation.**

Rectal washout (siphoning enema)

- Colon irrigation or colonic flush
- is the process of introducing large amount of fluid in to large bowel for flush and allow return or wash out fluid

Purpose

- To prepare the patient for x-ray exam and sigmoidoscopy
- To prepare the patient for rectum surgery and allow return or wash out fluid

Cont'd... rectal wash out

Solution Used

- ✓ Normal saline
- ✓ Soda-bi-carbonate solution(to remove excess mucus)
- ✓ Tap water
- ✓ KMNO₄ solution. 1:6000 for dysentery or weak tannic acid

Equipment for rectal washout

1. Pitcher
2. Newspaper
3. small jug
4. Large mug for fluid
5. Bucket
6. Funnel
7. Bedpan
8. Tubing and glass connecting
9. Rectal tube or catheter and clamp
10. lotion thermometer
11. Mackintosh and towel
12. swab and Vaseline
13. Solution of (40 co)
14. glove

Procedure of Rectal washout

- Insert the tube like the cleansing enema.
- The client lies on the bed with hips close to the side of the bed (**client assumes a right side lying position for siphoning**).
- Open the clamp and allow running about **1000cc of fluid in the bowel then siphon back into the bucket**.
- Carry on the procedure until the **fluid return is clear**.

Cont'd ... rectal washout

Note

- The procedure should **not take > 2 hours**.
- Should be finished 1 hour before exam or x-ray to give time for the large intestine to absorb the rest of the fluid.
- **Give cleansing enema ½ hour before the rectal wash out**
- Allow the fluid to pass slowly
- Amount of solution **5-6 liters** until the wash out rectum fluid becomes clear.

Passing a flatus tube

- The insertion of a rectal tube is done to manage flatulence (gas) following
 - abdominal surgery and/or
 - reduce abdominal distention due to flatulence.

purpose

- Used before giving a retention enema
- It can be used to alleviate abdominal distention.
- It is used to control diarrhea that cannot be controlled with medical management

Equipments for passing a flatus tube

1. Rectal tube or catheter, 22 to 30 French
2. Water-soluble lubricant
3. Bedside drainage bag (optional, if rectal tube used to manage diarrhea)
4. Ostomy odor eliminator or similar product (optional)
5. Clean gloves
6. Disposable pads or towels

Procedure

- ❖ Place the patient in the left lateral position.
- ❖ Lubricate the tube about **15cm**.
- ❖ Separate the rectum **and insert 12-15cm into the rectum and tape it.**
- ❖ Connect the free end to extra tubing by the glass connector.
- ❖ The end of the tube should reach the tape water solution in the bowel.

Cont'd...procedure

- ❖ The amount of air passed can be seen bubbling through the solution
- ❖ Teach client to avoid substance that cause flatulent.
- ❖ Leave the rectal tube in place for **no longer than 20 minute**. b/se it affect the ability to voluntarily control the sphincter if placement is prolonged.
- ❖ Reinsert the rectal tube **every 2-3 hour** if the distention has been unrelieved or reaccumulates

Digital removal of fecal impaction

- Removal of hard and large fecal mass that cannot pass through the anus without tissue damage by inserting one or two gloved fingers into the rectum.

Purpose

- to make client's rectum free of feces

Limitation

- This procedure can be uncomfortable and embarrassing for the client.
- Manipulating the rectal mucosa can cause local trauma and possibly bleeding.
- **The vagus nerve is easily stimulated rectally and may cause the client's heart rate to slow dangerously.**

Precaution

- This procedure should be performed with caution in clients with **a history of cardiac disease, dysrhythmias, or recent rectal or pelvic surgery.**

Equipment

1. Disposable absorbent pads
2. Bed pan
3. Clean gloves
4. Water-soluble lubricant
5. Washcloth, towel
6. Basin of water or perianal cleanser

Procedure

1. Explain the procedure to the client
2. Wash hands.
3. Assemble equipment.
4. Explain procedure to client.
5. Position client in **the left lateral position (Sims')** with upper leg bent over lower leg
6. Place disposable pads (if not available, use towels) underneath client. Position a bedpan near the client.
7. Use odor eliminator per manufacturer (optional).
8. Apply gloves
9. Apply lubricant to a gloved finger.

10. Insert lubricated finger into rectum to check for fecal impaction.
11. Gently probe for stool by moving finger upward toward the umbilicus, moving finger back and forth to dislodge stool
12. **Once anus relaxes and opens, several fingers can be inserted into rectal canal to assist in removal of stool. Be sure to lubricate additional fingers.**
13. Manipulate the stool mass with the fingers, breaking it up into small pieces.

Bowel diversion /ostomy

- An ostomy is an opening on the abdominal wall for elimination of feces or urine.
- **There are many types of ostomy**
 - **Ileostomy** is an opening into the ileum (small bowel).
 - **Colostomy** is an opening into the colon (large bowel).
 - **Ureterostomy** is an opening into the ureter.
- The purpose of ostomy is to divert and drain fecal or urinary material.

Cont...

Colostomy can be either temporary or permanent.

➤ **Temporary colostomy** performed for traumatic injuries or inflammatory condition.

➤ **Permanent colostomy** are performed to provide a means of elimination when the rectum or anus is non functional as result *birth defect or cancer of bowel.*

• **colostomy** produces a malodorous mushy drainage

Cont...

Anatomic location:- the location of the ostomy influences the character and management of the fecal drainage

- **An Ileostomy** produces liquid fecal drainage. it **contains some digestive enzyme** which damage the skin.
- **Ascending colostomy** odor is a problem requiring control (e.g. a deodorant inside the appliance)
- **A transverse colostomy** some has been reabsorbed.
- **A descending colostomy** produces increasingly solid fecal drainage.

Stoma and skin care

- The fecal material from a colostomy or Ileostomy is irritating to the peristomal skin.
- A barrier such as **Karaya** is applied over the skin around the stoma to prevent contact with any excretion.
- Odor control is essential to client's self esteem
- They need to be changed whenever the effluent leaks on to the periostomal skin

Colostomy irrigation

- is a form of stoma management **used only for clients who have a sigmoid or descending colostomy.**
- It is **not** done for Ileostomy because the feces are usually liquid.
- A relatively small amount of fluid **300 to 500ml** stimulates evacuation b/se a colostomy has no sphincter and the fluid tends to return
 - This problem is reduced by the use of a cone on the irrigating catheter.
 - The cone helps to hold the fluid within the bowel during the irrigation.

THE END !!