ELIMINATION TRAINING PACKAGE

ANATOMY AND PHYSIOLOGY
URINARY SYSTEM

Overview

The urinary system removes much of the water from the body and regulates the amount of water in the body. The following module explains the anatomy, describes normal urination and explains neurogenic bladder.

The five major parts to the urinary system are:

- two kidneys
- two ureters,
- bladder,
- sphincter muscle,
- urethra.

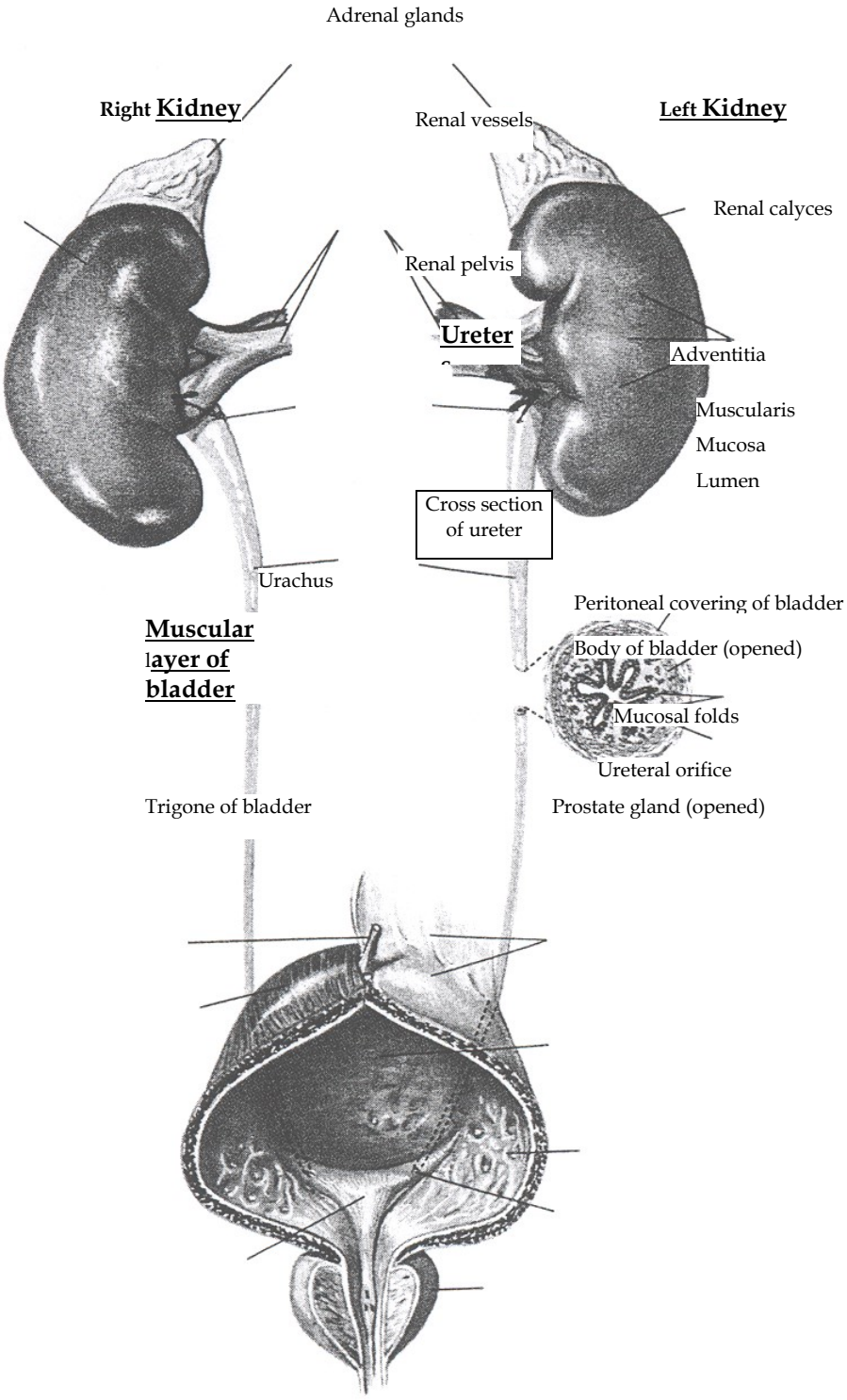
The Kidneys They lie either side of the vertebral column & are protected by the lower edge of the rib cage..

The Ureters Are tubular and long, extending from the kidneys & they carry urine from the kidneys to the bladder.

The Bladder Is a hollow, distensible, muscular organ, located within the pelvic cavity.

The Sphincter Muscle Contracts to prevent the bladder from emptying until the pressure within the bladder increases to a certain level. The sphincter is supplied with nerves which receive the impulse to relax it allowing urine to flow.

Urethra Is a tube that conveys urine from the bladder to the outside of the body.



Urinary System (From Mosby's medical and nursing dictionary ed. 2, St. Louis, 1986, the C.V. Mosby Co.)

Normal Urination

The kidneys filter blood and produce urine which flows down the ureters into the bladder. Urine is held in the bladder by a strong sphincter muscle. The bladder sends a signal to the brain when it is full, about every 3 to 4 hours. The healthy adult excretes about 1000 to 1500 ml of urine a day.

Many factors affect the amount of urine produced. These include:

- the amount and kind of fluid ingested
- the amount of salt in the diet
- illnesses and medications.
- Certain substances cause the body to produce more urine (i.e. coffee, tea, alcohol and some medications).

A diet high in salt causes the body to retain water. When water is retained, less urine is produced.

Normal & Abnormal Characteristics/Interpretations of the appearance of urine.

Color:

Normal urine--usually ranges from pale yellow to amber.

Abnormal: Changes in color may indicate disease, taking drugs, or eating color rich foods.

- Reddish urine may be from eating beets.
- Medication such as valproic acid, Dantrolene-urine has orange tint.
- Illnesses: Black-brown urine may indicate old blood from an internal bleed; red urine is a fresh bleed. Milky-white appearance is usually indicative of a urinary tract infection. Extremely pale urine may be due to diabetes insipidus.

Clarity:

Normal urine usually appears clear.
Abnormal urine: urine looks cloudy or smoky. This may be due to urinary tract infections.

Odour:

Normal urine: faintly aromatic, non-offensive smell.
Abnormal urine: An unpleasant, strong odor may indicate urinary tract infection.

Abnormal lab readings:

Glucose:

- Sugar in urine is abnormal. Related to illness, usually diabetes.

Ketones

Ketones in urine is abnormal. Often a byproduct of fat breakdown, i.e. starvation. Ketoacidosis – leads to diabetic coma

Blood, Nitrites, Leucocytes

All or one of the above in the urine is abnormal. Often indicative of urinary tract infection or kidney disease.

If in home testing through a **multistix** is requested by the Nurse Clinician, the following abnormal readings should always be reported:

- leukocytes,
- nitrites
- blood.

URINE INCONTINENCE

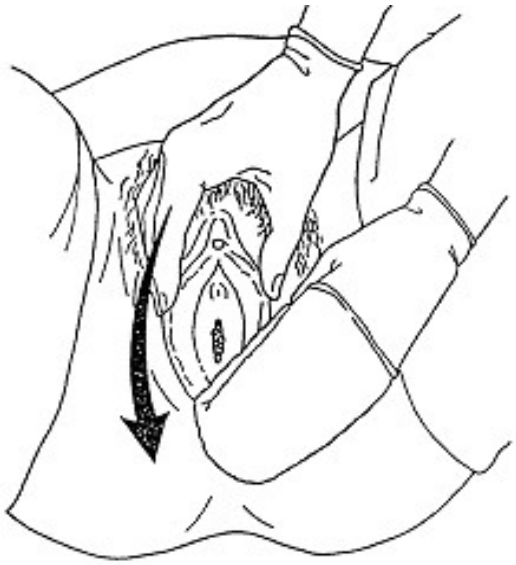
Some people with physical and mental challenges have abnormal muscle control or their brain has the inability to send/interpret messages. This will lead to urinary incontinence.

PERSONAL CARE

Perineal Care

Perineal care (referred to as peri-care)involves cleaning the genital and anal areas (private parts) of the body. Peri-care should be provided several time during the day as this area, if not cleaned adequately, provides an area for growth of micro-organisms. It can also create a malodorous body odor and cause discomfort to the client.
Personal care such as this should be carried out with respect and dignity, i.e. private area.

GIVING FEMALE PERINEAL CARE



Always wear gloves when providing peri-care. Always wash your hands after cleansing is done and discarding the gloves.
Report malodors, redness, swelling, rash and irritation observed to Nurse Clinician.

Fig. 13-24
Perineal care is given to the female by separating the labia with one hand. Using a wipe or washcloth clean in a downward motion from front to back with one stroke. Repeat until area is clean then dry well.

Fig. 13-25
The rectal area is cleaned by wiping from the vagina to the anus. The side-lying position allows the anal area to be cleaned more thoroughly. Repeat until clean and then dry well.

GIVING MALE PERINEAL CARE

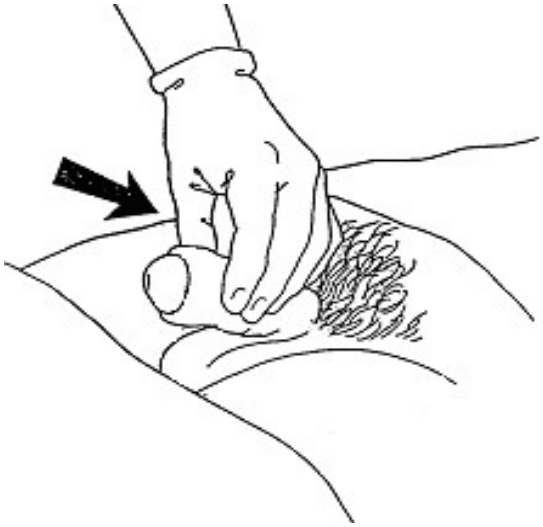


Fig. 13-26
Put gloves on. The foreskin of the uncircumcised male is pulled back and the tip of penis cleansed using a cleanser and gauze. It is returned to the normal position immediately after cleaning.

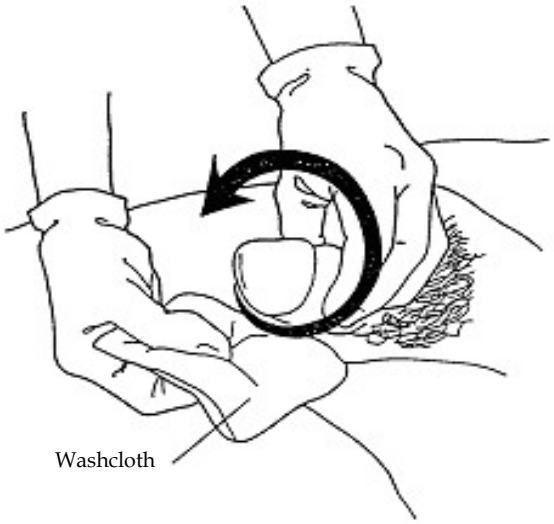


Fig. 13-27
Continue cleaning with circular motions starting at the urethral opening and work outward and downwards. Use a fresh gauze for new swipes.. Complete by washing the scrotum. Rinse the area with fresh gauze once completed.

Rectal area is cleansed in the same manner as for the female. Rinse the area and dry well.

HOW TO COLLECT URINE SAMPLES

CATHETERIZATION:

Catheterization (Intermittent)- Male

This procedure is taught when staff is assigned to work with a client who needs procedure done. Staff will be expected to read the procedure, Nurse Clinician will demonstrate procedure then staff will follow through by doing procedure with the Nurse Clinician who give a visual pass if deemed well done.

This procedure entails inserting a catheter into the bladder to drain the bladder of urine. The frequency depends on client needs and will be noted in the client's health care plan.

Procedure

- Start by doing peri care.
- Lubricate catheter with lubricant and insert until urine starts to flow. If a slight resistance is felt as you insert it do not force the catheter as this may cause trauma. Instead try altering the angle of the penis and wait for a few second. If catheterization is still difficult contact the Nurse Clinician.
- When urine stops flowing withdraw catheter but do it slowly as more urine may come out. Stop if more urine begins to flow. Continue this until catheter leaves the bladder.
- Wash perineal area and apply brief.
- Measure and record output. Assess urine for color, odor, amount and report anything unusual.
- Detection of blood:
  If you see a small amount of blood continue catheterizing but if amounts are large stop procedure. Always notify the Nurse Clinician.

Keeping the equipment clean:

- Catheter will be changed once a day.
- Cleaning of catheter after use is as follows:

1) Pour some cleanser on your hands and on catheter. Rub catheter between hands and rinse under tap. Run water around and through catheter lumen.
2) Stretch the catheter and use a syringe to blow air through to dry the inside. Use a paper towel to cover and protect the catheter
3) Pour a small amount of cleanser into urinal/container, swirl, and rinse with water. Always discard in toilet.
4) Remove gloves, wash hands and put away equipment in designated area.

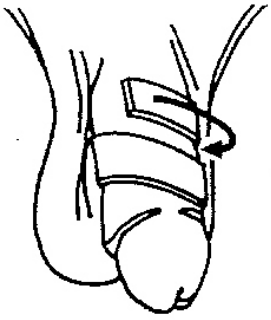
Catheterization for females is done by Nurse Clinician

2-CONDOM DRAINAGE

Condom drainage is used:

- To prevent incontinence in males who have no bladder control.
- To collect urine sample for lab analysis.

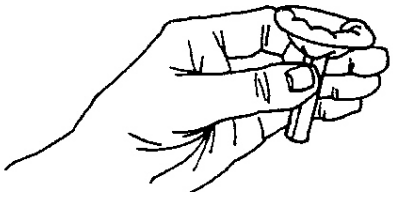
This catheter fits over the penis and connects to a drainage bag that you'll strap on the leg.



Caution: Don't let the edges of the tape overlap. Don't stretch the tape or you'll wind it too tightly. And never wrap the tape in a circle around the penis – may cut off circulation.

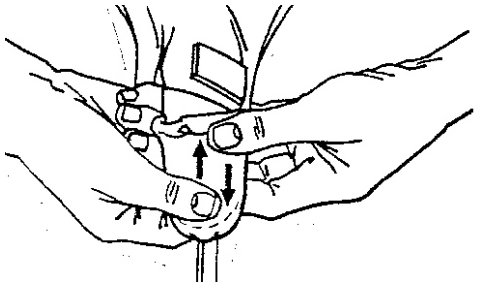
Applying the catheter

First, tightly roll the condom sheath (balloon like part) to the edge of the connector tip.



Now place the catheter sheath on the end of the penis, leaving about half an inch of space between the tip of the penis and the connector tip.

Gently stretch the penis as you unroll the condom. When the condom's unrolled, gently press it against the penis, so it sticks to the tape.



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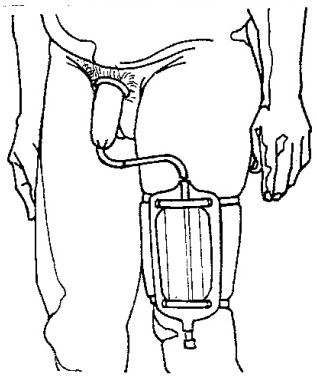


Removing equipment

3-URINE COLLECTION

Purpose: To obtain an uncontaminated specimen without inserting a catheter into the bladder.
To detect the presence of abnormalities through analysis of urine.

Collecting the Specimen:

- Collect the specimen without contaminating it.
- Specimen should be delivered to the lab as soon as possible.
- It is vital that peri-care is carried out prior to collection of urine. Refer to peri-care for male and female.

1. ***Collecting in a receptacle:***
   Have the resident void directly into sterile container collecting 30 to 50 ml at the midstream portion of the voiding (client starts to void, stops midway , then proceeds to void in sterile container). The remainder of the voiding can be finished in a bed pan and discarded.

2. ***Application of a urine bag for urine collection:***
   Female: This is more difficult for females. Preferably just for infants. Stretch the perineum taut during application and adhere the bag to the perineum.
   Male: 1. Place the penis inside the collection bag. (If the collection bag is properly and securely placed, then you avoid having to repeat procedure.)
   2. Apply brief loosely.
   3. Check every 30 - 45 minutes to see if client has voided. The adhesive on the collecting bag may tend to be sticky. Carefully remove bag to avoid chafing of skin.

Collection via gauze:

Insert sterile gauze with sterile gloves in dry brief. Once client has voided, using sterile gloves, squeeze as much urine as possible into specimen bottle. (Need at least 15-20mls for testing)

****Avoid touching the inside of bag or collecting container to prevent cross contamination when transferring urine to container.**

Once collection is completed send specimens to lab promptly**.** Requisition is completed by Nurse Clinician. Label bottle with residents name. DOB, medical number date and time of collection.
**If female client is menstruating please note it on requisition.
Make notation in daily notes when specimen was sent to lab.

URINE TESTING via STRIP REAGENT (MULTISTIX)

This urine test is done at home when requested by Nurse Clinician to detect if abnormalities in urine are present. This permits Nurse Clinician to decide if a sample needs to go to the lab.

This is done by getting specimen from either a) urine bag b) condom drainage c) from brief (gauze) d) asking client to void. ** Ideally a urine bag should be used on male clients to get the specimen.

Procedures

1. Wear gloves. Peri-care procedure is carried out prior to getting specimen.
2. Obtain specimen as per procedure for whichever way collection is done.
3. Remove one reagent strip from the container and hold with blocks facing up. Avoid touching the blocks to avoid contamination.
4. Dip the end of the strip (with the test blocks) into the urine container for about 2 seconds. Remove the strip and shake off the excess urine. Do the same if collection is from a urine bag.
5. If testing from brief, press the strip into wet brief hard enough to get urine onto the strip.
6. Hold the reagent strip horizontally and immediately begin timing, following the manufacturer's directions.
7. After waiting the recommended time, compare the test block with the color chart on the bottle label.
8. Chart your results and report to the Nurse-On-Call .

WEIGHING BRIEFS

Objective

To determine urine output by weighing briefs.

Policy

Briefs will be weighed when a client's medical status warrants it.

Procedures

1. Weigh a dry brief prior to each use. Note the weight in grams on the brief with a pen. Use a baby scale or calorie scale to weigh the brief.
2. When a client has voided, weigh that same brief in grams and deduct that amount from the weight of the dry brief.
3. One gram is equivalent to 1 cc. i.e. if output in grams is 100 grams; the output is therefore 100 cc's.
4. Record amount on intake and output sheet.
5. Total the intake and output at the same time each 24 hour period.

INTESTINAL TRACT

Overview

Bowel elimination involves the excretion of waste from the gastrointestinal system. Food is usually taken in through the mouth and partially digested in the stomach. Further digestion and absorption takes place along the intestinal tract.

People who have mental and physical challenges can have impaired brain function, lose sphincter control and changes in intestinal mobility. These contribute to abnormal bowel incontinence.

Outline

Intestinal tract consists of:
1-Small Intestine
2-Large Intestine
3-The Anal Canal

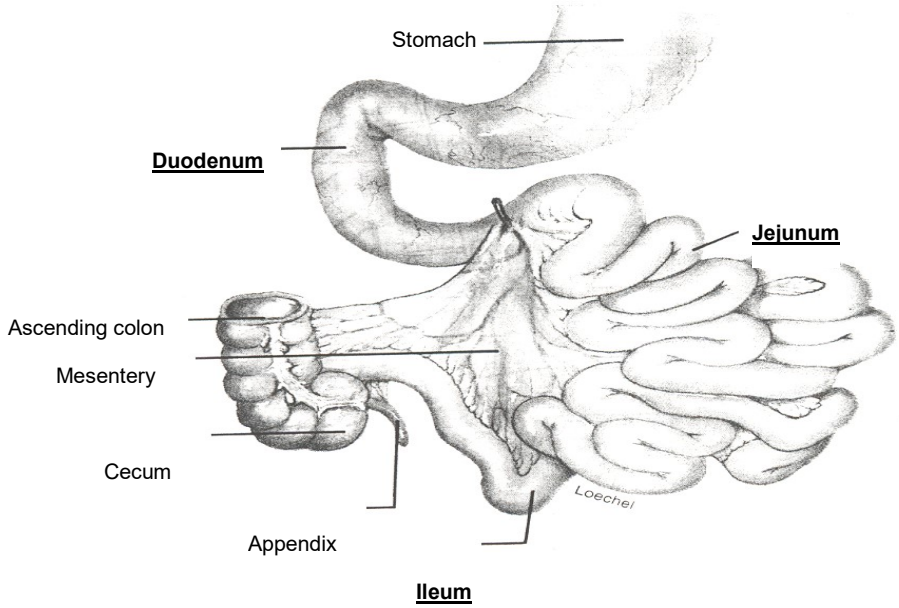
The Small Intestine

The small intestine is a tubular organ that extends from the pyloric sphincter (stomach end) to the beginning of the large intestine.

The small intestine consists of three portions:
the duodenum, the jejunum, and the ileum.

The duodenum is the shortest and most fixed portion of the small intestine. .

The jejunum and *the ileum* make up the remainder of the small intestine. It is mobile and lies free in the peritoneal cavity. There is no distinct separation between the two.

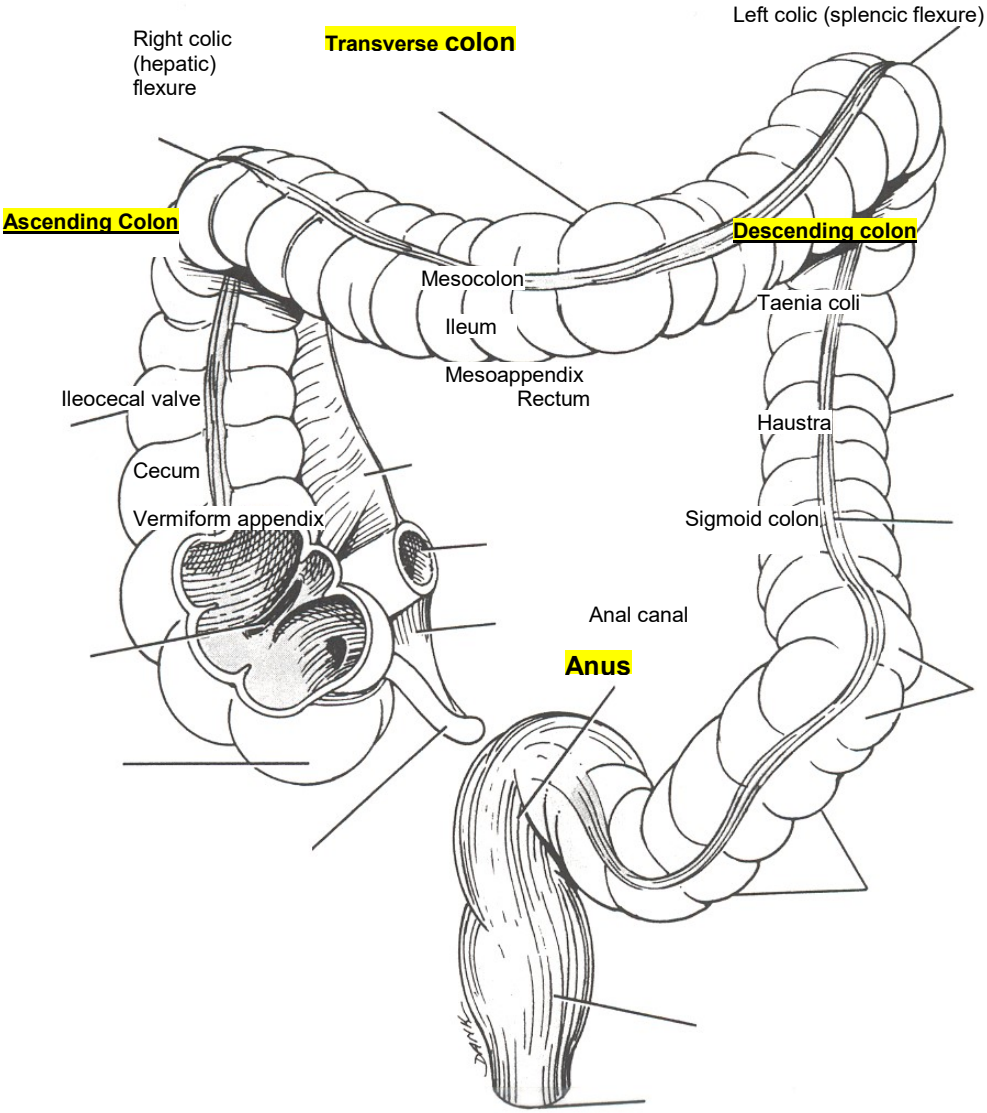


The Large Intestine

The large intestine is greater in diameter than the small intestine.

The large intestine is then divided into four parts – the ascending, transverse, descending, and ending as the rectum. The feces pass through the colon into the rectum by peristalisis. Feces pass out of the body through the anus.

The *anal canal* is formed by the last 2 or 4 cm of the large intestine.

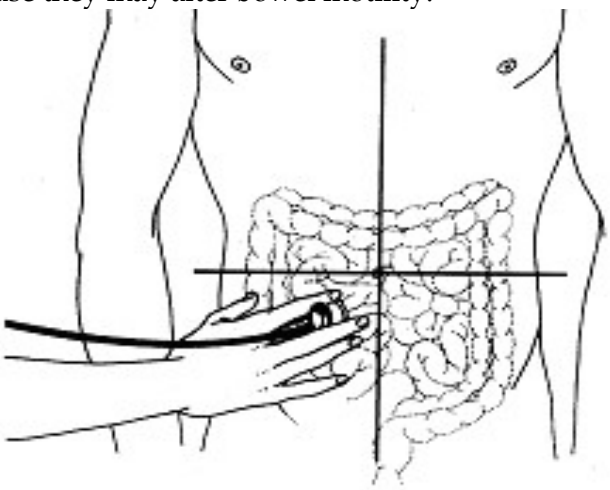


Overview

ASSESSING BOWEL SOUNDS

Liquid and air moving through the gastrointestinal tract produce bowel sounds. Listen for clues to your client's bowl motility.

To assess your client's bowel sounds, assist him to a supine position. Ask him to flex his knees to relax his abdominal muscles. If you're performing a complete abdominal assessment, first visually inspect his abdomen, then auscultate. Perform palpation and percussion last because they may alter bowel motility.



Warm the diaphragm of your stethoscope in the palm of your hand. (Cold causes muscles to contract.) Place it on any quadrant of your client's abdomen, then proceed clockwise or counter clockwise until you've assessed all quadrants. (Typically, bowel sounds are always present in the right lower quadrant at the ileocecal valve area.)

Counting bowel sounds isn't necessary. Document the types of sounds heard in each quadrant; characterize them as normal, hyperactive, hypoactive, or absent (see box to the right).

How to define bowel sounds

Normal: These high-pitched, irregular, gurgling noises occur every 5 to 20 seconds in all quadrants.

Hyperactive: Loud, gurgling, rushed sounds (similar to stomach growling), they're also called borborygmi. They may occur with diarrhea or hunger. Rushed sounds that are high pitched or tinkling suggest air or fluid under pressure; in the early stages of an intestinal blockage, they may occur in the portion of the bowel that precedes the obstruction.

Hypoactive: Soft and low, these are widely separated, so you may hear only one or two in 2 minutes. Hypo activity is normal during the first few hours after a patient has received a general anesthetic; hypoactive bowel sounds also occur with peritoneal irritation or paralytic ileus.

Absent: If you hear no sounds in a quadrant for 3 to 5 minutes, consider bowel sounds absent. Report this finding immediately - it may signal paralytic ileus, peritonitis, or an obstruction.

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CONSTIPATION

Constipation occurs when:

1) Periods between bowel movements is delayed beyond the interval normal for that individual.
2) Stool that is of hard, dry, soft and putty-like consistency is difficult to evacuate.

Causes:

- Medications that cause constipation
- Inadequate fluid or bulk in diet
- Have CNS diseases.
- Immobility (confined to wheelchair) & lack of exercises.

Consequences of Constipation

Seizures	The vagal nerve fibers are distributed to organs in all regions of the body. Two of these regions are the large and small intestines. The excessive pressure form hard med stool stimulates the vagal nerve causing a Seizures
Urinary Tract Infections	E. Coli is the normal bacteria in the large intestine. When stool is left in the bowel for a long time, the breakdown can increase the amount of bacteria in the lower abdominal cavity and lead to urinary tract infections. Urinary tract is close to intestinal tract, increasing that risk.
Shunt Malfunction	Tubing for a shunt is usually placed in the abdominal cavity. Constipation leads to an enlarged colon, occupying space, which may in turn interfere with proper drainage of the shunt.
Discomfort, Bloating, Distention	Presence of hard stool not excreted from the intestines can cause discomfort, Bloating and distention from occupying space.
Residuals/Vomiting	Hard stool sitting in the intestine will prevent the passage of food from the stomach. Food sitting in the stomach will lead to stomach residuals and sometimes vomiting.

Nursing Measures for Bowel Problems:

Bowel Cleanout	Enemas, suppositories, oral medications or a combination of both will help clear the bowels. Manual disimpaction may sometimes be required.
Fluid and Food Intake	Constipation is common for people with impaired mobility. So a diet which contains fiber and lots of fluids can prevent constipation. Fiber prevents constipation by absorbing water and enlarging the stool. This makes it easier for the stool to be pushed out. The smaller the stool pieces the harder it is for the intestines to push out.
Exercise	Regular physical activity helps prevent constipation by stimulating the movement of the bowel. Unfortunately this is not a realistic outcome for the majority of our clients since they are confined to a wheelchair.
Recording	It is important to document a client's elimination on the Elimination Record. Information to chart is as follows: 1. Date & time 2. Size (small, medium, or large) 3. Color (brown) 4. Consistency (soft, hard, loose) 5. If suppository or enema was given.

RECTAL SUPPOSITORIES

Policy

Suppositories require a physician's order.
It is preferable that suppositories be given within a 2 hour time frame before or after giving medications.
Medication via the rectal route is avoided in the following circumstances:

- anorectal malformations
- diarrhea
- rectal bleeding, rectal fissures
- recent anorectal surgery
- paralytic Ileus
- Intestinal obstruction
- Post-operative gastro-intestinal surgery.
- A suppository is a medicated solid formulation prepared for insertion into the rectum. Once inserted the temperature of the body will dissolve the suppository from its solid form to a liquid.

Objective

To cleanse the lower bowel.
Rectal suppositories are given:

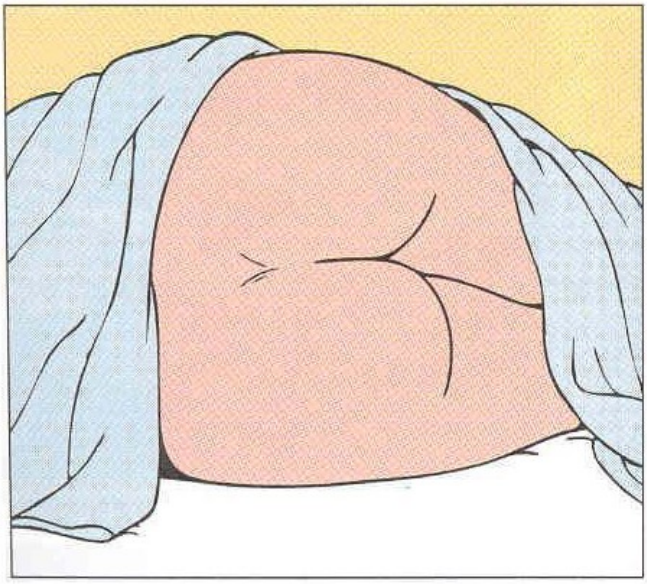
- To relieve chronic constipation,
- To empty the rectum in preparation for investigation and for other procedures such as colonoscopy.
- To treat a high fever, pain or other intestinal conditions.
- Provides another route to administer medications for clients who do not take medications orally and also for those who are fasting before or after surgery.

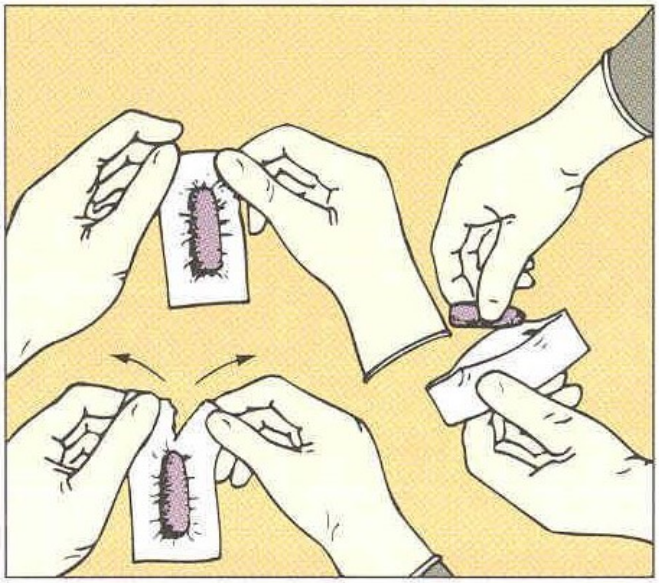
Equipment

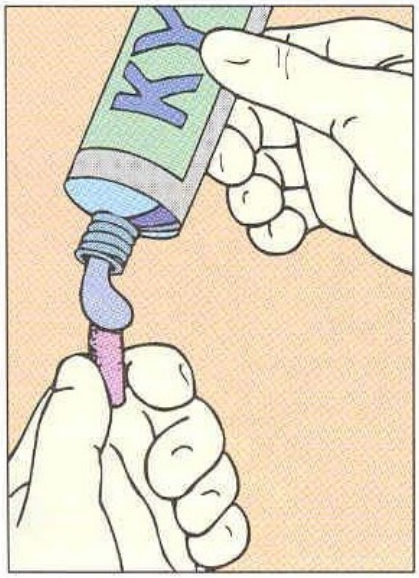
- Suppository
- Lubricant
- incontinent pad
- non sterile glove or finger cot

Procedures

1. Ensure privacy.
2. Explain to the client what is about to happen.
3. Position client on left side with knees flexed.
4. Place incontinent pad under buttocks.
5. Remove the wrapper from the suppository.
6. Put on disposable glove or finger cot.
7. Lubricate the end of the suppository with your finger.
8. Insert the suppository with the rounded end first, approximately 1 to 3 inches, until you feel it pass the anal sphincter.



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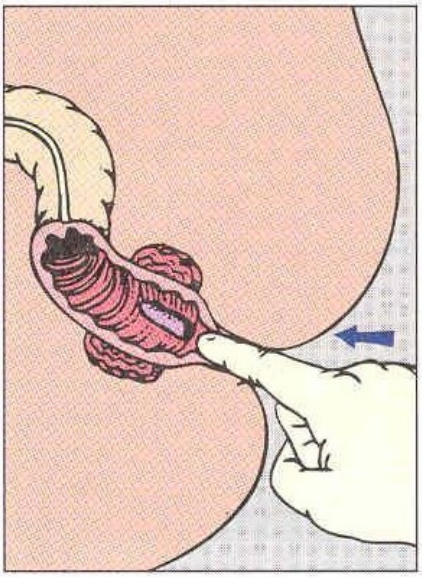


DISPOSABLE ENEMA

Policy

Requires a physician's order. These come pre-mixed in a bottle.
Medication via the rectal route is avoided in the following circumstances:

- anorectal malformations
- diarrhea
- rectal bleeding, rectal fissures
- recent anorectal surgery
- paralytic Ileus
- Intestinal obstruction
- Post-operative gastro-intestinal surgery.

Objective

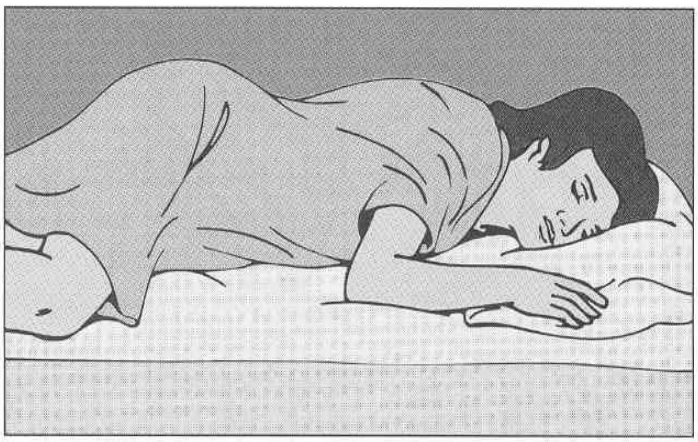
- To cleanse the lower bowel.
- To relieve constipation,
- To empty the rectum in preparation for investigation and for other procedures such as colonoscopy.

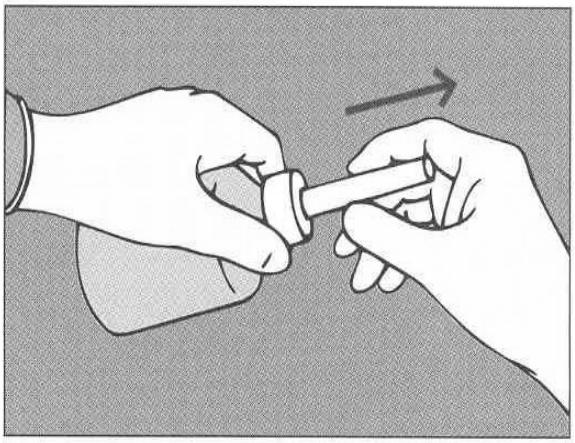
Equipment

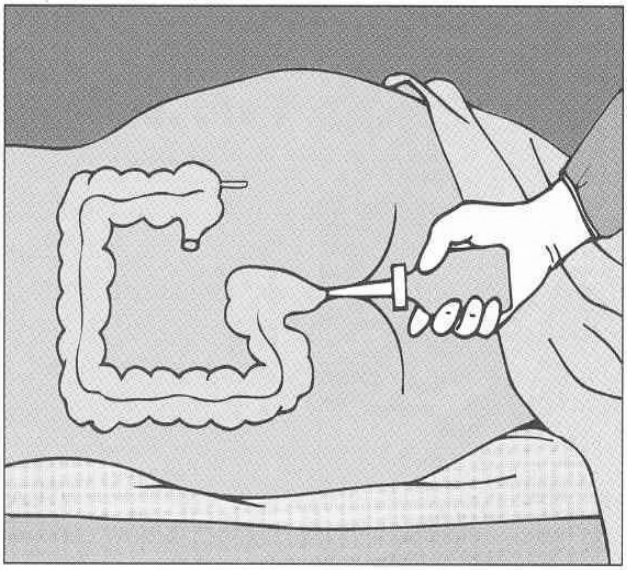
- disposable enema (pre-packaged)
- non-sterile gloves
- blue incontinent pad
- clean disposable briefs
- wash cloths
- water
- soap
- towel

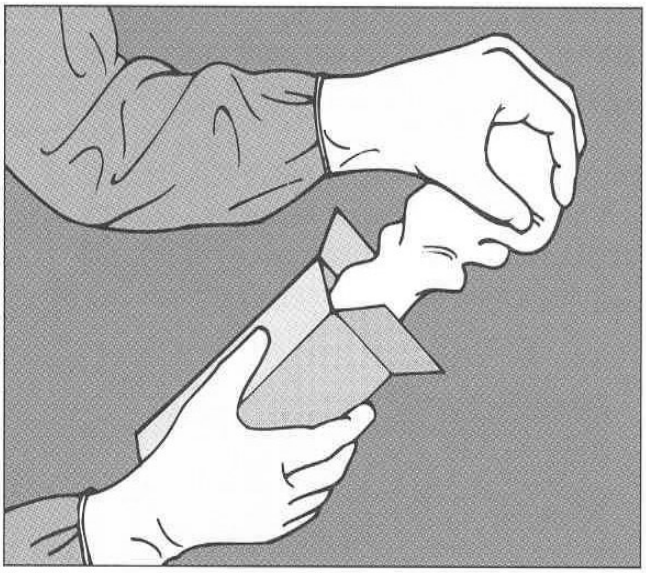
Procedures

1. Explain the procedure to the client.
2. Place the client on left side, knees flexed.
3. Put on your non-sterile gloves.
4. Undo the disposable brief.
5. The tip of the enema is pre lubricated, but you may wish to add additional K.Y. Jelly.
6. Gently insert the tube: 4" (10 cm) for an adult
   2" – 3" (5 – 7.5 cm) for child
   1" – 1 ¼" (2.5 – 3.8 cm) for an infant
7. Slowly squeeze container until all the fluid has gone into the rectum.
   Hold the buttocks together as you withdraw the enema tip, as this will reduce the urge to expel the solution.
8. Secure disposable brief with ties.
9. Remove your gloves, wash your hands.
10. Chart the procedure on the Elimination record.
11. When the enema has been effective, replace your gloves and provide peri-care. Record the enema results in the Elimination record.









PREPARED ENEMAS

Policy

Requires a physician's order.
These are prepared at home. Refer to Policy & Procedure Manual for recipes.
Medication via the rectal route is avoided in the following circumstances:

- anorectal malformations
- diarrhea
- rectal bleeding, rectal fissures
- recent anorectal surgery
- paralytic Ileus
- Intestinal obstruction
- Post-operative gastro-intestinal surgery.

Objective

- To cleanse the lower bowel.
- To relieve constipation,
- To empty the rectum in preparation for investigation and for other procedures such as colonoscopy.

Procedures

1. Prepare the solution according to instructions written and give the amount prescribed.
2. Explain the procedure to the client.
3. Position client on left side.
4. Put on your non-sterile gloves.
5. Attach the rectal tube to the tubing of enema container
6. Lubricate the tip of the tube.
7. Insert the tube: (4" for an adult; 2"– 3" for child; 1" – 1 ¼" for an infant)
8. Hold the solution container slightly above bed level and slowly release the tubing clamp. Do not raise the container higher than:
   24" adult OR 6 – 8 " child or infant
   The higher the container is held the greater the pressure and the greater the chance that you could force colonic bacteria into the small intestine or rupture the colon.
9. If the flow stops the top of the catheter could be plugged with stool. Gently turn the catheter, if the tip remains clogged, withdraw the catheter, flush (in bathroom/toilet).
10. Reinsert and continue procedure.
11. Once solution absorbed, remove tube while gently holding the buttocks together.
12. Replace the brief.
13. Dispose of equipment. Wash hands thoroughly.
14. Inspect the enema returns. Provide peri-care. Wash your hands.
15. Record results on Elimination record.