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TEXTBOOK OF NURSING FOUNDATION-II

From Fundamentals to Excellence in Nursing Care

As per Revised INC syllabus for BSc Nursing

INCLUDES VIDEOS, OSCE AND MODULES



Semester-II

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CHAPTER 5

Elimination Needs

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LEARNING OBJECTIVES

After completing this chapter, the learner will be able to:

- Describe the anatomy and physiology of the urinary and bowel elimination systems.
- Explain the composition and characteristics of normal urine and feces.
- Identify the factors influencing urinary and bowel elimination.
- Discuss common alterations in elimination patterns and their nursing implications.
- Explain the principles of aseptic technique and infection control in elimination care.
- Describe various elimination procedures such as catheterization, enema, and colostomy care.
- Demonstrate a positive, nonjudgmental attitude toward patients with elimination problems.
- Value the importance of maintaining patient privacy, comfort, and dignity during elimination procedures.
- Show empathy and therapeutic communication when assisting clients with elimination needs.
- Appreciate the nurse's role in promoting healthy elimination habits and preventing complications.
- Perform urinary and bowel elimination procedures safely and effectively using standard protocols.
- Assist patients in using bedpans, urinals, and commodes while maintaining safety and comfort.
- Demonstrate correct techniques for catheterization, bladder irrigation, and enema administration.
- Provide care for patients with urinary diversions and colostomies, ensuring skin integrity and appliance management.
- Accurately measure, record, and report urine and fecal output as part of fluid balance assessment.

Chapter Outline

- Review of physiology of urine elimination
- Composition and characteristics of urine
- Factors influencing urination
- Alteration in urinary elimination
- Facilitating urine elimination—assessment, types, equipment, procedures and special considerations
- Providing urinal/bed pan
- Care of patients with condom drainage
- Care of patients with intermittent catheterization
- Care of patients with indwelling urinary catheter and urinary drainage
- Care of patients with urinary diversions
- Care of patients with bladder irrigation
- Review of physiology of bowel elimination
- Composition and characteristics of feces
- Factors affecting bowel elimination
- Alteration in bowel elimination
- Facilitating bowel elimination—assessment, equipment, procedure
  - Enemas
  - Suppository
  - Bowel wash
- Digital evacuation of impacted feces
- Care of patients with ostomies (bowel diversion procedures)
- Summary

REVIEW OF PHYSIOLOGY OF URINE ELIMINATION

Urine formation is the result of three key processes—(1) glomerular filtration, (2) tubular reabsorption, and (3) tubular secretion—occurring within the nephrons of the kidneys (see the structure of kidney at **Figure 5.1** and structure of nephrons at **Figure 5.2**). Initially, during glomerular filtration, water and solutes from blood plasma pass through the glomerular capillary walls into the glomerular capsule, forming a filtrate that enters the renal tubules. Next, through tubular reabsorption, approximately 99% of this filtered water and many valuable solutes are reabsorbed by the renal tubule cells

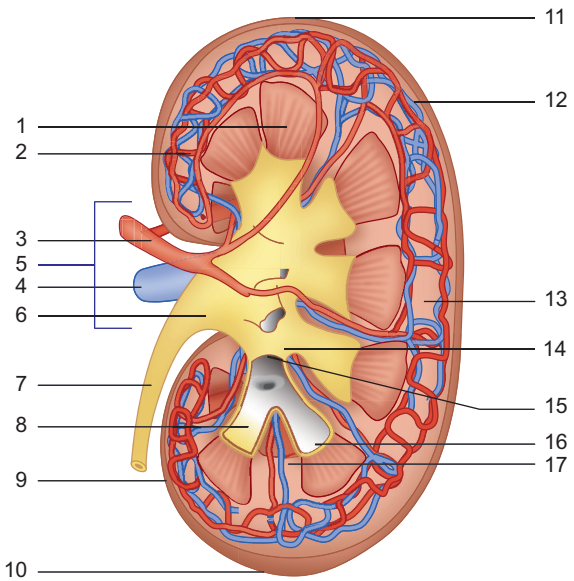

Fig. 5.1: Structures of the kidney.

(1. Renal pyramid; 2. Interlobular artery; 3. Renal artery; 4. Renal vein; 5. Renal hilum; 6. Renal pelvis; 7. Ureter; 8. Minor calyx; 9. Renal capsule; 10. Inferior extremity; 11. Superior extremity; 12. Interlobar vein; 13. Nephron; 14. Renal sinus; 15. Major calyx; 16. Renal papilla; 17. Renal column)

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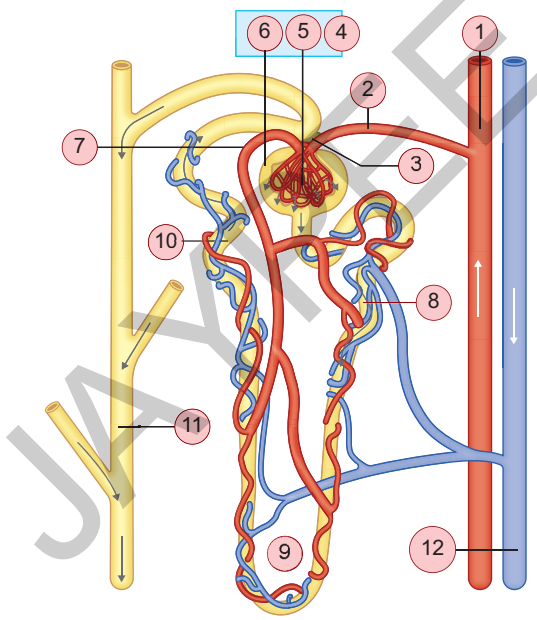

Fig. 5.2: Structure of nephron.

(Nephron: 1. Interlobular artery; 2. Afferent arteriole; 3. Juxtaglomerular apparatus; 4. Renal corpuscle; 5. Glomerulus; 6. Bowman's capsule; 7. Efferent arteriole; 8. Proximal convoluted tubule; 9. Loop of Henle; 10. Distal convoluted tubule; 11. Connecting tubule; 12. Interlobular vein)

and returned to the bloodstream via the peritubular capillaries and vasa recta. In contrast, tubular secretion involves the active transfer of additional substances like wastes, drugs, and excess ions from the blood into the tubular fluid. Ultimately, the remaining fluid, now classified as urine, flows into the calyces and renal pelvis for excretion. The overall urinary excretion rate of any solute is the result of its filtration rate plus secretion, minus reabsorption. Through these processes, the kidneys play a vital role in maintaining blood volume and composition, much like a recycling plant that sorts and processes materials for disposal or reuse. The structure of human kidney is depicted in **Figure 5.1**.

Review Points on Glomerular Filtration Rate (GFR)

- GFR is the volume of filtrate formed per minute by all renal corpuscles of both kidneys.
- Normal GFR: In males ~125 mL/min and in females ~105 mL/min.
- A stable GFR is essential for maintaining fluid and electrolyte balance.
- GFR is directly influenced by net filtration pressure. Reduction in glomerular blood hydrostatic pressure (e.g., due to blood loss) lowers GFR. Filtration stops if glomerular pressure drops to 45 mm Hg (equal to opposing pressures).
- GFR remains relatively constant between MAP of 80–180 mm Hg. Even with systemic blood pressure rises, GFR and net filtration pressure increase only minimally due to autoregulatory mechanisms.
- Mechanisms regulating GFR—it include renal autoregulation (adjusts afferent/efferent arteriole diameter), neural regulation (primarily through sympathetic nervous system) and hormonal regulation (via angiotensin II, atrial natriuretic peptide, etc).

COMPOSITION AND CHARACTERISTICS OF URINE

Table 5.1 summarizes the characteristics of urine, **Table 5.2** illustrates the composition of urine, and **Table 5.3** represents the average daily urine output across different age groups.

FACTORS INFLUENCING URINATION

Disease Conditions

- Diseases can affect urine production or the ability to pass urine.
- **Prerenal:** Reduced blood flow to kidneys (e.g., dehydration).
- **Renal:** Kidney tissue damage (e.g., glomerulonephritis).
- **Postrenal:** Blockage in the urinary tract (e.g., kidney stones).

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Table 5.1: Characteristic of urine.

Characteristic	*Normal findings*	*Special considerations*
Color	Pale yellow, straw-colored, or amber (varies with concentration)	Darker urine suggests concentration; lighter indicates dilution. Certain drugs (e.g., cascara, L-dopa) and foods (e.g., beets) can alter urine color
Odor	Aromatic when fresh	Stagnant urine develops ammonia odor due to bacterial activity. Foods like asparagus give a musty odor; glucose-rich urine smells sweet; infections cause a foul odor
Turbidity	Clear or translucent when fresh	Cloudiness in fresh urine is abnormal and may indicate presence of RBCs, WBCs, bacteria, sperm, vaginal discharge, or prostatic fluid
pH	Around 6.0 (range 4.6–8.0)	*Diet affects pH*: Protein and meats make it acidic; citrus fruits, dairy, and vegetables make it alkaline. Some drugs also influence urine pH
Specific gravity	1.015–1.025	Indicates urine concentration. High values suggest dehydration; low values suggest overhydration. Kidney disease can affect the accuracy of this indicator
Constituents	*Organic*: Urea, uric acid, creatinine, hippuric acid, indican, pigments	*Inorganic*: Ammonia, sodium, chloride, iron, phosphorus, sulfur, potassium, calcium *Abnormal*: Blood, pus, albumin, glucose, ketones, casts, bacteria, bile

Table 5.2: Composition of urine.

Substance	*Filtered (Enters glomerular capsule)*	*Reabsorbed (Returned to blood)*	*Secreted (To become urine)*
Water	180 liters	178–178.5 liters	1.5–2 liters
Proteins	2.0 g	1.9 g	0.1 g
Sodium ions (Na^+)	579 g	575 g	4 g
Chloride ions (Cl^-)	640 g	633.7 g	6.3 g
Bicarbonate ions (HCO_3^-)	275 g	274.97 g	0.03 g
Glucose	162 g	162 g	0 g
Urea	54 g	24 g	30 g†
Potassium ions (K^+)	29.6 g	29.6 g	2.0 g‡
Uric acid	8.5 g	7.7 g	0.8 g
Creatinine	1.6 g	0 g	1.6 g

†In addition to being filtered and reabsorbed, urea is secreted.
‡After virtually all filtered K^+ is reabsorbed in the convoluted tubules and nephron loop, a variable amount of K^+ is secreted by principal cells in the collecting duct.

Table 5.3: Average daily urinary output.

Age group	*Average daily urine output (mL)*
1–2 days	15–60
3–10 days	100–300
10 days–2 months	250–450
2 months–1 year	400–500
1–3 years	500–600
3–5 years	600–700
5–8 years	700–1,000
8–14 years	800–1,400
14 years through adulthood	1,500
Older adulthood	1,500 or less

- Nerve-related diseases (e.g., diabetes, multiple sclerosis) can reduce bladder control.
- Benign prostatic hyperplasia (BPH) in older men can cause retention.
- Cognitive impairments (e.g., Alzheimer's) can affect toilet habits.
- Mobility issues (e.g., arthritis, Parkinson's) may prevent reaching the toilet in time.

Sociocultural Factors

- Cultural beliefs affect privacy and toilet habits.
- Some cultures accept shared toilets, while others need privacy.
- Social schedules (like school or work breaks) may delay urination.

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Psychological Factors

- Stress and anxiety can increase urgency or make it hard to relax muscles needed for urination.
- Lack of privacy can prevent normal voiding.
- Nervousness may cause incomplete bladder emptying.

Fluid Balance

- Kidneys control water levels in the body.
- More fluid intake increases urine production.
- Less intake or high fluid loss (sweating, vomiting) reduces urine output.
- Caffeine (in coffee, tea, cola) increases urination.
- Alcohol reduces ADH hormone, increasing urine.
- Fever reduces urine amount but makes it more concentrated.

Surgical Procedures

- Surgery stress increases ADH and aldosterone, reducing urine output.
- Anesthesia slows kidney function and affects bladder control.
- Surgery in the lower abdomen or pelvis may cause trauma and temporary urinary problems.
- Catheters are often used post-surgery.

Medications

- **Some medicines affect urination:**
  - *Urinary retention:* Antipsychotics, antidepressants, calcium channel blockers.
  - *Incontinence:* Diuretics, sedatives, opioids, ACE inhibitors.
  - *Urgency:* Antiparkinson drugs.
- **Some medicines change urine color:**
  - *Orange:* Phenazopyridine.
  - *Blue/Green:* Amitriptyline.
  - *Brown/Black:* Levodopa.
- Chemotherapy drugs can be toxic to the kidneys.

Diagnostic Examinations

- Tests like IVP require reduced fluid intake leads to lower urine output.
- Cystoscopy can cause swelling and temporary difficulty in urination.
- Blood in urine after such procedures is often due to mild trauma.

ALTERATION IN URINARY ELIMINATION

Even when the kidneys produce urine normally, certain conditions can affect how urine is passed from the body. Problems like needing to urinate often, waking up at night to urinate, feeling a sudden strong urge to urinate, or pain while urinating are usually signs of an issue like a urinary tract infection (UTI). Other issues such as bedwetting (enuresis), accidental urine leakage (incontinence), trouble emptying the bladder (retention), or problems caused by nerve damage (neurogenic bladder) can either be symptoms or the main cause of difficulty with urination. Some common alterations in urination patterns are listed below.

Urgency

Urgency is the sudden, intense feeling that one must urinate immediately. It can be uncomfortable and difficult to delay. This often occurs due to a full bladder, bladder irritation or infection (like in UTIs), overactive bladder muscles, or emotional stress.

Dysuria

Dysuria refers to painful or difficult urination. It may feel like a burning or stinging sensation while passing urine. Common causes include bladder inflammation, urinary tract infections, or trauma to the urinary passages.

Frequency

This is when a person feels the need to urinate more often than usual, typically less than two-hour intervals. It can happen due to increased fluid intake, bladder infections, pressure from pregnancy, or as a side effect of diuretic medications.

Hesitancy

Hesitancy is the difficulty in starting the flow of urine even when the bladder feels full. It is often seen in men with enlarged prostate glands, or in individuals who are anxious or have swelling of the urethra.

Polyuria

Polyuria means passing unusually large amounts of urine in a day. This can occur due to drinking too much fluid, uncontrolled diabetes, certain medications like diuretics, or after relief from urinary blockage.

Oliguria

Oliguria is reduced urine output, usually less than 400 mL in 24 hours. It may be caused by dehydration, kidney problems, urinary tract infections, heart failure, or increased antidiuretic hormone (ADH) in the body.

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Nocturia

This condition causes a person to wake up one or more times during the night to urinate. It can result from drinking excessive fluids before bed, especially alcohol or caffeine, or may be related to kidney disorders, aging, or prostate enlargement.

Dribbling

Dribbling is the leakage of small amounts of urine even after urinating. It is commonly seen in conditions like overflow incontinence or in men with benign prostatic hyperplasia (BPH), where the bladder is unable to empty fully.

Incontinence

Incontinence means the loss of bladder control, leading to unintentional leakage of urine. It can result from weak pelvic floor muscles, nerve damage, overactive bladder, constipation, or age-related changes. The types of urinary incontinence is illustrated in **Table 5.4**.

Hematuria

Hematuria is the presence of blood in urine, which may give it a pink, red, or cola color. It can be caused by urinary tract infections, kidney stones, tumors, injuries, or disorders that affect blood clotting.

Retention

Urinary retention occurs when the bladder is unable to empty fully, leading to the accumulation of urine and overdistension. This overfilling reduces the contractile strength of the detrusor muscle, making it even harder to void. Common causes include prostatic enlargement, surgical procedures, and certain medications. Acute retention is particularly common within the first few hours after surgery. Chronic cases may result from neurological conditions such as paraplegia, quadriplegia, multiple sclerosis, or trauma to the urethra or perineum. Affected individuals may present with overflow incontinence, releasing small amounts of urine (25–50 mL) frequently. On physical examination, the bladder may feel firm, distended, and shifted from the midline.

Residual Urine

This refers to the urine that remains in the bladder after a person has tried to void, usually more than 100 mL. Causes include bladder infections, prostate problems, nerve issues, or structural damage to the urinary system.

Enuresis

Enuresis is involuntary urination in children beyond the age when voluntary bladder control is normally acquired, usually 4 or 5 years of age. Nocturnal enuresis often is irregular in occurrence and affects boys more often than girls. Diurnal (daytime) enuresis may be persistent and pathologic in origin. It affects women and girls more frequently.

FACILITATING URINE ELIMINATION

Components of Urinary Function Assessment

Nursing History

- Determine voiding patterns, frequency, appearance (e.g. Pale yellow, straw-colored, or amber), and recent changes.
- Ask about past or current urinary problems, presence of a stoma, and factors influencing elimination.

Table 5.4: Types of urinary incontinence.

Type of incontinence	*Description*	*Causes/Associated factors*	*Key features*
Stress urinary incontinence (SUI)	Involuntary leakage of urine during physical activities that increase abdominal pressure (e.g., coughing, sneezing, laughing)	Weak pelvic floor muscles, urethral hypermobility, childbirth trauma, menopause, post-prostate surgery (in men)	Leakage occurs with physical exertion; not related to emotional stress
Urge urinary incontinence (UUI)	Sudden, strong urge to urinate followed by involuntary urine loss	Overactive bladder, bladder irritants, neurological conditions	Urine leakage ranges from a few drops to full soaking; urgency is the hallmark symptom
Mixed urinary incontinence	Combination of both stress and urge incontinence symptoms	Common in middle-aged and older women; often due to combined pelvic floor weakness and bladder overactivity	Symptoms of both SUI and UUI; treatment depends on which symptom is more bothersome
Overflow incontinence	Continuous or frequent dribbling due to an overfilled bladder that cannot empty properly	Enlarged prostate (in men), neurogenic bladder, spinal cord injury, multiple sclerosis, diabetes	Bladder remains full; incomplete emptying; may not feel bladder fullness; frequent dribbling

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Physical Assessment

- Percuss kidneys and bladder for tenderness or distention.
- Inspect urethral meatus for swelling, discharge, or inflammation.
- Assess skin for hydration (color, turgor, edema) and signs of irritation if incontinence or dysuria is present.

Urine Assessment

- Urine is composed of 96% water and 4% solutes (urea, ammonia, sodium, chloride, etc.).
- Assess urine color, clarity, and odor, and document any abnormalities, because changes in these characteristics may indicate underlying health problems. For example, dark amber, highly concentrated urine with a strong odor may suggest dehydration, whereas cloudy urine with a foul smell can be associated with urinary tract infection.

Potential Related Nursing Diagnoses

- Risk for infection related to urinary retention or indwelling urinary catheter.
- Risk for low self-esteem related to embarrassment about urinary incontinence.
- Risk for impaired skin integrity related to prolonged contact of skin with urine.
- Toileting self-care deficit related to functional limitations affecting ability to reach or use the toilet.
- Risk for deficient or excess fluid volume related to impaired urinary elimination.
- Disturbed body image related to presence of a urinary diversion (such as a urostomy stoma).
- Deficient knowledge related to self-care and management of urinary devices (e.g., catheter, urostomy pouch).
- Risk for caregiver role strain related to prolonged caregiving demands for a person with chronic incontinence.
- Risk for social isolation related to avoidance of public or social situations because of incontinence.

Maintaining Normal Urinary Elimination

Promoting Fluid Intake

- **Encourages urine production:** Drinking enough fluids increases urine output, which helps flush bacteria from the urinary tract and dilute minerals that can form stones. For example, a client who drinks water regularly through the day is less likely to develop recurrent urinary tract infections or kidney stones than a client who only drinks a few glasses daily.
- **Recommended amount:** Many adults can aim for about 1,500–2,000 mL of fluid per day, unless otherwise instructed, which is roughly 6–8 glasses; clients with a history of urinary tract infection or kidney stones may be advised to increase this to around 2,000–3,000 mL/day if they have no cardiac or renal contraindications. For instance, a patient with past renal calculi may be encouraged to keep a water bottle and sip frequently so that their urine stays pale yellow and they void every 2–4 hours.
- **Caution in fluid restrictions:** Some clients, such as those with heart failure, advanced kidney disease, or on dialysis, may need strict fluid limits despite urinary problems. For example, a patient with congestive heart failure and edema might be restricted to 1,000–1,200 mL/day, so the nurse teaches them to spread this allowance throughout the day, record intake carefully, and avoid "extra" fluids even if they feel thirsty.

Maintaining Normal Voiding Habits

- **Preserve routine patterns:** Support patients in following their usual voiding times, typically after meals.
- **Avoid interference:** Avoid planning care activities during the patient's typical voiding time to prevent constipation.

Assisting with Toileting

- **Support weakened patients:** Help them safely reach the toilet or provide urinal/bedpan if immobile.
- **Fall prevention:** Stay with at-risk patients and ensure a call bell and handrails are available.

Preventing Urinary Tract Infections (UTIs)

- **Hydration:** Encourage eight 8-ounce glasses of water per day.
- **Frequent voiding:** Urinate every 2–4 hours and after intercourse.
- **Avoid irritants:** Harsh soaps, bubble baths, and powders in the perineal area.
- **Hygiene practices:** Wipe front to back, wear cotton underwear, and avoid tight clothing.
- **Prefer showers:** Over baths, especially for those with recurrent UTIs.

Managing Urinary Incontinence (UI)

- **Not a normal part of aging:** UI is often treatable and should be assessed during routine care.

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- Continence training (bladder retraining, habit training)
- Pelvic floor exercises (Kegel)
- Skin care and barrier ointments
- Condom catheters for males

Continence (Bladder) Retraining

- **Bladder retraining:** Delay voiding, suppress urgency, and void on a schedule to improve control.
- **Habit training:** Scheduled toileting every 2–4 hours, useful for elderly and cognitively impaired clients.

Pelvic Floor Muscle (PFM) Exercises

- **Strengthen pelvic floor:** Regular PFM (Pelvic Floor Muscle) exercises strengthen the muscles supporting the bladder and urethra, reducing episodes of urinary incontinence through a combination of quick (about 2-second) and slow (up to 10-second) contractions.

PFM (Kegel) exercise steps

1. **Identify the correct muscle:** Ask the client to imagine stopping the flow of urine or preventing passage of gas; the muscles that "lift and squeeze" inside the pelvis are the pelvic floor muscles. They should not feel the thighs or buttocks tighten
2. **Starting position:** Begin lying on the back with knees bent and feet flat, which makes the exercise easier in weak patients; later progress to sitting and standing once control improves
3. **Slow contractions (endurance):**
   - Gently tighten and lift the pelvic floor
   - Hold for up to 5–10 seconds (or as long as tolerated without holding the breath)
   - Relax completely for 5–10 seconds before the next contraction
   - Aim for about 8–12 slow contractions per session, 3 sessions per day
4. **Quick contractions (for stress leaks):**
   - Tighten and lift the pelvic floor quickly for about 1–2 seconds, then relax fully
   - Repeat 8–10 times in a row, 3 times per day
   - Teach the client to "squeeze before you sneeze"—perform a quick contraction just before coughing, laughing, or lifting

Key teaching points:

- Breathe normally; do not hold the breath or bear down
- Stop if there is pain; over-exercising can cause muscle fatigue
- Consistency is essential; benefits usually appear after several weeks of daily practice

- **Instruction:** The client is taught to tighten only the pelvic floor (as if trying to stop urine or gas) while avoiding contraction of the thighs, buttocks, or abdominal muscles; exercises can be practiced in lying, sitting, or standing positions and done discreetly at almost any time.

Maintaining Skin Integrity

- **Prevent maceration and breakdown:** Clean perineal skin gently after each episode of incontinence.
- **Use absorbent products:** Moisture-wicking and non-stick incontinence pads and drawsheets help protect skin.

Applying External Urinary Drainage Devices

- **For males with UI:** Use condom catheters to reduce UTI risk compared to indwelling catheters.
- **Individualize use:** Based on timing and frequency of incontinence.

Managing Urinary Retention

- **Bladder stimulation:** Use medications like bethanechol chloride or apply Credé's maneuver (with a provider's order).
- **Last resort:** Intermittent or indwelling catheterization if voiding cannot be restored naturally.

URINARY CATHETER TYPES

- **Straight catheter:** For immediate drainage.
- **Retention (Foley) catheter:** Double lumen; one for drainage, one for balloon inflation.
- **Coudé catheter:** Curved tip for men with enlarged prostate.
- **Three-way catheter:** Used for continuous bladder irrigation.
- **Materials and sizing:** Made of latex, silicone, or PVC; measured in French (Fr) units.

Figure 5.3 for picture of different types of urinary catheters and detailed description of each type of urinary catheter is described in **Table 5.5**.

PROVIDING AND REMOVING URINAL/BED PAN (FIG. 5.4)

Clinical Scenario

Mrs A, a 70-year-old patient recovering from a total knee replacement, is on bed rest and unable to ambulate to the toilet. The nurse assists her with a bedpan to promote elimination while maintaining privacy, comfort, and dignity.

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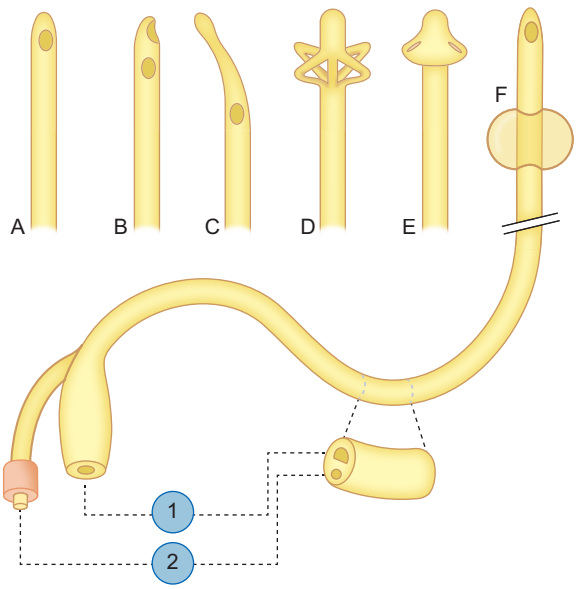

Fig. 5. 3: Type of urinary catheters.

[A. Simple urethral catheter; B. Open-ended (whistle-tip) catheter; C. Coude catheter (Tiemann) catheter; D. Wing-tip (Malecot) catheter; E. Mushroom (de Pezzer) catheter; F. Foley catheter; 1. Urine drainage; 2. Balloon inflation]

Source: Michal Komorniczak (CC BY-SA 4.0).

List of Articles/Equipment Required

Refer to **Table 5.6**.

Purpose

To assist a patient who is unable to ambulate or use the toilet independently in safely eliminating urine or feces while maintaining privacy, comfort, and hygiene. Refer to

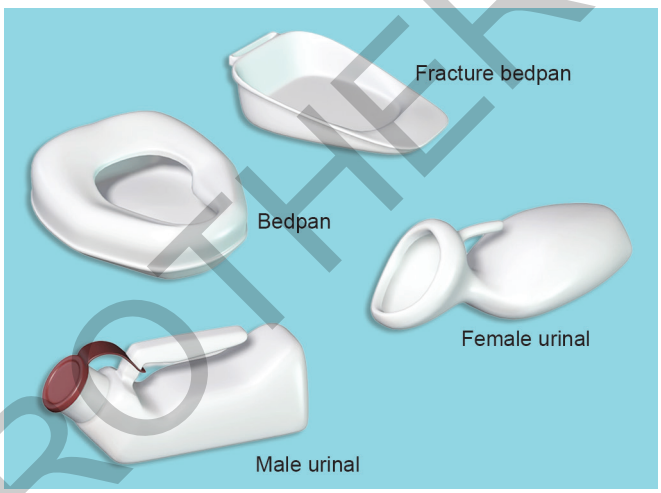

Fig. 5. 4: Bedpan and urinal.

Table 5.5: Types of urinary catheters.

Type of catheter	*Description/Key features*	*Indications/Uses*	*Additional notes*
Straight catheter (Intermittent catheter)	❑ Single-use catheter with one lumen ❑ No balloon	❑ Immediate bladder emptying ❑ Collecting sterile urine specimen ❑ Managing short-term urinary retention	❑ Inserted and removed immediately after drainage ❑ Reduces risk of infection compared to indwelling catheters
Retention catheter (Foley catheter)	❑ Indwelling catheter with **two lumens**: One for urine drainage, one for balloon inflation ❑ Balloon usually 5–30 mL	❑ Long-term or continuous drainage ❑ Postoperative urinary retention ❑ Accurate urinary output monitoring	❑ Requires securement and routine perineal care ❑ Available in latex, silicone, or PVC
Coudé catheter	❑ Special type of Foley with **curved/angled tip** ❑ Designed to navigate around obstructions	❑ Men with **enlarged prostate (BPH)** ❑ Difficulty inserting straight Foley due to urethral stricture	❑ Tapered tip reduces trauma ❑ Should be inserted by trained personnel
Three-way catheter (Triple lumen catheter)	Foley-type catheter with **three lumens**: Drainage, balloon inflation, and irrigation.	❑ **Continuous bladder irrigation (CBI)**, especially after TURP or bladder surgery ❑ Managing hematuria to prevent clot retention	❑ Allows simultaneous inflow and outflow of irrigation fluid ❑ Larger sizes often used (20–24 Fr)
Materials and sizing	❑ Materials: **Latex**, **silicone**, **PVC** ❑ Size measured in **French (Fr)**; 1 Fr = 0.33 mm diameter	❑ **Choose size based on patient need:** • Adults: **14–18 Fr** • Children: **6–10 Fr** • Larger sizes (20–24 Fr) for irrigation	❑ Silicone preferred for long-term use or latex allergy ❑ Larger diameter increases drainage but may increase discomfort

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Table 5.6: List of articles/equipment required for providing bed pan with rationale.

Articles/Equipment required	*Purpose/Use*
Bedpan	To collect urine or feces from patients confined to bed
Mackintosh or waterproof sheet	To protect the bed linen from soiling
Drawsheet or linen protector	Provides comfort and absorbs moisture
Gloves (Clean)	Protects the nurse from contamination and maintains hygiene
Toilet tissue or disposable wipes	For perineal cleansing after elimination
Warm water in a jug	For cleaning and comfort, especially after use
Soap or cleansing solution	For maintaining perineal hygiene
Towel	For drying the perineal area and hands
Measuring container (if required)	For measuring urine or stool output
Apron	To protect the nurse's uniform from contamination
Waste disposal bag or bucket	For safe disposal of soiled wipes and tissues
Hand sanitizer	For infection control after glove removal
Clean linen (if needed)	To replace soiled sheets and maintain comfort

Table 5.7 for the detail steps of the procedure for providing bed pan.

Common Mistakes

- Failing to explain the procedure to the patient before beginning, leading to anxiety and non-cooperation.
- Not ensuring adequate privacy by using screens or curtains during elimination care.
- Incorrect positioning of the bedpan, which may cause discomfort or spillage.
- Forgetting to provide toilet tissue or wipes, compromising the patient's hygiene and dignity.
- Not checking for urine or stool characteristics before disposal, missing important clinical observations.
- Neglecting to perform hand hygiene before and after the procedure, increasing the risk of cross-infection.

Measuring Urine Output from a Bedpan or Urinal

Clinical Scenario

Mr R, a 62-year-old patient admitted with congestive heart failure, has a Foley catheter removed and is now passing urine using a urinal. The nurse measures and records his urine output accurately to monitor fluid balance and kidney function.

Purpose

To accurately measure and record urine output for assessing a patient's fluid balance and kidney function, and to identify any abnormalities in urine characteristics. The steps of *measuring urine output from a bedpan or urinal* **(Table 5.8)**.

Common Mistakes and How to Avoid Them?

- Not explaining the purpose of measuring urine output to the patient, which may lead to confusion or lack of cooperation.
- Failing to wear gloves while handling urine, increasing the risk of contamination and infection.
- Pouring urine into the measuring container too quickly, leading to spillage or inaccurate measurement.
- Reading the urine level at an incorrect angle rather than at **eye level**, resulting in inaccurate output recording.
- Neglecting to observe and document urine color, clarity, and odor—missing vital clinical information.
- Forgetting to rinse and clean the measuring container and bedpan after use, compromising hygiene for future use.

CARE OF PATIENTS WITH CONDOM DRAINAGE

Applying a Condom Catheter

Clinical Scenario

Mr R, a 65-year-old post-stroke patient with limited mobility, experiences urinary incontinence but has intact bladder function. The nurse applies a condom catheter to maintain hygiene, protect skin integrity, and promote comfort without using an indwelling catheter.

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Table 5.7: Steps of providing and removing urinal/bed pan procedure with rationale.

Step	*Intervention*	*Rationale*
1	Perform hand hygiene and gather all necessary supplies (bedpan, gloves, wipes, linen protector, tissue, and bed sheet)	Reduces infection risk and ensures efficiency during the procedure
2	Explain the procedure to the patient and ensure privacy by closing curtains or the door	Promotes cooperation and preserves patient dignity
3	Raise the bed to a comfortable working height and lower the head of the bed	Prevents back strain and allows for proper positioning of the patient
4	Raise the opposite side rail for safety	Prevents accidental falls during the procedure
5	Drape the patient appropriately, keeping only the perineal area exposed	Maintains patient comfort and modesty
6	Don clean gloves	Protects against contamination and body fluid exposure
7	Place a linen protector or drawsheet under the patient's buttocks	Protects bedding from soiling and maintains cleanliness
8	Warm a metal bedpan under running warm water if required and dry it thoroughly (not desirable if a plastic bedpan used)	Enhances patient comfort and prevents chilling
9	Assist the patient into a supine or semi-Fowler's position with knees flexed if able to move independently	Facilitates placement of the bedpan and promotes comfort during elimination
10	Instruct the patient to lift the hips; if unable, assist by supporting the lower back and sliding the bedpan under the buttocks with the rounded edge toward the back (for a regular bedpan) or toward the front (for a fracture pan)	Ensures correct placement and prevents spillage or injury
11	If the patient cannot move or lift hips, assist by turning them gently to a side-lying position, place the bedpan against the buttocks, and roll them back onto it carefully	Reduces strain and ensures proper positioning of the bedpan
12	Raise the head of the bed to a sitting or semi-Fowler's position	Promotes normal elimination and comfort
13	Place a towel or small pillow under the sacrum if necessary	Prevents pressure and improves comfort during use
14	Ensure the call bell, tissue, and wipes are within reach; instruct the patient to call when finished	Promotes independence and safety
15	Leave the patient covered and ensure privacy during elimination	Maintains dignity and reduces embarrassment
16	Return after the patient has completed elimination. Lower the head of the bed and carefully remove the bedpan while supporting the patient's back or hips	Prevents spillage and provides comfort
17	Clean the perineal area with disposable wipes or tissue and allow to air dry	Maintains hygiene and prevents skin irritation
18	Empty the contents of the bedpan into the toilet and rinse according to institutional policy	Prevents cross-contamination and maintains cleanliness
19	Observe the urine or stool for color, odor, and consistency, and record any abnormalities	Provides important data for assessing elimination status
20	Clean and store the bedpan appropriately	Keeps equipment ready for next use and prevents infection spread
21	Remove gloves and perform hand hygiene	Ensures infection control and safety
22	Reposition the patient comfortably, adjust linens, and ensure safety measures such as side rails and call bell	Promotes comfort and reduces risk of falls
23	Document the procedure, including time, type of elimination, amount, and any unusual findings	Maintains accurate records for continuity of care

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Table 5.8: Steps of measuring urine output from a bedpan or urinal with rationale.

Step	*Intervention*	*Rationale*
1	Perform hand hygiene and wear clean procedure gloves	Prevents transmission of microorganisms
2	Place the bedpan or urinal in the appropriate position	Prepares for urine collection
3	Carefully remove the bedpan or urinal after urination without spilling; reposition the patient	Ensures comfort and safety
4	Pour urine into a graduated/calibrated measuring container while still wearing gloves	Allows accurate measurement
5	Ensure measuring device is labelled correctly and not reused between patients	Maintains patient identity and avoids cross-contamination
6	Place container on a flat surface and read amount at eye level	Ensures correct reading by avoiding parallax error
7	Observe urine for color, clarity, and odor	Provides clinical information about patient condition
8	Discard urine into the toilet (or save 30–60 mL for specimen, if needed)	Proper disposal or specimen collection
9	Clean the measuring container and store it appropriately	Maintains hygiene and readiness for next use
10	Remove gloves, perform hand hygiene, and document time and volume in the I&O chart	Completes procedure and maintains accurate records

Table 5.9: List of articles required for applying a condom catheter with rationale.

Articles/Equipment required	*Purpose/Use*
Condom catheter (appropriate size) **(Fig. 5.5)**	To collect urine externally without invasive catheterization
Adhesive strip or securing tape (if not pre-attached)	To secure the condom catheter to the penis and prevent dislodgement
Urine drainage bag with tubing	To collect and store urine from the catheter
Gloves (nonsterile, preferably latex-free)	To maintain hygiene and prevent contact with body fluids
Scissors (if trimming hair is required)	To remove excess pubic hair for better adhesion of the condom
Basin with warm water and mild soap	To clean the penis and perineal area before applying the catheter
Washcloth or gauze pieces	For cleansing and drying the genital area
Towel	To protect bedding and keep the area dry during cleaning
Waterproof pad or mackintosh	To protect the bed linen from accidental spillage
Skin barrier film or protective ointment	To prevent irritation or damage to the skin from adhesives and moisture
Waste disposal bag	For safe disposal of used materials and waste
Apron	To protect the nurse's uniform from contamination
Measuring container (if urine output monitoring is required)	To measure urine output accurately for fluid balance recording
Hand sanitizer	For hand hygiene after glove removal
Documentation sheet or I&O chart	To record the procedure details, urine output, and skin condition

List of Articles Required for Applying a Condom Catheter

Refer to **Table 5.9**.

Purpose

To provide a safe, noninvasive method of urinary drainage for male patients with urinary incontinence while maintaining skin integrity, preventing infection, and promoting comfort. See **Table 5.10** for the steps of the procedure *applying a condom catheter with rationale.*

Common Mistakes and How to Avoid Them?

- Selecting the wrong catheter size, which may lead to leakage, discomfort, or constriction of blood flow.

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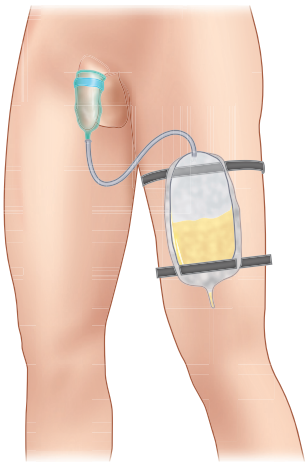

Fig. 5.5: Condom catheter with drainage bag.

- Failing to clean and dry the penis thoroughly before application, causing poor adhesion and risk of skin irritation.
- Wrapping the adhesive tape too tightly around the penis, restricting circulation and causing tissue damage.
- Not leaving space between the penis tip and the condom catheter tip, leading to backflow of urine and skin maceration.
- Attaching the drainage bag above bladder level, which may cause urine backflow and infection.
- Forgetting to inspect the skin daily or replace the condom catheter every 24 hours, increasing the risk of skin breakdown or infection.

Table 5.10: Steps of the procedure for applying a condom catheter with rationale.

Step	*Intervention*	*Rationale*
1	Wash hands/perform hand hygiene	Reduces transmission of microorganisms
2	Ensure privacy by closing door and pulling bed curtains	Provides privacy and comfort
3	Position client supine; raise bed to a comfortable height	Facilitates access and promotes body mechanics
4	Apply latex-free gloves	Prevents cross-contamination
5	Fold gown over abdomen and pull sheet over legs	Minimizes exposure and embarrassment
6	Assess penis for redness, irritation, or skin breakdown	Provides baseline data and checks for catheter contraindications
7	Clean penis with warm soapy water; retract foreskin (if uncircumcised)	Removes contaminants and reduces infection risk
8	Return foreskin to normal position	Prevents swelling or constriction
9	Shave excess hair if required by policy	Prevents discomfort during adhesive removal
10	Rinse and dry the cleaned area	Moisture encourages microorganism growth
11	Apply skin prep solution (if using condom kit); wait if erection present	Protects skin and allows erection to subside
12	Apply double-sided adhesive strip in a spiral fashion, 1 inch from penis base	Prevents circulation compromise and promotes adhesion
13	Position rolled condom at distal penis and unroll over penis and adhesive strip; leave 1–2 inch tip space	Prevents pressure and erosion at tip
14	Press condom gently to adhesive strip	Ensures secure attachment
15	Attach drainage tubing and position over leg; secure bag below bladder level	Promotes drainage and prevents backflow and skin irritation
16	Check that tubing and condom are not twisted	Ensures unobstructed urine flow and catheter retention
17	Cover the client	Maintains privacy
18	Dispose of used materials appropriately and perform hand hygiene	Reduces microorganism transmission
19	Lower bed and reposition client comfortably	Prevents falls and ensures comfort
20	Empty bag, measure urine output every 4 hours; remove gloves and wash hands	Monitors output and maintain hygiene
21	Remove condom catheter daily for skin care and integrity check	Promotes hygiene and prevents skin breakdown

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CARE OF PATIENTS WITH INTERMITTENT CATHETERIZATION

Intermittent Urinary Catheterization (Male Client)

Clinical Scenario

Mr V, a 58-year-old patient admitted with spinal cord injury, is unable to empty his bladder naturally. The nurse performs intermittent urinary catheterization at regular intervals to relieve urinary retention and prevent bladder distension.

List of Articles Required for Intermittent Urinary Catheterization (Male Client)

Refer to **Table 5.11**.

Purpose

To empty the bladder at regular intervals in male patients who cannot void naturally, relieve urinary retention, collect a sterile urine specimen, or obtain residual urine for diagnostic purposes while minimizing infection risk. **Table 5.12** illustrates the steps of the procedure

Table 5.11: List of articles required for intermittent urinary catheterization (male client).

Articles/Equipment required	*Purpose/Use*
Sterile urinary catheter (appropriate size, usually 12–16 Fr)	For intermittent bladder drainage
Sterile catheterization kit or tray	Contains sterile equipment needed for catheterization
Sterile gloves	To maintain aseptic technique during the procedure
Clean gloves	For preliminary cleaning of the genital area before sterile procedure
Antiseptic solution (povidone-iodine or chlorhexidine)	For cleaning the urethral meatus to reduce infection risk
Sterile drape or under pad	To maintain sterile field and protect bedding
Sterile cotton balls or gauze swabs	To apply antiseptic solution to the urethral area
Sterile lubricant or anesthetic jelly	To lubricate the catheter tip and reduce urethral trauma
Sterile syringe (if anesthetic gel is used)	To instil anesthetic lubricant into the urethra
Sterile specimen container (if urine sample required)	For collecting midstream urine for diagnostic testing
Kidney tray or sterile bowl	To collect urine during catheterization
Waterproof pad or mackintosh	To protect the bed linen from spillage
Waste disposal bag or container	For proper disposal of soiled items and waste
Apron	To protect the nurse's uniform from contamination
Measuring container	To measure urine output if needed
Hand sanitizer or soap and water	For hand hygiene before and after the procedure
Documentation sheet or I&O chart	To record time, amount, color, and characteristics of urine

Table 5.12: Steps of intermittent urinary catheterization procedure (male client) with rationale.

Step	*Intervention*	*Rationale*
1	Verify the physician's order and patient's identity using two identifiers	Ensures correct procedure is performed for the right patient
2	Explain the procedure to the patient and provide privacy by closing curtains or the door	Reduces anxiety and promotes cooperation
3	Perform hand hygiene and assemble the required equipment (sterile catheterization kit, lubricant, antiseptic solution, sterile gloves, and collection container)	Maintains aseptic technique and procedural efficiency
4	Raise the bed to a comfortable height and lower the side rail on the working side	Promotes body mechanics and accessibility

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Step	*Intervention*	*Rationale*
5	Position the patient supine with legs straight and slightly apart	Facilitates exposure of the genital area and catheter insertion
6	Drape the upper body and expose only the genital area	Maintains privacy and prevents unnecessary exposure
7	Don clean gloves and wash the penis and perineal area with mild soap and water; rinse and dry	Removes surface microorganisms and reduces infection risk
8	Remove gloves, perform hand hygiene again, and don sterile gloves	Maintains asepsis during catheter insertion
9	Arrange sterile equipment on the sterile field; place sterile under pad under the penis with the shiny side down	Protects the bed and maintains a sterile work area
10	Pour antiseptic solution over sterile cotton balls or prepare antiseptic swabs	Ensures readiness for cleansing of the urethral meatus
11	Lubricate the distal 5–7 inches of the catheter generously	Reduces friction and urethral trauma during insertion
12	Hold the penis perpendicular (90° angle) to the body with the nondominant hand, which is now considered contaminated	Straightens the urethra and allows easier insertion of the catheter
13	Using sterile forceps with the dominant hand, clean the urethral meatus in a circular motion from the center outward three times with new cotton balls each time	Minimizes risk of introducing microorganisms into the urethra
14	Hold the sterile catheter 2–3 inches from the tip and place the other end into the sterile collection tray	Prepares for smooth, controlled insertion while maintaining sterility
15	Ask the patient to take a deep breath and bear down as if to void; insert the catheter slowly and gently about 7–9 inches until urine flows	Relaxes the external sphincter and allows catheter advancement into the bladder
16	Advance the catheter 1–2 inches further once urine appears	Ensures the catheter tip is completely within the bladder for proper drainage
17	Allow urine to drain fully into the sterile collection tray or container	Promotes complete bladder emptying and prevents retention
18	If collecting a urine specimen, collect 30–60 mL in a sterile container midstream	Ensures accurate specimen collection for diagnostic testing
19	When drainage ceases, pinch the catheter and withdraw it slowly and steadily	Prevents mucosal injury and discomfort
20	Clean the perineal area with tissue or antiseptic wipes and reposition the patient comfortably	Maintains hygiene and comfort after the procedure
21	Dispose of the catheter and supplies in appropriate biohazard containers	Ensures infection control and environmental safety
22	Remove gloves and perform hand hygiene	Prevents cross-contamination and maintains nurse safety
23	Document the procedure, including the time, catheter size, amount, color, and characteristics of urine, and any patient discomfort	Provides a legal record and aids in ongoing patient assessment

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of intermittent catheterization of a male client with rationale.

Common Mistakes and How to Avoid Them?

- Failing to maintain a sterile field during catheter insertion, increasing the risk of introducing infection.
- Inserting the catheter without sufficient lubrication, causing urethral trauma and patient discomfort.
- Not advancing the catheter far enough after urine flow begins, leading to incomplete drainage or accidental removal.
- Inflating the balloon (if mistakenly used) in the urethra instead of the bladder, causing severe pain and injury.

- ❖ Forgetting to observe urine color, clarity, and amount, which are important for assessing kidney and bladder function.
- ❖ Neglecting to document the time, amount of urine drained, and patient's tolerance of the procedure.

CARE OF PATIENTS WITH INDWELLING URINARY CATHETER AND URINARY DRAINAGE

Highlights on CAUTI from the 2025 NPSGs

Goal 7: Reduce the risk of healthcare-associated infections, including CAUTIs, through evidence-based practices.

- ❑ Implement evidence-based practices to prevent indwelling catheter-associated urinary tract infections (CAUTI)
- ❑ Insert indwelling urinary catheters according to established evidence-based guidelines
- ❑ Manage indwelling urinary catheters according to established evidence-based guidelines
- ❑ Measure and monitor catheter-associated urinary tract infection prevention processes and outcomes in high-volume areas

Inserting an Indwelling Catheter: Male

Clinical Scenario

Mr R, a 68-year-old patient admitted with benign prostatic hyperplasia, presents with acute urinary retention and severe lower abdominal discomfort. The nurse performs a sterile indwelling urinary catheterization to relieve obstruction and monitor urine output.

List of Articles Required for Inserting an Indwelling Catheter (Male)

Refer to **Table 5.13**.

Purpose

To provide continuous drainage of urine from the bladder in male patients who are unable to void spontaneously, to relieve urinary retention, monitor urine output, or facilitate bladder irrigation while maintaining aseptic technique and patient comfort. **Table 5.14** depicts the steps of the procedure for insertion of an indwelling catheter (male) with rationale.

Table 5.13: List of articles required for inserting an indwelling catheter (male).

Articles/Equipment required	*Purpose/Use*
Sterile indwelling (Foley) catheter (appropriate size, usually 14–18 Fr)	To provide continuous drainage of urine from the bladder
Catheterization tray or sterile catheterization kit	Contains sterile items for the procedure (drapes, forceps, swabs, etc.)
Sterile gloves	To maintain aseptic technique during catheter insertion
Clean gloves	For preliminary cleaning of the perineal area
Antiseptic solution (povidone-iodine or chlorhexidine)	For cleaning the glans penis and urethral meatus to reduce infection risk
Sterile drape and fenestrated drape	To create a sterile field and expose only the genital area
Sterile cotton balls or gauze swabs	For applying antiseptic to the urethral meatus
Sterile lubricant or anesthetic gel (lidocaine jelly)	To lubricate the catheter and reduce urethral trauma and discomfort
Prefilled sterile syringe with distilled water (10 mL)	To inflate the retention balloon of the Foley catheter
Sterile specimen container (if urine sample required)	For collecting a sterile urine specimen for diagnostic testing
Sterile bowl or kidney tray	To collect initial urine flow and prevent spillage
Waterproof pad or mackintosh	To protect bedding from contamination or spillage
Sterile drainage bag with tubing	To collect and store drained urine from the catheter
Adhesive tape or catheter securement device	To secure the catheter to the thigh and prevent accidental dislodgement
Waste disposal bag or biohazard container	For safe disposal of soiled materials and waste
Apron	To protect the nurse's uniform from contamination
Hand sanitizer or soap and water	For hand hygiene before and after the procedure
Measuring container	To measure initial urine output, if indicated
Documentation sheet or I&O chart	To record catheter type, size, balloon volume, time of insertion, and urine characteristics

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Table 5.14: Steps of procedure for inserting an indwelling catheter: Male with rationale.

Step	*Intervention*	*Rationale*
1	Gather equipment, read kit label, wash hands	Promotes efficiency and ensures all necessary items are available and sterile
2	Provide privacy and explain procedure	Enhances cooperation and preserves client dignity
3	Adjust bed height and raise opposite side rail	Ensures proper body mechanics and client safety
4	Position client supine with legs slightly spread	Relaxes muscles and improves visualization for insertion
5	Drape abdomen and thighs	Promotes client warmth and comfort
6	Ensure good lighting	Allows accurate execution of sterile technique
7	Wash hands, wear nonlatex gloves, clean perineum	Reduces microbial transfer and avoids latex reactions
8	Remove gloves, wash hands	Maintains hand hygiene and asepsis
9	Open catheterization kit using aseptic technique	Establishes a sterile field for the procedure
10	Add sterile catheter and supplies to the field	Prevents contamination of sterile items
11	Apply sterile gloves	Prevents contamination during procedure
12	Place fenestrated drape with penis through opening	Creates sterile area and prevents contamination
13	Attach syringe to test retention balloon, inflate/deflate, then detach	Confirms balloon patency and avoids premature inflation during insertion
14	Attach catheter to drainage bag if not preconnected	Prevents infection from open systems
15	Lubricate distal portion of catheter	Facilitates smooth catheter insertion
16	Retract foreskin, cleanse glans with antiseptic	Minimizes UTI risk by removing pathogens
17	Hold penis perpendicular and gently pull upward	Straightens urethra to ease catheter insertion
18	Instill 10 mL of sterile lubricant into urethra	Prevents urethral trauma and discomfort
19	Insert catheter ~8 inches until urine flows	Confirms catheter tip is in the bladder
20	If for intermittent use, advance 1 inch more, hold in place while draining	Ensures complete bladder drainage without causing irritation
21	If indwelling, advance to catheter hub	Ensures proper positioning before balloon inflation
22	Reattach syringe to inflation port	Allows sterile balloon inflation
23	Inflate balloon with sterile water as per instructions	Retains catheter in bladder; correct size prevents trauma
24	Instruct client to report discomfort during inflation	Pain may indicate incorrect balloon inflation in urethra
25	Gently pull catheter until resistance is felt	Ensures balloon is seated at bladder neck for effective drainage
26	Secure catheter to thigh or abdomen	Prevents tension, accidental removal, or trauma
27	Place drainage bag below bladder level, secure tubing	Promotes gravity drainage; prevents backflow and infection
28	Remove gloves, dispose of equipment, wash hands	Maintains infection control
29	Help client adjust position, lower bed	Promotes comfort and safety
30	Document urine characteristics (amount, color, odor)	Assesses urinary function and monitors for complications

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Common Mistakes and How to Avoid Them?

- Failing to maintain strict aseptic technique during insertion, increasing the risk of urinary tract infection (UTI).
- Not lubricating the catheter adequately before insertion, causing discomfort and urethral trauma.
- Inserting the catheter without confirming urine flow before balloon inflation, leading to balloon inflation in the urethra.
- Securing the catheter tubing too tightly or without slack, resulting in traction and patient discomfort.
- Positioning the drainage bag above bladder level, which may cause backflow of urine and infection.

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