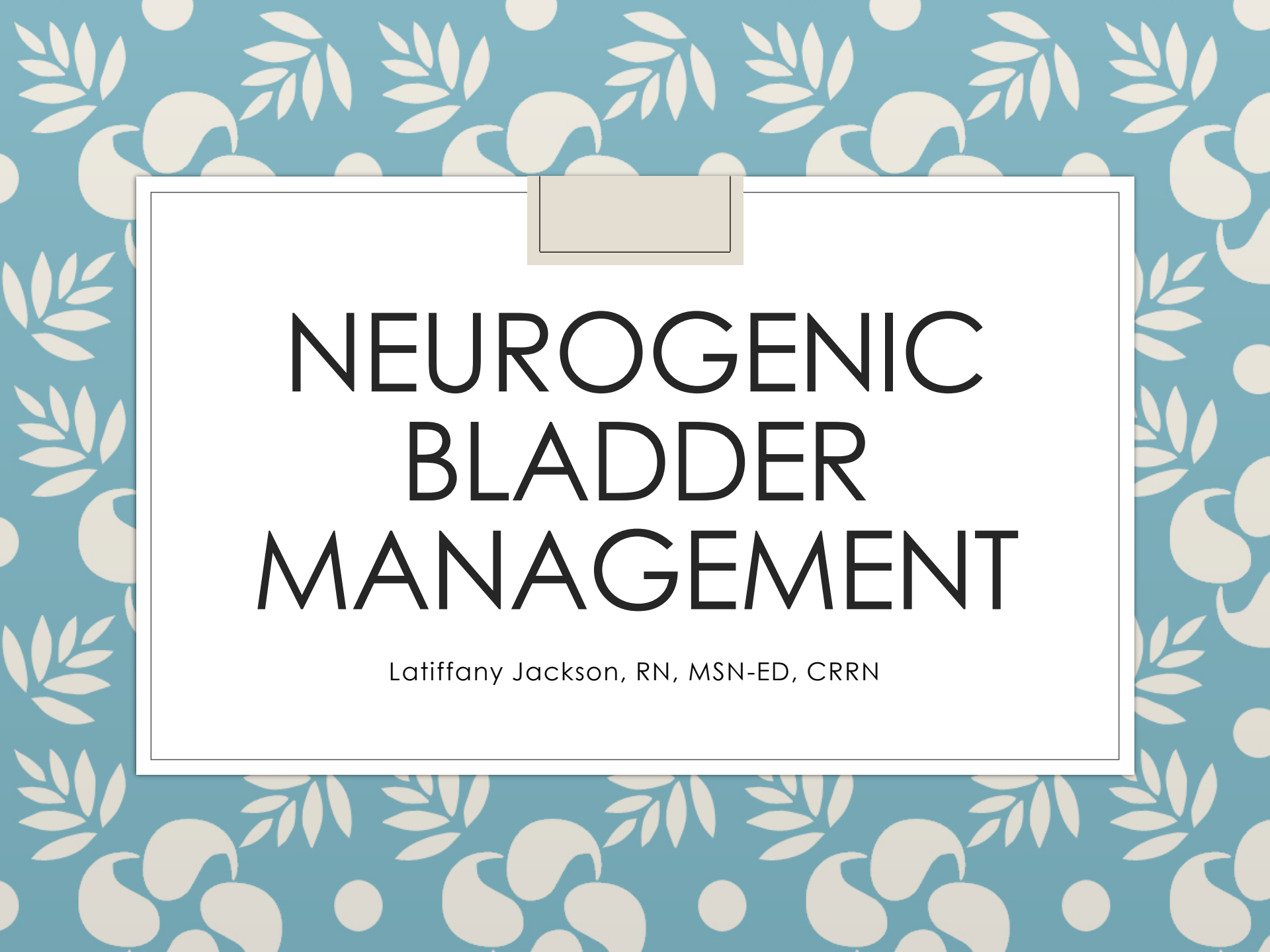




NEUROGENIC BLADDER MANAGEMENT

Latiffany Jackson, RN, MSN-ED, CRRN

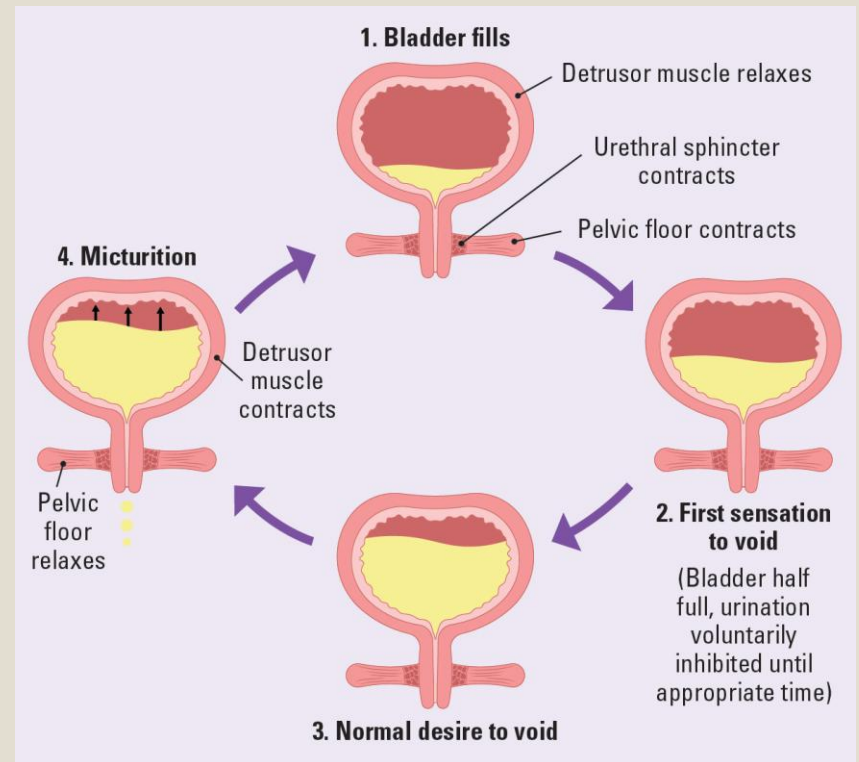
Objectives

- Define, describe, or identify the following regarding neurogenic bladder:
 - Continence and Incontinence
 - Normal Micturition
 - Neurogenic Bladder
 - Causes
 - Management Strategies
 - Medication
 - Urinary Tract Infections (UTI)
 - Diagnostic Studies

The Normal Urinary Tract and Urination

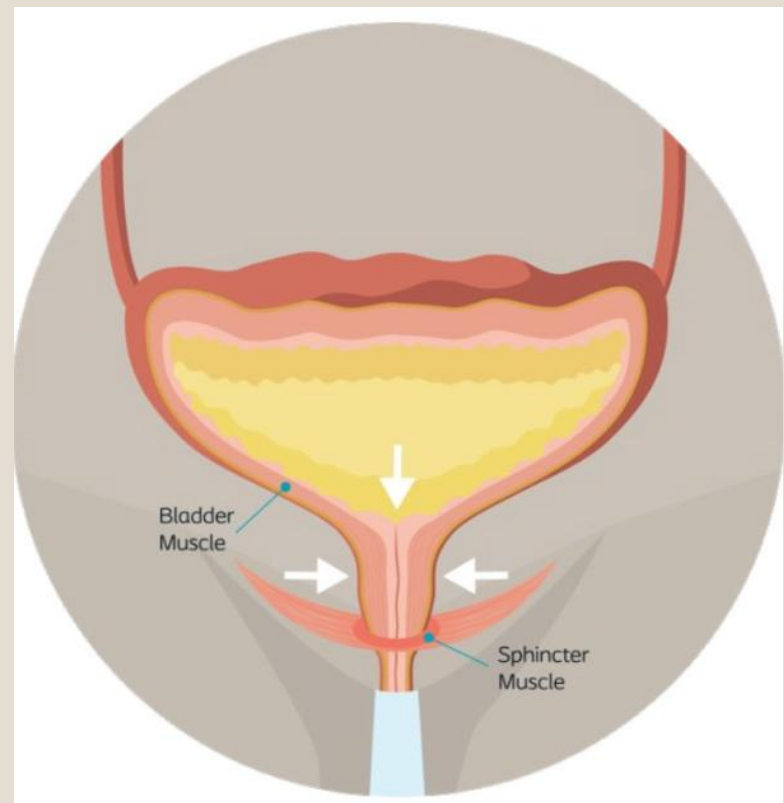
Normal Urination or Voiding:

- Normally, when the bladder becomes full (about 1-2 cups for most people), nerve endings in the bladder wall send a message to the brain via the spinal cord.
- The brain sends a message back to the bladder to contract the detrusor muscles and relax the sphincter muscles to void.
- If you can't get to a toilet, the brain delays the messages until you are ready to void.



Continence

- The result of a person's functional ability to locate a toilet at an appropriate time and place without soiling clothing or spilling urine onto the floor
- Urinary retention is the inability to completely empty the bladder



Incontinence

- Incontinence is the involuntary loss of urine

- **Types:**

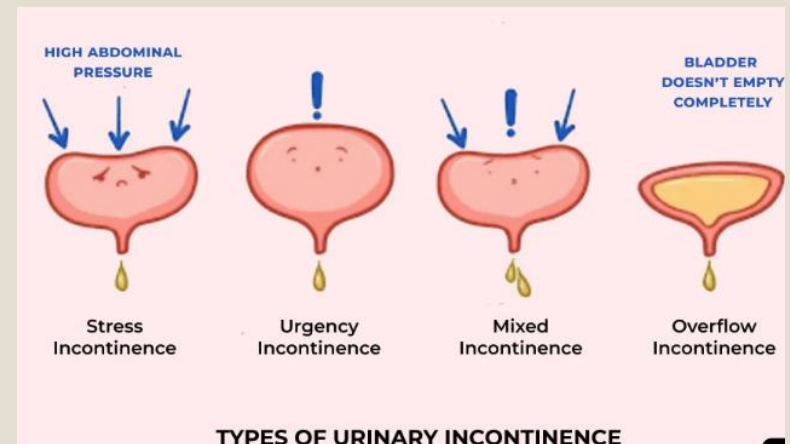
- Urge
- Stress
- Functional
- Mixed

- **Causes:**

- Multiple etiologies

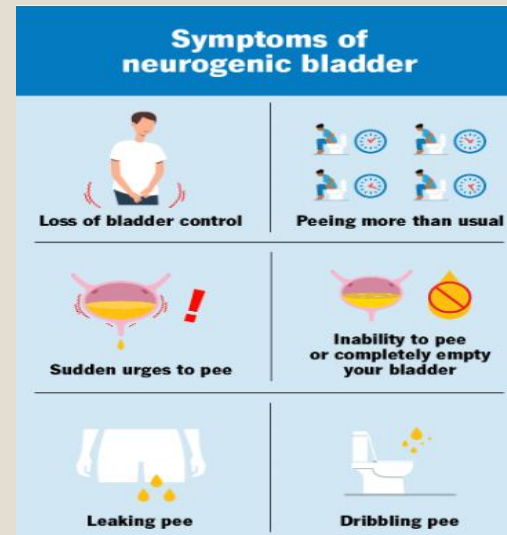
- **Treatment:**

- Depends on the severity of the symptoms
- Depends on the cause of the incontinence



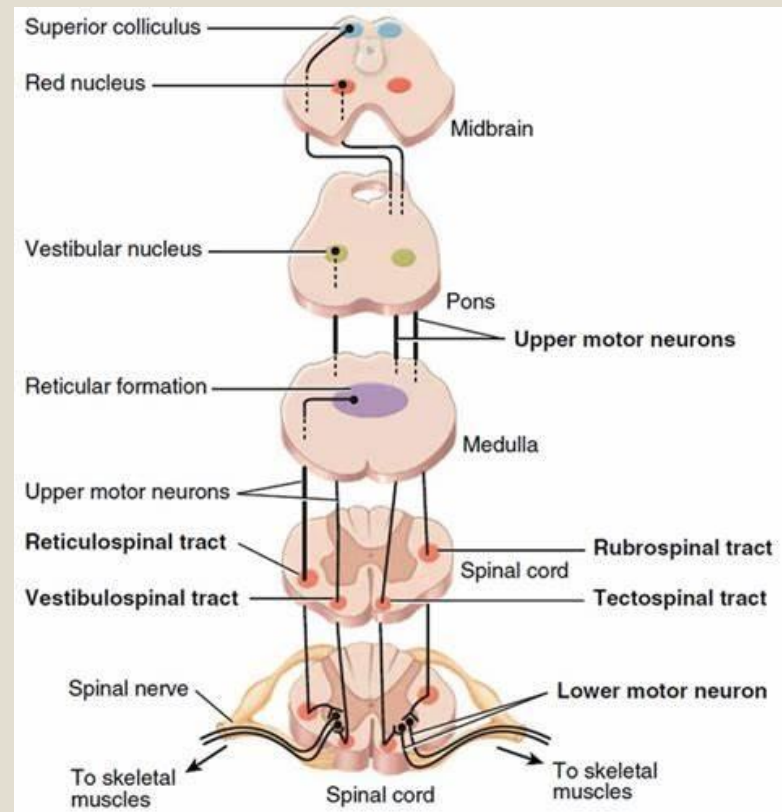
What is Neurogenic Bladder?

- A condition resulting from a nervous system issue that disrupts the complex nerve signals between the brain, spinal cord, and bladder.
- Can't be cured
- Symptoms can be managed with lifestyle changes, catheters and medications
- Two major types of bladder control problems:
 - Overactive (spastic or hyper-reflexive) bladder
 - Underactive (flaccid or hypotonic) bladder



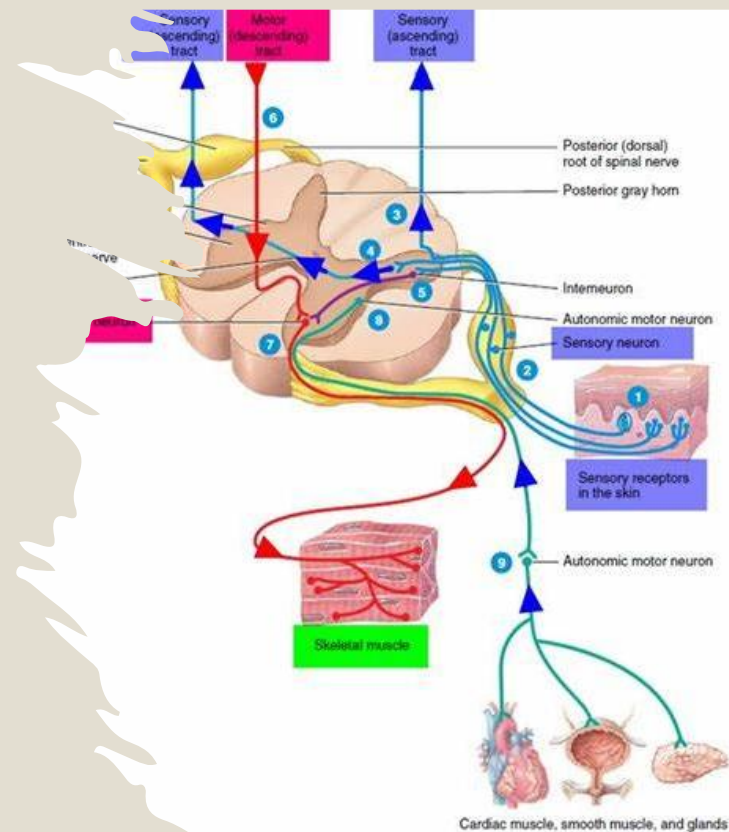
Overactive (AKA spastic or hyper-reflexive) Bladder

- Detrusor muscle is overactive and squeeze more often than normal
- Causes frequent urination
- If sphincter muscles are weak, incontinence occurs
- More common and caused by spinal cord lesion above the voiding reflex arc (Upper Motor Neuron Lesion at about T11)



Underactive (AKA: flaccid or hypotonic) Bladder

- Bladder loses an ability to empty urine when it is full
- Detrusor muscle loses an ability to squeeze
- Bladder continually to fill and distended
- Caused by lower motor neuron lesion, commonly resulting from trauma (S2-S4)
- An increasing number is found among patient with diabetes



Management Strategies

- Assessment and Monitoring
- Bladder Emptying Strategies
 - Intermittent Catheterization
 - External Catheter/Devices
 - Indwelling catheter
- Hygiene/Fluid & Food Intake
- Medications
- Surgical Interventions

Catheter Free Voiding Program with External Collection

Catheter free voiding program with external collection

- **External catheters:**
 - **Condom catheters**
 - Made of latex or silicone, covers the penis
 - To apply, may use elastic tape or some types with built in adhesive
 - Change daily
 - **External continence device**
 - Attaches to the tip of the penis with hydrocolloid
 - Urine does not come in contact with skin
 - Change every 48 hours



Intermittent Catheterization Program

- Gold standard to manage long-term bladder dysfunction
- Individuals considered for IC:
 - Have sufficient hand skills
 - A willing caregiver to perform the IC
- Consider avoiding IC for SCI patients: (to name a few)
 - Bladder capacity less than 200 ml
 - Poor cognition, inability or unwillingness to adhere to IC time schedule
 - Tendency to develop AD with bladder filling despite treatment



Bladder Training with IC

If a patient can void:

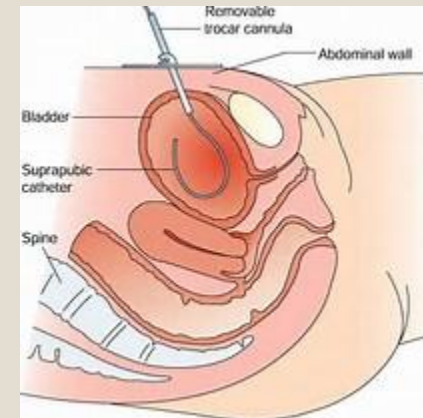
- Offer toileting opportunities every 2 hours during daytime while patient is awake and every 3-4 hours at night
- Bladder scan patient to check proper emptying of bladder (within 20 minutes of voiding); Collect PVRs from 2 consecutive voids.
 - If bladder volume consistently exceed 500 ml, adjust fluid intake, increase frequency of IC that does exceed more than 4 hours between IC or consider an alternative bladder management method
- Encourage double voids for PVRs >150cc
- Monitor fluid intake
- Instruct patient on pelvic floor muscle strengthening
- Utilize IC if volumes >150 (or per MD orders)

Indwelling Catheter

- Any catheter which is inserted into the bladder and allowed to remain in the bladder is called an indwelling catheter.
- Two types of indwelling catheters:
 - Urethral catheter
 - Inserted through the urethra
 - Suprapubic catheter
 - Requires surgical insertion to place the first catheter
 - Inserted through the abdominal wall into the bladder between the pubic bone and the navel



Urethral



Suprapubic

Stimulated Voiding

Voiding is encouraged in one of several ways:

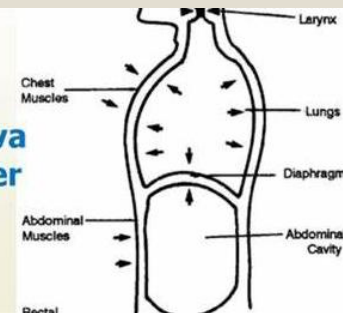
- **Anal or Rectal Stretch**
 - This method for relaxing the urinary sphincter is usually used along with an abdominal corset and Valsalva (see below).
- **Crede**
 - This method involves manually pressing down on the bladder.
 - Usually discouraged because it can increase intra-bladder pressure and cause reflux back into the kidneys, increase the risk of UTI
- **Tapping**
 - The area over the bladder is tapped with the fingertips or the side of the hand, lightly and repeatedly, to stimulate detrusor muscle contractions and voiding.
 - Stimulating bladder spasms to cause the bladder to contract and release urine
- **Valsalva**
 - This method involves increasing pressure inside the abdomen by bearing down as if you were going to have a bowel movement.
 - Not recommended but can be used in addition to other types of bladder management

Crede's Maneuver

Place your palms flat on the patient's abdomen just below the navel. Then apply gentle firm pressure and move downwards towards the symphysis pubis.



A Valsalva Maneuver



Hygiene/Food & Fluid Intake

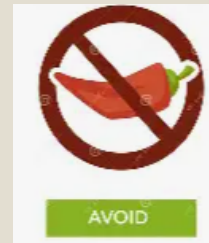
1st line of treatment

- Absorbent underwear (incontinence)
- Bed pans and rubber sheets
- Peri-care



Food & Fluid Intake

- Manage fluid intake
- Limit Foods that can irritate the bladder



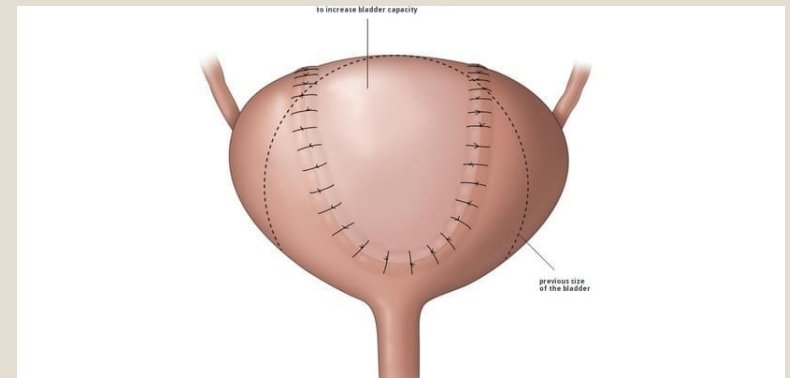
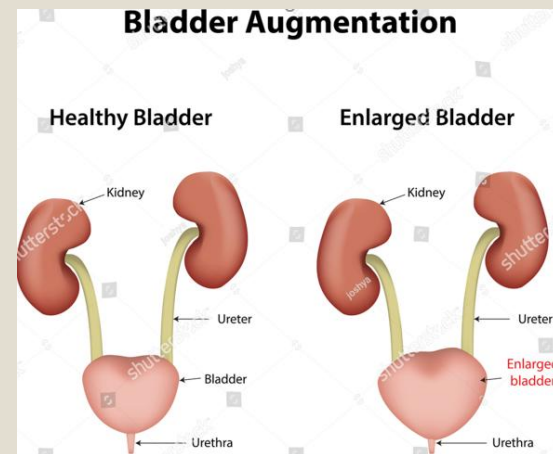
Medications

- Anticholinergics
- Botulinum toxin (Botox)
- Alpha Blockers
- Antibacterial agent



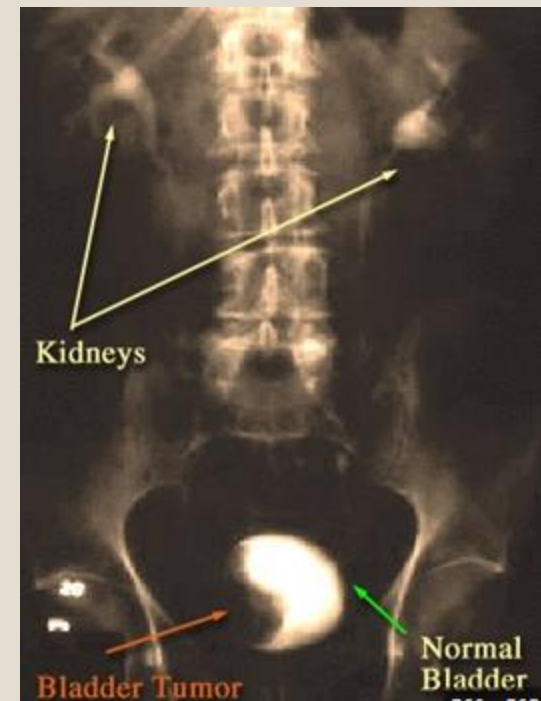
Surgical Interventions

- Artificial Urinary Sphincter
- Cystoplasty (Bladder Augmentation)
- Urethral Injectable Implant (AKA bulking material)
- Mitrofanoff (continent stoma)
- Ileal Conduit



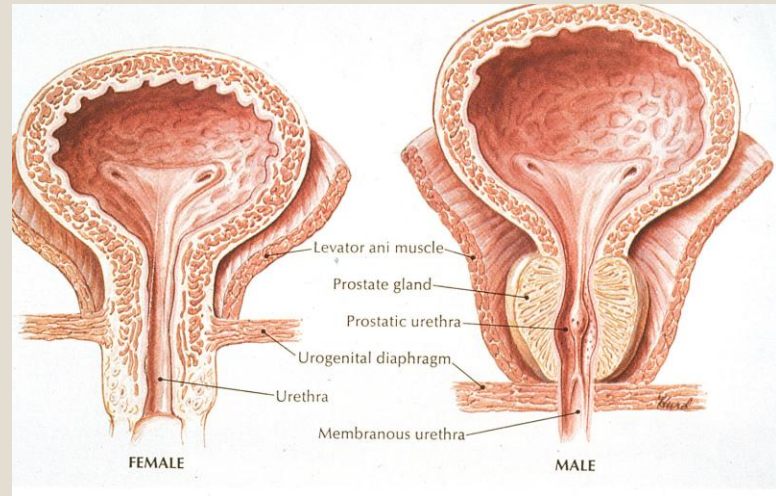
Diagnostic Studies

- Laboratory tests
 - Urine cultures
 - Urinalysis
- Radiology/Nuclear Medicine Studies
 - Renal ultrasound
 - Renal scan
 - KUB x-ray
- Cystoscopy
- Urodynamic Study



Complications of Neurogenic Bladder

- Urinary Tract Infection (UTI)
 - In SCI population, increases risk of Autonomic Dysreflexia (AD)
- Pyelonephritis
- Urosepsis
- Renal/Bladder Calculi
- Renal Failure/Dialysis



Promotion of Successful Living

- As the rehab nurse:
 - Educate the patient
 - Assess each patient to identify individual needs
 - Teach patient all available opportunities and specific interventions to achieve incontinence
 - Guides the interprofessional team to achieve quality of life for the patient

CRRN Neurogenic Bladder Sample Questions

A client is admitted to a hospital with a diagnosis of spastic, neurogenic bladder. The nurse is aware that the pathophysiology of this condition is primarily due to which of the following occurrences?

- A. bladder distended until overflow incontinence occurs
- B. Inability of the bladder muscle to contract forcefully
- C. Client's inability to exert motor control
- D. Presence of a lower motor neuron lesion

Answer: C. Client's
inability to exert
motor control

Which are required for micturition to take place?

- A. Relaxation of internal urethral sphincter
- B. Relaxation of external urethral sphincter
- C. Contraction of detrusor muscle
- D. A, B, and C
- E. B and C

Answer: A, B, and C

For which client will the nurse plan interventions addressing a neurogenic bladder?

- A. A 4-yr old child who has not successfully been toilet trained
- B. A client with weak pelvic floor muscles
- C. A client recovering from a stroke
- D. A client being treated for pyelonephritis

Answer: C. A client
recovering from a
stroke

Explain how neurogenic bladder dysfunction can arise from spinal cord injuries and its implications for patient care.

- A. It occurs due to muscle weakness in the bladder, requiring surgery
- B. It results from nerve damage affecting bladder control, necessitating specialized management
- C. It is caused by urinary tract infections, which can be treated with antibiotics
- D. It is a psychological condition that can be resolved with counseling

Answer: B. It results from nerve damage affecting bladder control, necessitating specialized management

A nurse is caring for a client who has urinary incontinence associated with a flaccid neurogenic bladder.

The nurse will implement a ? because the client has ____ urinary incontinence?

- A. In-and-out catheterization
- B. Pelvic floor muscle (kegel) exercises
- C. Excellent skin care
- D. Routine toileting

Answer: A. In-and-out catheterization

A nurse is caring for a client who has urinary incontinence associated with a flaccid neurogenic bladder.

The nurse will implement a ____ because the client has ? urinary incontinence?

- A. Stress
- B. Urge
- C. Reflex
- D. Functional

Answer: C. Reflex

Explain how neurogenic bladder disorders affect the normal micturition process.

- A. They enhance bladder control
- B. They disrupt nerve signals that control bladder function
- C. They increase bladder storage capacity
- D. They have no effect on micturition

Answer: B. They
disrupt nerve signals
that control bladder
function

If a patient with a neurogenic bladder disorder is only excreting 0.5 liters of urine per day, what could be a potential consequence of this reduced urine output?

- A. Increase risk of urinary tract infections
- B. Improved kidney function
- C. Decreased risk of dehydration
- D. No impact on kidney health

Answer: A. Increase
risk of urinary tract
infections

A nurse is informing a client diagnosed with a neurogenic bladder about treatment options. Which options should be included in client teaching? Select the 4 that apply.

- A. Catheterization
- B. Bladder training
- C. Surgery
- D. Pharmacologic interventions

Answer: A, B, C,
and D

A client who has a history of neurogenic bladder presents with fever, burning on urination, and suprapubic pain. What would the nurse suspect is the problem?

- A. Catheter Associated Urinary Tract Infection (CAUTI)
- B. Autonomic Dysreflexia
- C. Urinary Tract Infection
- D. Urosepsis

Answer: C. Urinary
Tract Infection

A male client has been a paraplegic for 5 years. The client reports increased incontinence, and the health care provider orders anticholinergic medication. What is the reason for this decision?

- A. To increase bladder capacity
- B. To decrease fever
- C. To decrease bladder spasms
- D. To decrease bladder capacity

Answer: A. To
increase bladder
capacity

A client diagnosed with flaccid neurogenic bladder is taught to apply pressure with the hand above the symphysis pubis while in the sitting position. What is the expected outcome of this technique?

- A. Increase bladder capacity
- B. Decrease bladder spasms
- C. Efficient emptying of the bladder
- D. Decrease pain

Answer: C. Efficient
emptying of the
bladder

The nurse is instructing a client with neurogenic bladder to perform intermittent self-catheterization. What teaching point(s) should the nurse include? Select the 2 that apply.

- A. How to maintain sterile technique
- B. Scheduling catheterization for every 4 hours
- C. Signs and symptoms of autonomic dysreflexia
- D. Using sterile water to inflate the catheter balloon

Answer: B and C

A patient reports urine loss when coughing, laughing, or lifting groceries, with no warning urge. Which continence pattern is most likely?

- A. Urge urinary incontinence
- B. Overflow urinary incontinence
- C. Stress urinary incontinence
- D. Functional urinary incontinence

Answer: C

Which patient statement is most consistent with urge urinary incontinence?

- A. "I suddenly have to go and leak before I reach the toilet"
- B. "I leak only when I climb stairs or sneeze"
- C. "I do not feel the need to void but my bladder scan is high"

Answer: A

A patient with spinal cord injury reports continuous dribbling of urine, often leading with a feeling of incomplete emptying. This is most likely:

- A. Stress incontinence
- B. Urge incontinence
- C. Overflow incontinence
- D. Functional incontinence

Answer: C

Which finding best reflects normal coordinated bladder emptying?

- A. Detrusor relaxation while the urethral sphincter contracts
- B. Detrusor contraction with urethral sphincter relaxation
- C. Constant low-volume urine leakage without bladder filling
- D. Voluntary tightening of the pelvic floor throughout voiding

Answer: B

ANY QUESTIONS

