URINARY INCONTINENCE

① **STRESS**: leakage with activity that will increase abdominal pressure
- coughing, exercising, lifting

Causes: Urethral hypermobility - weakened pelvic floor muscles allow for increased urethral mobility
Intrinsic sphincter deficiency - urethra is weak and unable to stay closed w/ minimal activity
Contributing factors - child birth, pelvic surgery/radiation, smoking, constipation, aging, ↓estrogen

② **URGE**: uncontrolled urine loss associated with a strong desire to void (usually without warning)
Overactive bladder - no overt cause (rarely caused by neurologic conditions)

③ **MIXED**: stress AND urge components

④ **OVERFLOW**: involuntary release of urine from an overfull bladder, often in absence of urge

⑤ **FUNCTIONAL**: aware of need to urinate, but for physical/mental reasons they are unable to get to a bathroom. Causes: ↓mobility, pain, clothing, psychological factors
- ranges from small leakages or full emptying

Evaluation
onset, inciting event, med hx, surgical hx, medications

Physical Exam: Neurologic - gait, sensation
Female pelvic - degree of vaginal atrophy
Urethral hypermobility → Q tip test
evaluate for signs of prolapse
Strain/cough w/ moderately full bladder

Testing: UA ± urine culture → infection, hematuria, glucosuria
Post void residual
Urodynamics - can aid in pinpointing problem. With AND w/out prolapse.

TREATMENT

STRESS

Behavioral Therapy
① Avoid increased intraabdominal pressure
② Weight reduction/exercise
③ Pelvic floor re-education - biofeedback and electrical stimulation improves pelvic muscle strength.

Support Devices:
Impress/Uromed patch - placed over urethra opening. Worn for 5 hrs. √ physical activity.
Pessaries - restores typical anatomy, can prevent and unmask incontinence
Urethral bulking agents: procedure to "bulk" up urethra to prevent incontinence
- temporary, risk of retention

Medications: NONE

Surgery: to restore support to urethra/bladder
Burch, MMK, pubovaginal sign
Minimally invasive mid-urethral sling (gold standard)
- aims to give urethra a backdrop of support
- works well if hypermobility/defective sphincter

URGE

Behavior Therapy: fluid/dietary modification, avoid bladder irritants, weight reduction, reduce stress, pelvic floor reeducation, bladder urge/control, underlying cause
reduce constipation

Medical Therapy: ↑bladder capacity/volume, ↓intensity of spasm, ↓frequency/incontinence
Side effects: dry mouth, HA, constipation, confusion, glaucoma

① **Anticholinergics**: block muscarinic receptors causing bladder contraction.
ex. tropsium, oxybutynin, fesoterodine

② **B3 agonists**: promote bladder relaxation
ex. mirabegron - avoid side effects
- contraindicated is severe, uncontrolled htn, ESRD

Surgical Therapy for refractory incontinence
1. **Botox** - chemical denervation of bladder by inhibiting acetylcholine secretion
2. Tibial nerve stimulation
3. Sacral neuromodulation