ADULT LOWER URINARY TRACT INFECTION (UTI)

DEFINITION
Bacterial infection of the bladder, also known as cystitis, caused by bacteria multiplying in the urine.

Uncomplicated UTIs are acute infections of the bladder in otherwise healthy women.

UTIs are considered complicated in the following circumstances:
- all UTIs in men,
- anatomic or functional abnormalities of the GU system such as obstruction, neurogenic bladder, stones, prostatic hypertrophy, vesicoureteral reflux;
- long term catheterization or recent GU instrumentation;
- treatment for a UTI within the previous month;
- renal failure, poorly controlled diabetes or clients who are immunocompromised.

POTENTIAL CAUSES
- *Escherichia coli (E. coli)* is the most common organism in 80-90% of cases.
- *Staphylococcus saprophyticus*
- Other enterobacteria

PREDISPOSING RISK FACTORS
- Female gender
- Sexual activity
- Previous UTIs
- Pregnancy
- Use of spermicides, diaphragm
- Infrequent voiding
- Dehydration
- Urinary instrumentation (e.g., catheterization)
- Renal calculi
- Immunocompromised (e.g., HIV infection)
- Diabetes mellitus
- Genito-urinary tract anomalies – congenital, urethral stricture, neurogenic bladder, tumor

CRNBC monitors and revises the CRNBC certified practice decision support tools (DSTs) every two years and as necessary based on best practices. The information provided in the DSTs is considered current as of the date of publication. CRNBC-certified nurses (RN(C)s) are responsible for ensuring they refer to the most current DSTs.

The DSTs are not intended to replace the RN(C)’s professional responsibility to exercise independent clinical judgment and use evidence to support competent, ethical care. The RN(C) must consult with or refer to a physician or nurse practitioner as appropriate, or whenever a course of action deviates from the DST.

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• Male specific factors are insertive anal intercourse, intercourse with a female with a UTI, lack of circumcision, and prostatic hypertrophy.

TYPICAL FINDINGS
• Frequency
• Urgency
• Dysuria
• Mild dehydration
• Afebrile
• Suprapubic discomfort
• Bladder spasm
• Foul smelling urine
• Hematuria

PHYSICAL ASSESSMENT

Vitals
• Temperature
• Pulse
• Respiratory rate
• SpO2
• Blood pressure

General
• Hydration status
• Suprapubic tenderness – may be mild to moderate
• Flank pain - if present refer or consult as suggests ascending infection
• Costo-vertebral angle (CVA) percussion – presence of tenderness suggests ascending infection. If present, consult with or refer to a physician or nurse practitioner.

Note: In the elderly, symptoms do not always follow the classic triad of urgency, frequency and dysuria. Look for subtle cognitive changes and predisposing factors.

Sexually active Female
• Perform a pelvic exam and full STI screening if abnormal vaginal discharge or symptoms suggestive of vaginitis or STI are present. If appropriate, offer STI screening (see below).
Sexually active Male

- Assess for urethral symptoms, discharge or genital lesions. If present, offer full STI screening (see below).

Diagnostic tests

- Urinalysis
- Dipstick test: blood, protein, nitrites, leukocytes
- Consider microscopic urinalysis: WBC, RBC, bacteria
- Urine culture & sensitivity (C&S) is generally not required with uncomplicated UTI – collect a urine C&S prior to antibiotic commencement if:
  - this is a complicated UTI,
  - this is suspected treatment failure,
  - this is the second presentation of a UTI within a one-year time-frame,
  - the client presents with fever, chills, rigor, or flank pain (and refer or consult),
  - dipstick test is negative and symptoms are indicative of a likely UTI.

NB – ensure sensitivity of organism to the chosen antibiotic once C&S results are returned.

If resistant, consult with or refer to a physician or nurse practitioner.

- For complicated UTIs, ensure C&S done 1-2 weeks after antibiotics are completed
- If symptoms or history indicate, offer full STI screening as per Reproductive Health Certified Practice STI Assessment DST. If full STI screening declined, obtain a urine specimen for CT/GC NAAT
- Consider urine pregnancy test if indicated

Note 1: If urinary frequency, urgency or dysuria and dipstick is positive for leukocytes and/or nitrites, may treat as lower UTI.

Note 2: If necessary, utilize both the UTI DST and appropriate STI DST as there may be more than one condition present (e.g. UTI and STI).
MANAGEMENT AND INTERVENTIONS

Goals of treatment
- Relieve symptoms
- Prevent ascending infection
- Eradicate infection

Non-pharmacological Interventions
- Rest if febrile
- Keep hydrated, increase fluids

Pharmacological interventions

**Antibiotics – Females – uncomplicated UTI**

First Choice
- nitrofurantoin (monohydrate/macrocrystal formulation - Macrobid) 100 mg, po bid for 5 days
  OR
- nitrofurantoin (macrocrystal formulation - Macrodantin) 50-100 mg, po qid for 5 days

Second choice
- trimethoprim 160 mg / sulphamethoxazole 800 mg, 1 tab po bid for 3 days

Third choice
- cefixime 400 mg po daily for 5-7 days

**Antibiotics – Complicated UTI – (if systemically well and afebrile)**

(All men are considered complicated)
- Trimethoprim 160 mg / sulfamethoxazole 800 mg, 1 tab po bid for 7-14 days
  OR
- Amoxicillin-clavulanate 875 mg po BID for 7-14 days
  OR
- Cefixime 400 mg po daily 7-14 days (if reduced renal function, dosage may need adjustments)

**Antibiotics - Pregnant or Breast Feeding Women**
- nitrofurantoin (monohydrate/macrocrystal formulation - Macrobid) 100 mg po bid for 7 days (**do not use in third trimester or labour**)
  OR
- nitrofurantoin (macrocrystal formulation - Macrodantin) 50-100 mg po qid for 7 days (**do not use in third trimester or labour**)

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OR

- Cefixime 400 mg po daily for 7 days

DO NOT USE trimethoprim 160 mg / sulfamethoxazole 800 mg.

POTENTIAL COMPLICATIONS
- Ascending infection (pyelonephritis)
- Chronic cystitis

CLIENT EDUCATION AND DISCHARGE INFORMATION
- Advise on condition, timeline of treatment and expected course of disease process
- Return to clinic if fever develops or symptoms do not improve in 48-72 hours
- Counsel client about appropriate use of medications (dose, frequency, side effects, need to complete entire course of medications)
- Recommend increasing fluid intake to 8-10 glasses per day
- Sitting in a warm tub may relieve symptoms of dysuria
- For women, advise regarding wiping front to back after a bowel movement
- Do not use douches
- Avoid bubble baths
- Advise that voiding after intercourse may be beneficial
- Use appropriate cleaning for sex toys and advise against sharing sex toys
- Advise alternative contraceptives, avoid spermicides

MONITORING AND FOLLOW-UP
- If symptoms do not begin to resolve in 48-72 hours or if symptoms progress despite treatment, client should return to the clinic for reassessment.
- Pregnant women who present with symptoms of UTI are recommended to have a urinalysis and C&S monthly.

CONSULTATION AND/OR REFERRAL
- Presence of complicating factors suggestive of upper urinary tract infection (fever (>38’ C), chills, flank pain, CVA tenderness, nausea and vomiting).
- Women presenting with a third UTI within two months or more than three in one year should be referred to a physician or nurse practitioner.
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- Men who present with an uncertain cause or more than one UTI should be referred to a physician or nurse practitioner for further evaluation.
- Men ≥ 50 years of age who present with a true (culture-positive) urinary tract infection for the first time should be referred to a physician or nurse practitioner for further evaluation.

**DOCUMENTATION**
- As per agency policy

**REFERENCES**

For help obtaining any of the items on this list, please contact CRNBC Helen Randal Library at circdesk@crnbc.ca

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.


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