Certified Practice

DST 910 Care and Treatment Plan:
Uncomplicated Lower Urinary Tract Infection (UTI)

Definition

Bacterial infection of the bladder, also known as cystitis, is caused by bacteria multiplying in urine. A lower urinary tract infection (UTI) occurs in the urethra and the bladder and is a common infection is young sexually active people.

Uncomplicated lower UTI is an acute infection of the bladder in an otherwise healthy person.

Registered Nurses with **Reproductive Health – Sexually Transmitted Infections** Certified Practice designation (RN(C)) are authorized to manage, diagnose, and treat adults with uncomplicated lower UTI in sexually active people with vaginas.

See *Consultation and/or Referral* section for specific information regarding consultation with and referral to a physician or nurse practitioner (NP).

Potential Causes

Bacterial:

- *Escherichia coli (E. coli)*
- *Enterococcus Faecalis*
- *Staphylocossus aureus*
- *Other Enterobacteriaceae (*e.g., *Proteus mirabilis, Klebsiella pneumoniae*)

Predisposing Risk Factors

- Anatomical (e.g., shorter urethra)
- Foreign body (e.g., catheterization)
- Previous UTI
- Sexual activity, especially recent new sexual partner
- Genito-urinary tract anomalies – congenital, urethral stricture, neurogenic bladder, tumor
- Diaphragm or spermicide use
- Urinary instrumentation (e.g., catheterization) – refer to physician or NP
- Diabetes mellitus

- Renal or urethral calculi
- Immunocompromised (e.g., HIV infection)
- Pregnancy
- Trauma
- Strictures

Typical Findings

Sexual History

- Urinary frequency or urgency
- Vaginal irritation
- Dysuria
- Suprapubic pain or discomfort
- Hematuria
- Mild dehydration

Physical Assessment

- Suprapubic tenderness: may be mild to moderate
- Flank pain: if present consult or refer – suggests upper UTI
- Fever, rigor, chill: if present consult or refer – suggest upper UTI
- Hydration status

Diagnostic Tests

Urinalysis

- Dipstick test for:
    - Nitrates, leukocytes (most predictive of lower UTI)
    - Blood, protein
- Consider microscopic urinalysis: WBC, RBC, bacteria

Note: While positive dipstick test for nitrites and leukocytes are the most predictive of lower UTI; positive findings for blood and protein, in the absence of positive results for nitrites and leukocytes, may also indicate lower UTI. Consult with a physician or NP for clients with symptoms of lower UTI with negative results for nitrites and leukocytes.

- Urine culture & sensitivity (C&S) is generally not a required test when managing uncomplicated lower UTI–consider a urine C&S if:
    - This is the second presentation of a UTI within a one-year time frame
    - Evidence of an upper UTI; i.e., the client presents with fever, chills, rigor, or flank pain (refer or consult
    - Dipstick test is negative and symptoms are indicative of a likely UTI
- Offer full STI screening
- Consider pregnancy test if indicated

Clinical Evaluation/Clinical Judgement

May treat as lower urinary tract infection if:

- Frequency, urgency, or dysuria are present, and
- Urine dipstick test is positive for leukocytes and/or nitrites

Management and Interventions

Goals of Treatment

- Alleviate symptoms
- Prevent complications and ascending infection
- Treat infection

Treatment of Choice

Treatment	Notes
First Choice Nitrofurantoin 100mg PO BID for 5 days	**General:** 1. Nitrofurantoin demonstrates less resistance to E. coli and E. Faecalis than trimethoprim/sulfamethoxazole and is recommended as first choice for treatment of lower UTI. 2. See BCCDC *STI Medication Handouts* for further medication reconciliation and client information. **Allergy and Administration:** 1. DO NOT USE nitrofurantoin if there is a history of renal impairment or allergy to nitrofurantoin or dantrolene.
Second Choice Trimethoprim 160mg/sulfamethoxazole 800mg tab PO BID for 3 days	

Treatment	Notes
	2. DO NOT USE trimethoprim or sulfamethoxazole if there is a history of allergy to sulfa drugs. 3. Consult physician or NP if the client is unable to use first or second choice treatment recommendations. 4. If serious allergic reaction develops including difficulty breathing and/or severe itchiness, have the client inform clinic staff immediately. If symptoms develop after leaving the clinic, advise the client to seek immediate emergency care.

Pregnant or Breast/Chest-Feeding Clients

Refer all pregnant or breast/chest-feeding clients to a physician or NP for treatment.

Partner Counselling and Referral

Partner follow-up is not required.

Monitoring and Follow-up

If symptoms do not begin to resolve in 48-72 hours or if symptoms persist despite treatment, the client should return to be re-assessed by a physician or NP.

Potential Complications

- Ascending infection: pyelonephritis
- Chronic UTI
- Interstitial cystitis

Client Education

Counsel client regarding:

- Appropriate use of medications (dosage, side effects, and need for re-treatment if dosage not completed, or symptoms do not resolve).
- Returning to the clinic if fever develops or symptoms do not improve in 48-72 hours.
- Potential causes of lower UTI, having a new sexual partner and/or recent intercourse, and the use of spermicides.

- Behavioral measures that may help to reduce uropathogens or irritants from entering the urethra including:
    - Routine cleaning with warm water
    - Using mild and non-irritant bath products, especially for bubble baths
    - Voiding before and after intercourse
    - Changing barrier methods (e.g., gloves, condoms, dental dams) or cleaning hands/toys/genitals between anal and vaginal play
    - Cleaning sex toys between use and using condoms if sharing sex toys
    - Maintaining fluid intake at 8-10 glasses per day
    - Avoiding douching and commercial 'vaginal cleaning products'
    - Wiping from front-to-back after voiding

Consultation and/or Referral

Consult with/refer to a physician or NP for clients in the following situations:

- Pregnant or breast/chest-feeding
- Under the age of 14 years
- Symptoms of lower UTI with negative results for nitrites and leukocytes
- Symptoms suggestive of an upper urinary tract infection, including some or all of the following:
    - Flank pain, severe back or abdominal pain
    - Chills, fever >38ºC, rigor
    - Nausea or vomiting
- With recurrent lower UTI; the second episode of lower UTI within one month or more than 3 episodes in one year
- Recent urinary tract instrumentation or the presence of indwelling catheter, stents, or nephrostomy tubes
- History of urologic or renal anomaly, impairment, surgery, transplant, or kidney stones
- Chronic health concerns: uncontrolled diabetes, neurogenic bladder, renal disease, long-term catheterization, spinal cord injury, immunocompromised
- Symptoms of lower UTI for 7 days or longer
- Hospital-acquired infection

Documentation

- Uncomplicated lower UTI is not reportable
- As per agency policy

References

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

British Columbia Centre for Disease Control (BCCDC). (2015). *Antimicrobial Resistance Trends in the Province of British Columbia 2014*.

British Columbia College of Nursing Professionals (BCCNP). (2016). *Adult (female) Lower Urinary Tract Infection (UTI).* In: Certified Practice Remote Nursing Decision Support Tool.

British Columbia Medical Association & BC Ministry of Health Services. (2009). Macroscopic and microscopic urinalysis and the investigation of UTI. In: *BC Guidelines.* BC Ministry of Health Guidelines and Protocols Advisory Committee.

Blondel-Hill, E., & Fryters, S. (2006). *Bugs & Drugs*. Capital Health.

Car, J. (2006). Urinary tract infections in women: diagnosis and management in primary care. *BMJ,* 332, pp.94-97.

Christiaens, T., De Meyere, M., Verscdhraegan, G. Peersman, W., Heytens, S., & De Maeseneer, J. (2002). Randomized controlled trial of nitrofurantoin versus placebo in the treatment of uncomplicated urinary tract infection in women. *British Journal of General Practice,* pp.729-734.

Colman, R., & Somgyi, R. (2008). Toronto Notes 2008. *Comprehensive medical reference and review for MCCQE and USMLE II*. Toronto Notes for Medical Students: Toronto, ON.

Dorland, W.A. (1994). Cystitis. In: *Dorland's Illustrated Medical Dictionary* (28th ed). W.B. Saunders Company.

Fihn, S. (2003). Acute uncomplicated urinary tract infection in women. *The New England Journal of Medicine,* 349, pp.259-26.

Grude, N., Tveten, Y., Jenkins, A., & Kristiansen, B. (2005). Uncomplicated urinary tract infections: Bacterial findings and efficacy of empirical antibacterial treatment. *Scandinavian Journal of Primary Health Care, (23)*, pp.115-119.

Gupta, K., & Trautner, B. W. (2013). Diagnosis and management of recurrent urinary tract infections in non-pregnant women. *BMJ*, *346*(7910), pp.30-33.

Gupta, K., Hooton, T., Naber, K., Wullt, B., Colgan, R., Miller, L., Moran, G., Nicolle, L., Schaeffer, A., & Soper, D. (2011). *International clinical practice guidelines for the treatment of acute uncomplicated cystitis and*

pyelonephritis in women: A 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases.

Hanno, P. M., Erickson, D., Moldwin, R., Faraday, M. M., & American Urological Association. (2015). Diagnosis and treatment of interstitial Cystitis/Bladder pain syndrome: AUA guideline amendment. *Journal of Urology, the, 193*(5), 1545-1553

Heng, M., & Greenwald, J. (2007). *The Toronto note 2007 clinical management handbook*. Toronto, Canada; Toronto Notes for Medical Students, Inc.

Hoebeke, P., Selvaggi, G., Ceulemans, P., De Cuypere, G., T'Sjoen, G., Weyers, S., & Monstrey, S. (2005). Impact of sex reassignment surgery on lower urinary tract function. *European Urology, 47*(3), p. 398-402.

Hooton, T., & Stamm, W. (2009). *Acute cystitis in women*.

Hooton, T. M., & Gupta, K. (2013). Recurrent urinary tract infection in women. In: *D.S. Basow (Ed.)*. UpToDate.

Jackson, M. (2007). Evidence-based practice for evaluation and management of female urinary tract infection. *Urologic Nursing, 27(2),* pp.133-136.

Jensen, B., & Regier, L. (2008). *The Rx Files. Drug Comparison Charts*. 7th Edition. Rx Files.

Katchman, M., Christiaens, T., Baerheim, A., & Leibovici, L. (2009). Duration of antibacterial treatment for uncomplicated urinary tract infection in women (Review). *The Cochrane Library* (3). The Cochrane Collaboration. John Wiley & Sons Ltd.

Mehnert-Kay, S. (2005). Diagnosis and management of uncomplicated urinary tract infections. *American Family Physician,*72(3), pp.451-456.

Nicolle, L., Anderson, P., Conly, J., Mainprize, T., Meuser, J., Nickel, J., Senikas, V., & Zhanel, G. (2006). Uncomplicated urinary tract infection in women. *Canadian Family Physician,* (52), pp.612-618.

Nosseir, S. B., Lind, L. R., & Winkler, H. A. (2012). Recurrent uncomplicated urinary uract infections in women: A review. *Journal of Women's Health,* (15409996), 21(3), pp.347-354.

Petricevic, L., Kaufmann, U., Domig,K., Kraler, M., Marschalek, J., Kneifel W. & Kiss, H. (2014). Molecular detection of *lactobacillus* species in the neovagina of male-to-female transsexual women. *Scientific reports, 4*(3746), pp.1-4.

Provincial Health Services Authority's Trans Care BC. (2017). *Caring for trans and gender diverse clients in BC: A primary care toolkit*.

Tanagho, E. A., McAninch, J. W. (1995). Smith's general urology. 14th Edition. Appleton & Lange. Norwalk, CT.

University of California San Francisco (UCSF) & Center of Excellence for Transgender Health. (2016). *Guidelines for the primary and gender-affirming care of transgender and gender non-binary people*.

Weyers, S, Verstraelen, H., Gerris, J., Monstrey, S., Lopes Santiago, G.S., Saerens, B., & Verhelst, R. (2009). Microflora of the penile skin-lined neovagina of transsexual women. *BMC Microbiology, 9*(102), pp. 1-10.