Diagnosis & Management of Urinary Tract Infection (UTI) in Residential Care

**KEY MESSAGES**
- Diagnosis of UTI requires a combination of reliable clinical signs and symptoms AND a positive urine culture result.
- Do NOT send urine for culture or perform urine dipstick testing in patients who are asymptomatic.
- Asymptomatic bacteriuria (abnormal dipstick or urine culture without signs/symptoms of UTI) in the institutionalized elderly is common. Antibiotic therapy in these cases offers no benefit and increases harm (e.g. side effects from antibiotics, antibiotic resistance, Clostridium difficile infection).
- Empiric therapy for UTI can be considered if the patient has clinical signs and symptoms consistent with a UTI and appropriate urine specimens (midstream or in/out catheter) have been obtained and sent for urinalysis and culture.

**DIAGNOSIS**
- Suspected UTI based on **signs and symptoms**
  - Dysuria, suprapubic tenderness, frequency, urgency, fever > 37.8°C, new onset incontinence, hematuria
  - * Malodorous urine is NOT a sign/symptom of UTI and is not an indication for urine culture
  - ** Delirium or change in behavior is not specific and warrants investigation for an underlying cause. UTI should not be an automatic presumptive diagnosis.

- Obtain urine for urine culture.
- Urine should be a midstream urine or obtained by in/out catheterization.
- Send urine promptly to the laboratory or store urine at 4°C until it can be sent.

**Interpreting Laboratory Results**
- **Microscopy/Dipstick** is NOT generally indicated in the elderly because of poor diagnostic accuracy. We do NOT encourage the routine use of urine microscopy/dipstick in this population. If the urine dipstick is done for special circumstances, the parameters listed below should be interpreted with the clinical context:
  - *White blood cells (WBC)*
    - Absence of WBC indicates no inflammation and culture is unlikely to indicate UTI
    - Presence of WBC represents inflammation
    - Often elevated in the presence of a catheter irrespective of infection
  - **Red blood cells (RBC)**
    - RBC may be present in UTI
  - **Leukocyte esterase**
    - Indicates WBC are present
  - **Nitrite**
    - Measures nitrate reductase which is produced by many Gram negative uropathogens

**Urine Culture** (the following usually indicates UTI but this must be interpreted in the context of patient’s symptoms)
- Single uropathogen ≥ 100 million CFU/L OR
- Mixed Growth with one predominant uropathogen ≥ 100 million CFU/L for specimens obtained from a foley catheter OR
- Two uropathogens each ≥ 100 million CFU/L for specimens obtained from a foley catheter

**MANAGEMENT**
- Empiric treatment may be considered for **SYMPTOMATIC** patients after sending urine for urinalysis and culture. MODIFY treatment according to urine culture results.

**Uncomplicated cystitis**
- Nitrofurantoin 100 mg long acting PO BID x 5 days
  - Contraindicated in those with CrCl below 40 mL/min
  - Should not be used if pyelonephritis is suspected (fever; flank pain)
  - Should not be used in those with a known history of infection with Proteus or Pseudomonas spp.
- Cotrimoxazole DS tablet PO BID x 3 days
  - Does not cover Enterococcus spp.
- Amoxicillin-Clavulanate 875-125 mg PO BID x 5 days

**Complicated UTI** (those with Foley catheters or evidence of pyelonephritis)
- Cotrimoxazole DS tablet PO BID x 7 days
- Amoxicillin-Clavulanate 875-125 mg PO BID x 7 days

If symptoms do not resolve promptly (within 5 days), consider prolonging therapy to 10-14 days or consider transferring to acute care.
- **Catheter should be removed or replaced if a catheter is needed.**

Patients with suspected urosepsis should be transferred to acute care.

Based on local epidemiology of UTI in residents of PHC facilities, ciprofloxacin should **NOT** be used for empiric treatment of UTI.