



# ASPIRES

## Urinary Tract Infection Algorithm

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# KEY PRINCIPLES

1. Culture only if **SYMPTOMS** of UTI are present
2. Changes in cognitive function **REQUIRES** clinical assessment
3. Collect urine for **UA** and culture
  - Provides critical information for interpretation
4. Collect urine culture without **CONTAMINATION**
  - Clean catch \*OR\*
  - In and out \*OR\*
  - Change and collect through new catheter
5. Treat patients with **SYMPTOMS**, not cultures

# UTI

- Elderly population are at increased risk of UTI due to increased post-void residual volume, prostatic hypertrophy, and chronic diseases (e.g., diabetes)<sup>1</sup>
- Prevalence of bacteriuria may be as high as 50% in institutionalized elderly patients<sup>2</sup>
- Asymptomatic bacteriuria is common in the elderly and does not require antibiotic treatment

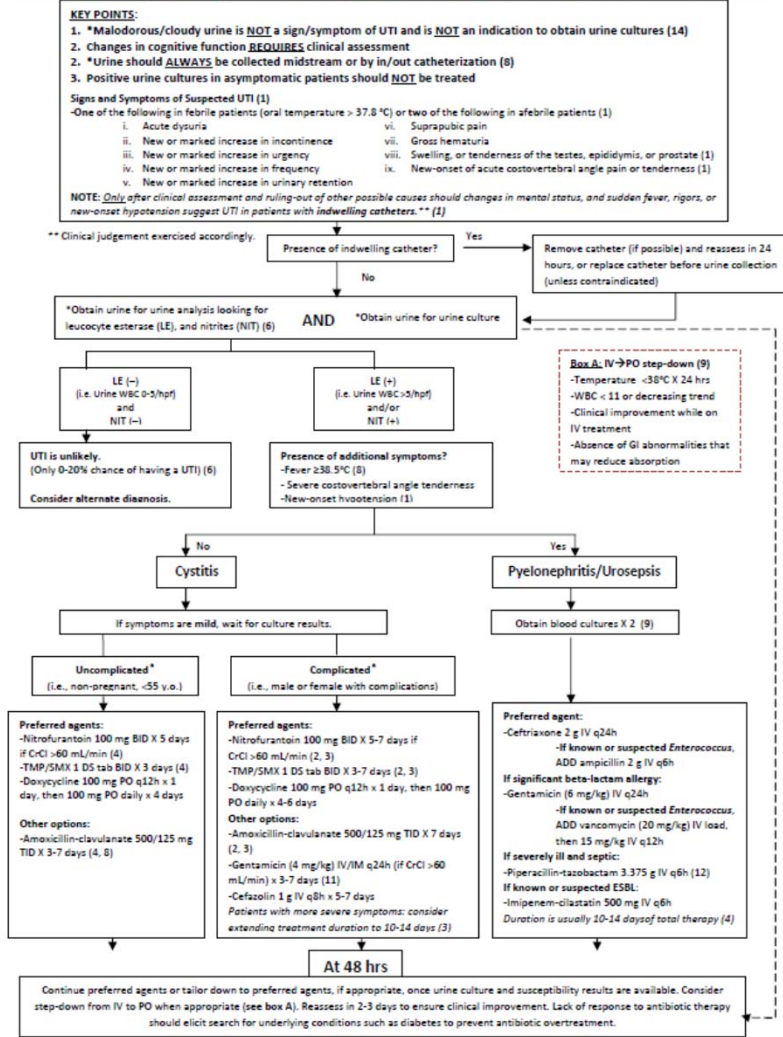
1. Foxman B. Epidemiology of urinary tract infections: incidence, morbidity, and economic costs. *Disease-a-month* : DM. 2003;49(2):53-70.
2. Nicolle LE, Bradley S, Colgan R, Rice JC, Schaeffer A, Hooton TM. Infectious Diseases Society of America guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults. *Clinical infectious diseases* : an official publication of the Infectious Diseases Society of America. 2005;40(5):643-54.

# UTI VS. ASYMPTOMATIC BACTERIURIA (ABU)

- Both UTI and ABU result in isolation of significant quantities of bacteria in urine
- **KEY DIFFERENCE** is that UTI involves presence of systemic or local genitourinary **signs or symptoms**
- ABU does **NOT** require antibiotic treatment
- No benefit to treatment of ABU; instead, may cause increased toxicity risk and antibiotic resistance

# UTI MANAGEMENT ALGORITHM

VCH Clinical Management Algorithm of Urinary Tract Infections (UTI) in Sub-acute Care Elderly Patients



# OVERVIEW OF UTI MANAGEMENT ALGORITHM

1. Initiate algorithm only when patient meets **diagnostic criteria**
2. If catheter is present, **remove/replace before urine collection**
3. Obtain urine for **BOTH** UA and UC
4. Based on algorithm, determine whether patient has **cystitis** or **pyelonephritis**
5. Initiate empiric therapy accordingly with preferred agents or other agents (when deemed appropriate)
  - If symptoms are mild, consider waiting for culture results

# SYMPTOMS OF UTI

## UTI symptoms

- **ACUTE DYSURIA** and one of the following in febrile or two of the following in afebrile patients:
  - New or increased urgency
  - New or increased incontinence
  - New or increased frequency
  - New or increased retention
  - Gross hematuria
  - Suprapubic pain
  - Costovertebral pain
  - Swelling of testes, epididymis, or prostate

## Not UTI symptoms

- Smelly urine
- Cloudy urine
- Confusion without other signs of infection
- Vaginal discharge

# HOW TO COLLECT A GOOD URINE SAMPLE

## Clean catch

- Client must be **ABLE** to collect urine alone or with help
- Clean perineum or prepuce
- Let first few drops go
- Collect sample
- Do not allow urine to contact perineum or foreskin (cannot obtain specimen while using bedpan)

## Catheter

- Must be collected through a **NEW** catheter
- In and out if client cannot perform a clean catch
- Replace existing Foley catheter with a new one to collect sample



# HOW TO INTERPRET UA & URINE CULTURE RESULTS

- Pyuria accompanying ABU is **not** indication for ABX treatment → up to 90% elderly patients may have pyuria<sup>2</sup>
- UTI is very **unlikely** if LE and NIT in UA are both negative (less than 20% chance of UTI)<sup>3</sup>
- UC is considered **positive** when **one (predominant) bacterial strain** is isolated **≥ 100 million CFU/L**
- If more than one bacterial strain is isolated or if bacteria count is < 100 million CFU/L, re-culture urine **ONLY** if patient is symptomatic

3. Ouslander, J. G., M. Schapira, et al. (1995). "Accuracy of rapid urine screening tests among incontinent nursing home residents with asymptomatic bacteriuria." *J Am Geriatr Soc* 43(7): 772-775.

# WHEN TO TREAT A POSITIVE URINE CULTURE

- If patient has ongoing **SYMPTOMS** of UTI
- Prior to **UROLOGIC** surgery
- Patient shows signs of **SEPSIS** with no other identifiable source of infection

Many patients over the age of 50 years have positive urine cultures.

Most don't have a UTI and don't need treatment.

# WHICH ANTIBIOTIC TO SELECT FOR UTI

- **Nitrofurantoin** and **TMP-SMX** are preferred agents for UTI treatment
- Recent antibiogram generated at hospitalist wards suggests *E.coli* susceptibilities of 95% and 70% respectively
- Fluoroquinolones are **NOT** recommended due to high propensity for collateral damage and resistance (antibiogram suggests only 60% susceptibility)

# WHEN TO REASSESS UTI THERAPY

- Patients generally should start feeling better **within 36 hrs** of initiating treatment<sup>4</sup>
- Continue preferred agents or tailor-down to preferred agents if appropriate once UC results are back (**48 hrs**)
- If on IV therapy, consider step-down to PO if patient temperature  $<38^{\circ}\text{C}$  X 24 hrs
- **Reassess after 2-3 days** to ensure clinical improvement; if no improvement, search for underlying cause

4. Colgan R, Williams M. Diagnosis and treatment of acute uncomplicated cystitis. American family physician. 2011;84(7):771-6.

# QUESTIONS?

## Antimicrobial Stewardship Programme: Innovation, Research, Education, and Safety

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