



***Candida* in the Urine: When is Treatment Needed?**

Invasive fungal infections (IFI) due to *Candida* are associated with an estimated mortality rate of 20%, and must be promptly treated with antifungal therapy.¹ However, just like [respiratory cultures](#), not all *Candida* recovered from urine cultures needs antifungal treatment. Who should be treated and with what?

Symptom Free Pee, Let it Be

Nearly 80% of patients with *Candida* in the urine exhibit no symptoms.² The IDSA candidiasis guidelines recommend that patients with **asymptomatic candiduria** have predisposing factors (e.g. indwelling catheter) eliminated, when feasible. Treatment with antifungals is **not recommended**, except in special situations where there is high risk for dissemination.³ High risk patients include:

- Neutropenic patients
- Very low-birth-weight infants (< 1500 grams)
- Patients who will undergo urologic manipulation

Treatment of *Candida* Urinary Tract Infections³

Patients with typical ascending *Candida* urinary tract infections (i.e. spread upwards from urethra) can have symptoms of cystitis (e.g. urgency, frequency, dysuria, suprapubic pain) or pyelonephritis (e.g. systemic signs/symptoms of infection, flank pain, ± cystitis symptoms). Hematogenous pyelonephritis (i.e. seeded the kidneys from the blood) may also occur. These patients usually have no classic urinary symptoms and are treated for candidemia.

Symptomatic <i>Candida</i> Cystitis	Symptomatic Ascending <i>Candida</i> Pyelonephritis
<p><u>Primary</u></p> <ul style="list-style-type: none"> • Fluconazole 3 mg/kg PO daily x 14 days 	<p><u>Primary</u></p> <ul style="list-style-type: none"> • Fluconazole 3 – 6 mg/kg PO daily x 14 days
<p><u>Alternative*</u></p> <ul style="list-style-type: none"> • Amphotericin deoxycholate 0.3 – 0.6 mg/kg IV daily x 1 - 7 days • Flucytosine 25 mg/kg PO QID x 7 – 10 days** 	<p><u>Alternative*</u></p> <ul style="list-style-type: none"> • Amphotericin deoxycholate 0.3 – 0.6 mg/kg IV daily x 1 - 7 days +/- Flucytosine 25 mg/kg PO QID** • Flucytosine 25 mg/kg PO QID x 14 days**

Echinocandins distribute poorly to urine and are NOT recommended in the treatment of *Candida* urinary tract infections

Lipid formulations of amphotericin B distribute poorly to urine and are NOT recommended in the treatment of *Candida* urinary tract infections

* Use in patients with fluconazole-resistant *Candida* (e.g. fluconazole-resistant *Nakaseomyces glabrata* (formally known as *Candida glabrata*))

***Pichia kudriavzevii* (formally known as *C. krusei*) is resistant to flucytosine

Key Takeaway: Most patients with *Candida* in the urine do not need antifungal treatment. In those that do require treatment, options are limited due to poor antifungal distribution to urine.

References:

1. Webb, Brandon J., et al. "Epidemiology and clinical features of invasive fungal infection in a US health care network." Open forum infectious diseases. Vol. 5. No. 8. US: Oxford University Press, 2018.
2. Jacobs, David M et al. "Overtreatment of Asymptomatic Candiduria among Hospitalized Patients: a Multi-institutional Study." Antimicrobial agents and chemotherapy vol. 62,1 e01464-17. 21 Dec. 2017, doi:10.1128/AAC.01464-17
3. Peter G. Pappas, Carol A. Kauffman, David R. Andes, Cornelius J. Clancy, Kieren A. Marr, Luis Ostrosky-Zeichner, Annette C. Reboli, Mindy G. Schuster, Jose A. Vazquez, Thomas J. Walsh, Theoklis E. Zaoutis, Jack D. Sobel, Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America, Clinical Infectious Diseases, Volume 62, Issue 4, 15 February 2016, Pages e1–e50, https://doi.org/10.1093/cid/civ933