

Evidence Discussion: Upper Urinary Tract Infection (Pyelonephritis) (AB-40.1)

- Pyelonephritis is a clinical diagnosis and advanced imaging is often not beneficial according to guidance from the American College of Radiology and the American Urological Association, as a majority of patients will clinically improve with appropriate antibiotic therapy.
- Advanced imaging may be indicated with contrasted CT (urography if requested) in patients with complicated clinical pictures which may include immunocompromised patients or those with diabetes mellitus, history of nephrolithiasis, prior renal surgery, or those with fever. All males with urinary tract infection are considered to have a complicated urinary tract infection and thus advanced imaging may be considered.
- Alternative imaging with MRI of the abdomen and pelvis with and without contrast may be performed if renal dysfunction is present.
- If an individual is unresponsive to therapy after 3 days, or if there is at least one prior episode of pyelonephritis, advanced imaging may be indicated. Pregnant patients are considered high risk for complications from pyelonephritis, however first line imaging should be with renal ultrasound to avoid ionizing radiation exposure. If further imaging is felt necessary, MRI of the abdomen and pelvis without contrast may be performed.

References:

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2. Delzell JE, Lefevre ML. Urinary tract infections during pregnancy. American Family Physician, 2000;61(3):713-720.
3. Silverman SG, Leyendecker JR, Amis ES. What Is the Current Role of CT Urography and MR Urography in the Evaluation of the Urinary Tract? Radiology. 2009;250(2):309-323. doi:10.1148/radiol.2502080534.
4. Hooton TM. Uncomplicated Urinary Tract Infection. New England Journal of Medicine. 2012;366(11):1028- 1037. doi:10.1056/nejmcp1104429.
5. Gupta K, Hooton TM, Naber KG, et al. 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. Clinical Infectious Diseases. 2011;52(5). doi:10.1093/cid/ciq257.

Evidence Discussion: Lower Urinary Tract Infection (AB-40.2)

- Advanced imaging for a lower urinary tract infection is not beneficial in most clinical scenarios according to guidance from the American College of Radiology and the American Urological Association, as few patients with cystitis will progress to an upper urinary tract infection.
- CT of the abdomen and pelvis with and without contrast may be indicated in the context of a complicated urinary tract infection, recurrent urinary tract infections (greater than 3 episodes in one year), or if recommended by a urologist or specialist.
- Complicated urinary tract infections may include immunocompromised patients or those with diabetes mellitus, history of nephrolithiasis, prior renal surgery, or those with fever. All males with urinary tract infection are considered to have a complicated urinary tract infection and thus advanced imaging may be considered.
- Alternative imaging with MRI of the abdomen and pelvis with and without contrast may be performed if renal dysfunction is present.

References:

1. Silverman SG, Leyendecker JR, Amis ES. What Is the Current Role of CT Urography and MR Urography in the Evaluation of the Urinary Tract? *Radiology*. 2009;250(2):309-323. doi:10.1148/radiol.2502080534.
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3. Suskind AM, Saigal CS, Hanley JM, Lai J, Setodji CM, Clemens JQ. Incidence and Management of Uncomplicated Recurrent Urinary Tract Infections in a National Sample of Women in the United States. *Urology*. 2016;90:50-55. doi:10.1016/j.urology.2015.11.051.
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5. Anger J, Lee U, Ackerman AL, et al. Recurrent Uncomplicated Urinary Tract Infections in Women: AUA/CUA/SUFU Guideline. *Journal of Urology*. 2019;202(2):282-289. doi:10.1097/ju.0000000000000296.