

Urinary tract infection in children

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■ Cite as: *CMAJ* 2017 April 24;189:E608. doi: 10.1503/cmaj.160656

1 Children with urinary tract infection usually present with nonspecific signs and symptoms

In children less than two years of age, a fever (> 39°C) without an apparent source is the most common sign of urinary tract infection (likelihood ratio 4.0).¹ Abnormal or strong urinary odour has poor predictive accuracy (i.e., sensitivity 43%, specificity 48%; Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.160656/-/DC1).²

2 The gold standard for diagnosis in children is positive test results for both urinalysis and urine culture

According to the Canadian Paediatric Society guidelines, a positive urinalysis (i.e., dipstick test) result for leukocyte esterase and/or nitrites (specificity 87% and 98%, respectively) and a positive urine culture result for growth of a single uropathogenic bacteria ($\geq 10^5$ CFU/mL) are required for diagnosis of urinary tract infection in children.^{3,4}

3 Urine collection in children who are not toilet-trained requires urethral catheterization or suprapubic aspirate (uncommon)

These methods for urine collection are reserved for cases in which an initial bag-specimen urinalysis is abnormal.³ Alternatively, the Canadian Paediatric Society recommends leaving the child with the diaper off and collecting a clean-catch urine sample while the child voids.³ If there is a positive result for urinalysis, treatment with antibiotics should start empirically and be adjusted subsequently based on the results of the urine culture.¹

4 Anatomic abnormalities should be ruled out in children less than two years of age after their first urinary tract infection with fever⁴

Children less than two years of age with a diagnosis of urinary tract infection with fever should undergo renal and bladder ultrasonography to rule out anatomic abnormalities.⁴ Further testing may be required if ultrasonography results are abnormal, and these children should be referred to a specialist (e.g., pediatric urologist).

5 Bowel and bladder dysfunction can contribute to urinary tract infection in children

Dysfunction of the bladder and bowel is present in 44% of preschool-aged and school-aged children presenting with urinary tract infection.¹ It promotes urinary stasis, which predisposes to a urinary tract infection if there are bacteria in the bladder. Treatment involves optimizing bladder and bowel elimination, with timed voiding schedules (e.g., every four hours while awake) and prevention of constipation.¹

References

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Competing interests: None declared.

This article has been peer reviewed.

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