

Update and summary of the EAU/ESPU paediatric guidelines on urinary tract infection in children.

European Association of Urology (EAU) and the European Society for Paediatric Urology (ESPU) · 2026

Study Guide: EAU/ESPU Paediatric Urinary Tract Infection Guidelines (2025 Update)

This study guide provides a comprehensive overview of the updated clinical guidelines for the diagnosis, management, and prevention of urinary tract infections (UTIs) in children, as established by the European Association of Urology (EAU) and the European Society for Paediatric Urology (ESPU).

Key Concepts and Summary

Epidemiology and Pathogens

Urinary tract infections are the most frequent bacterial infections observed in the paediatric population. While *Escherichia coli* (E. coli) remains the primary causative organism, there is a noted increase in the prevalence of other bacteria and multi-resistant strains of *E. coli*.

Classification of UTIs

UTIs in children are categorized through several clinical frameworks to guide treatment:

- **Location:** Upper urinary tract vs. lower urinary tract.
- **Symptomatology:** Febrile vs. non-febrile.
- **Occurrence:** First episode vs. recurrent vs. breakthrough episodes.
- **Nature:** Typical vs. atypical infections.

Diagnostic Workflow

1. **Collection:** Samples are obtained via urine bag, clean catch, catheterization, or suprapubic aspiration.
2. **Urinalysis:** Methods include dipstick testing, microscopy, and flow imaging analysis technology. The guidelines specifically recommend following a positive dipstick test with microscopic urinalysis.

3. **Imaging:** A renal and bladder ultrasound is generally recommended following the first instance of a febrile UTI. Further investigations are determined by the specific characteristics of the patient and the infection.

Management and Prevention

- **Treatment:** The primary treatment is prompt antimicrobial therapy. The choice of antibiotic should be informed by local antimicrobial sensitivity patterns and subsequently adjusted based on individual sensitivity-testing results.
 - **Prophylaxis:** Recurrence can be managed through chemoprophylaxis or non-antibiotic prophylaxis.
 - **Comorbidity Addressing:** Effective management includes treating underlying conditions such as phimosis, bladder-bowel dysfunction (BBD), and lower urinary tract dysfunction (LUTD).
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Short-Answer Practice Questions

1. According to the 2025 guidelines, what is the most common causative organism for UTIs in children? Answer: *Escherichia coli* (E. coli).

2. What clinical step is recommended immediately following a positive urine dipstick test?

Answer: Microscopic urinalysis.

3. Which imaging procedure is generally recommended after a child's first febrile UTI? Answer: A renal and bladder ultrasound.

4. What are the four primary methods listed for collecting urine samples in paediatric patients?

Answer: Urine bag, clean catch, catheterization, and suprapubic aspiration.

5. On what two factors should the choice of an antimicrobial agent be based? Answer: Local antimicrobial sensitivity patterns and specific sensitivity-testing results.

6. Name three non-antibiotic interventions that can help prevent the recurrence of UTIs. Answer: Treatment of phimosis, treatment of bladder-bowel dysfunction (BBD), and treatment of lower urinary tract dysfunction (LUTD).

Essay Prompts for Deeper Exploration

1. Evaluating Diagnostic Methodologies Compare and contrast the different methods of urine collection and analysis mentioned in the EAU/ESPU guidelines. Discuss why the Panel recommends microscopic urinalysis as a follow-up to dipstick testing and the implications of choosing one collection method (e.g., suprapubic aspiration) over another (e.g., urine bag).

2. Challenges in Antimicrobial Stewardship The source context notes an increasing prevalence of multi-resistant *E. coli* and other bacteria. Discuss the guidelines' approach to antimicrobial therapy, focusing on how clinicians must balance "prompt" treatment with the need for localized sensitivity data and patient-specific adjustments to prevent further resistance.

3. Categorization and Risk Stratification Explain the various ways UTIs are classified (e.g., Typical vs. Atypical, Febrile vs. Non-febrile). How do these classifications, combined with patient characteristics, influence the decision to pursue "additional investigations" beyond the standard renal and bladder ultrasound?

Glossary of Important Terms

Term	Definition
BBD	Bladder-Bowel Dysfunction; a condition affecting the coordination of the bladder and bowel that can contribute to UTIs.
Breakthrough Episode	A UTI that occurs while a patient is already receiving prophylactic antibiotic treatment.
Chemoprophylaxis	The use of antibiotics to prevent the occurrence or recurrence of an infection.
EAU	European Association of Urology.
ESPU	European Society for Paediatric Urology.
Febrile UTI	A urinary tract infection accompanied by a fever, often suggesting involvement of the upper urinary tract (kidneys).
LUTD	Lower Urinary Tract Dysfunction; abnormalities in the storage or emptying of urine.
Multi-resistant E. coli	Strains of <i>Escherichia coli</i> that have developed resistance to multiple types of antimicrobial agents.
Phimosis	A condition where the foreskin cannot be fully retracted; identified as a factor to be treated to prevent recurrent UTIs.
Sensitivity-testing	Laboratory testing of a bacterial sample against various antibiotics to determine which agents are most effective at inhibiting growth.
Suprapubic Aspiration	A method of collecting sterile urine by inserting a needle through the abdominal wall directly into the bladder.