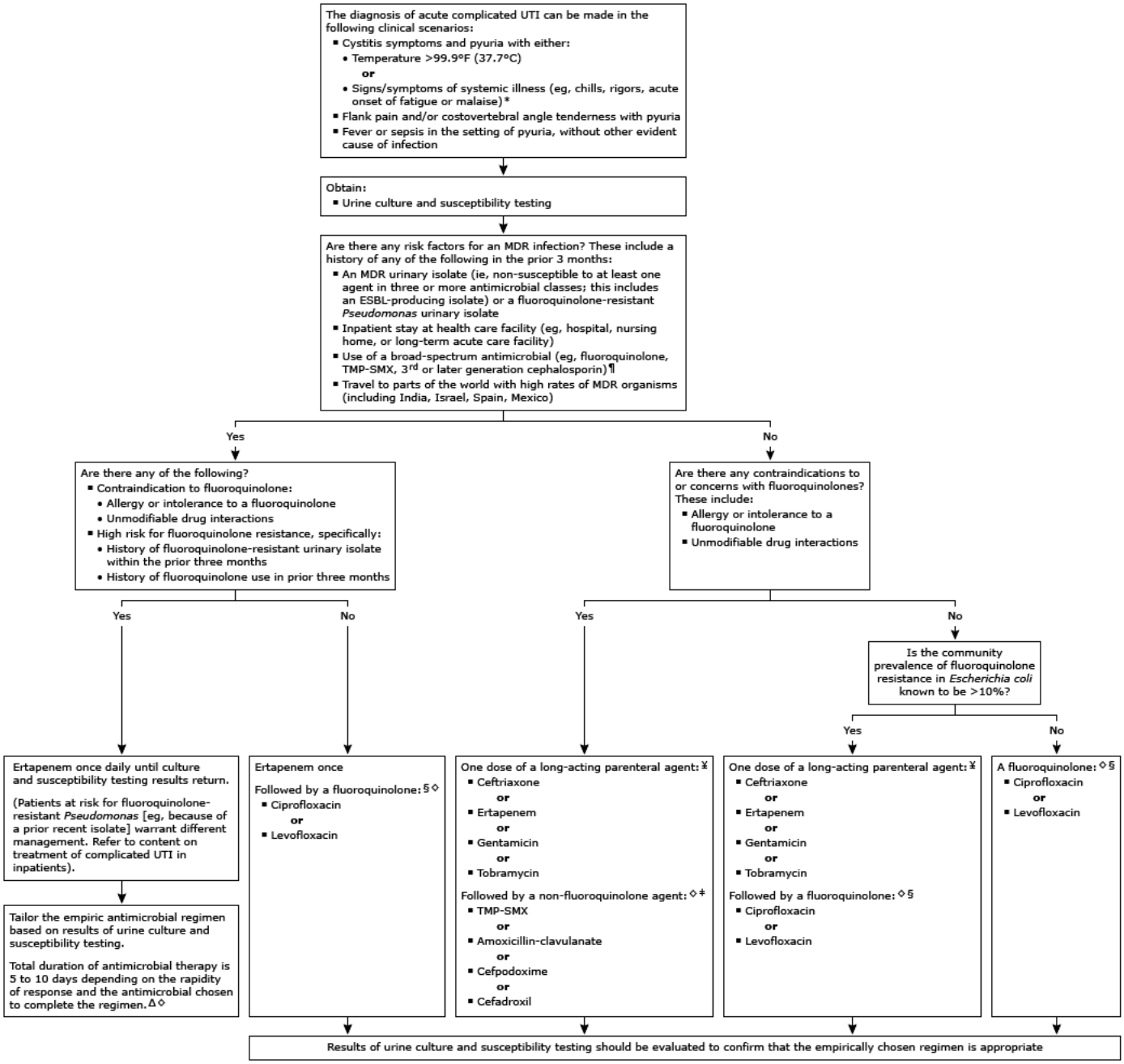
Empiric antimicrobial selection for acute complicated urinary tract infection in adults in the outpatient setting



- This algorithm reflects our approach to the selection of empiric antimicrobial therapy for patients in the outpatient setting who have an acute complicated UTI. Ultimately, the selection of antimicrobial therapy should be individualized based on severity of illness, individual and community risk factors for resistant pathogens, and specific host factors.
- Outpatient management is acceptable for patients with mild to moderate illness, including those who can be stabilized with rehydration and initial antimicrobial therapy in an outpatient or emergency room setting and discharged on oral antibiotics with close follow-up. Indications for inpatient management include persistently high fever or pain, marked debility, inability to maintain oral hydration or take oral medications, suspected urinary tract obstruction, and concerns regarding adherence to therapy. If inpatient management is anticipated, refer to other UpToDate content on antimicrobial therapy selection for the inpatient setting.
- In addition to antimicrobial therapy, patients who have anatomical or functional urinary tract abnormalities (including neurogenic bladder, indwelling bladder catheters, nephrostomy tubes, urethral stents) may warrant additional management, such as more frequent catheterization to improve urinary flow, exchange of a catheter, and/or urologic or gynecologic consultation.
- Doses listed are for patients with normal renal function and may require adjustment in the setting of renal impairment.

UTI: urinary tract infection; MDR: multidrug-resistant; ESBL: extended-spectrum beta-lactamase; TMP-SMX: trimethoprim-sulfamethoxazole; IV: intravenous; IM: intramuscular.

* We consider individuals who have pyuria with only cystitis symptoms to have acute simple cystitis and manage them differently. Fever or systemic symptoms suggest that infection has extended beyond the bladder and is a complicated UTI. The possibility of prostatitis should also be considered in

males with urinary and systemic symptoms. The temperature threshold used to determine whether to treat a patient as simple cystitis or complicated UTI is not well defined and should take into account baseline temperature, other potential contributors to an elevated temperature, and the risk of poor outcomes should empiric antimicrobial therapy be inappropriate.

¶ This includes a single antimicrobial dose given for prophylaxis prior to prostate procedures.

Δ Appropriate oral agents to treat complicated UTI include levofloxacin (5 to 7 days), ciprofloxacin (for 5 to 7 days), and TMP-SMX (for 7 to 10 days). Beta-lactams (for 7 to 10 days) are appropriate if susceptibility is documented and other agents are not feasible.

◇ A longer duration of therapy may be warranted in patients who have a nidus of infection that cannot be removed. Patients who have worsening symptoms following initiation of antimicrobials, persistent symptoms after 48 to 72 hours of appropriate antimicrobial therapy, or recurrent symptoms within a few weeks of treatment should have additional evaluation including abdominal/pelvic imaging, if not already performed) for factors that might be compromising clinical response.

§ Patients should be advised about the uncommon but potentially serious musculoskeletal and neurologic adverse effects associated with fluoroquinolones.

¥ Of the options listed, ceftriaxone is typically the preferred agent. Ertapenem is an alternative for patients with allergy or expected resistance to ceftriaxone, and aminoglycosides are reserved for patients who cannot use either.

‡ For outpatients who are more ill or are at risk for more severe illness, continuing the parenteral therapy pending culture results is also reasonable.

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