Lack of Uniformity Among United States Guidelines for Diagnosis & Management of Acute Uncomplicated Cystitis

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Background

- Acute uncomplicated cystitis (or urinary tract infection, UTI) is one of the most common bacterial infections seen in inpatient and outpatient settings in the United States and carries variable morbidity for patients, including financial impact of care and time taken off work.
- Despite the high prevalence of acute uncomplicated cystitis, variability of management persists within specialties and among physicians. This may be attributed to the existence of five different UTI guidelines in the United States. Deviation from published guidelines may lead to over-prescribed or erroneously prescribed antimicrobials, contributing to antibiotic resistance and increased cost of patient care.

Aims

- Compare guidelines on acute uncomplicated cystitis from medical specialties in the United States and summarize the various methods for diagnosis and treatment of cystitis.

Methods

- We reviewed the U.S. guidelines for UTI management from 2008-2012 from the following societies:
  - ➢ American Academy of Family Physicians
  - ➢ American Urogynecologic Society
  - ➢ Infectious Diseases Society of America
  - ➢ American College of Physicians
  - ➢ American College of Obstetricians and Gynecologists
- The endorsement of clinical guidelines by professional societies in Emergency Medicine (IDSA) and Urology (IDSA) were also included.

Results

- Confirmation with urine culture & susceptibility (C&S) is not endorsed by any of the guidelines reviewed for the diagnosis of uncomplicated UTI when positive urine dipstick is present (*Table 1*).
- Urine dipstick is not indicated for recurrent UTI (with diagnostic confirmation) (ACOG) or if classic UTI symptoms are present (ACP).
- Discrepancies in fluoroquinolone treatment: second-line therapy (AAFP, ACP, IDSA, AUGS) vs. first-line therapy (ACOG).
- Amoxicillin and ampicillin, antibiotic agents with high resistance rates, are identified as therapies with inferior efficacy by some organizations (AAFP, IDSA, AUGS).

Table 1. Recommendations for Diagnosis & Management of Acute Uncomplicated Cystitis. **Differences between guidelines noted in red.**

Organization	Symptoms	Exam	Urine Dipstick	Urine C&S	Antimicrobial Treatment
American Academy of Family Physicians (AAFP)	Dysuria, Urinary frequency, Urinary urgency, Absence of vaginal discharge or irritation	Suprapubic tenderness (10-20%)	Nitrites & leukocyte esterase = diagnostic	Only if suspected pyelonephritis, symptoms not resolved 2-4 weeks after treatment, or atypical symptoms	**First-line**: fosfomycin, nitrofurantoin monohydrate-macrocrystals, trimethoprim-sulfamethoxazole **Second-line**: ciprofloxacin, ciprofloxacin (extended-release), levofloxacin, ofloxacin **Third-line**: amoxicillin-clavulanate, cefdinir, cefpodoxime
American College of Obstetricians & Gynecologists (ACOG)	Dysuria, Urinary frequency, Urinary urgency, **Suprapubic pain or pressure**	N/A	Nitrites & leukocyte esterase = diagnostic. **Not required for recurrent UTI**	**Only if negative dipstick w/ symptoms, no symptom improvement 48 hours after treatment,** or pyelonephritis	**First-line**: trimethoprim-sulfamethoxazole, trimethoprim, **ciprofloxacin, levofloxacin, norfloxacin, gatifloxacin,** nitrofurantoin monohydrate-macrocrystals, nitrofurantoin macrocrystals, fosfomycin **Second-line**: beta-lactams, sulfonamide
American College of Physicians (ACP)	Dysuria, Urinary frequency, Urinary urgency, **Hematuria**, Absence of vaginal discharge or irritation	N/A	Nitrites & leukocyte esterase = confirm diagnosis only. **Dipstick not always required.**	Only if diagnosis of cystitis unclear, **resistant or unusual organism suspected,** treatment failure or recurrent episode suspected, **treatment options limited by antibiotic intolerances, or if pregnant**	**First-line**: nitrofurantoin monohydrate-macrocrystals, trimethoprim-sulfamethoxazole, fosfomycin **Second-line**: ofloxacin, ciprofloxacin, levofloxacin, beta-lactams
Infectious Diseases Society of America (IDSA)	N/A	N/A	N/A	N/A	**First-line**: nitrofurantoin monohydrate-macrocrystals, trimethoprim-sulfamethoxazole, fosfomycin, pivmecillinam **Second-line:** ofloxacin, ciprofloxacin, levofloxacin, beta-lactams (amoxicillin-clavulanate, cefdinir, cefaclor & cefpodoxime-proxetil)
American Urogynecologic Society (AUGS)	Dysuria, Urinary frequency, Urinary urgency, **Hematuria**, Absence of discharge, **Suprapubic pain**	**Pelvic exam** and abdominal exam	Nitrites & leukocyte esterase = screening tool	Only required if complicated UTI suspected	**First-line**: nitrofurantoin monohydrate-macrocrystals, trimethoprim-sulfamethoxazole, fosfomycin, pivmecillinam **Second-line**: ofloxacin, ciprofloxacin, levofloxacin, beta-lactams

Conclusions

- There are important differences in the recommended management of UTI, possibly accounting for lack of adherence to guidelines.
- Despite the FDA black box warning for fluoroquinolones, they are a first-line treatment for UTI by ACOG.
- With few exceptions, urine C&S is not recommended by any of the guidelines reviewed.
- Widespread use of empiric antibiotic therapy for UTI may contribute to rising rates of multidrug-resistant bacteria, pointing to a need for improvement in antibiotic stewardship in current UTI management.