

Diagnosis and Management of Urinary Tract Infection in Older Adults

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KEYWORDS

• Aging • Elderly • Urinary tract infection • Asymptomatic bacteriuria

KEY POINTS

- Urinary tract infection (UTI) and asymptomatic bacteriuria (ASB) are common in older adults.
- Distinguishing UTI from ASB is problematic, as older adults may not present with typical signs and symptoms suggestive of UTI.
- Overutilization of antibiotics for suspected UTI is a major problem in older adults living in long-term care facilities, and leads to the development of multidrug-resistant organisms.
- Future studies to improve the diagnostic algorithm for UTI in older adults are needed.

DEFINITIONS OF URINARY TRACT INFECTION

Urinary tract infection (UTI) is one of the most commonly diagnosed infections in both hospitalized and community-dwelling older adults. The definition of symptomatic UTI in older adults generally requires the presence of localized genitourinary symptoms, urinary tract inflammation as demonstrated by pyuria, and a urine culture with an identified urinary pathogen ([Table 1](#)).¹ Although several consensus guidelines have developed UTI definitions for surveillance purposes, a universally accepted definition of symptomatic UTI in older adults does not exist.¹⁻⁴

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Table 1 Definition of common terms	
Pyuria	>10 white blood cells (WBC)/mm ³ per high-power field (HPF)
Bacteriuria	Urinary pathogen of $\geq 10^5$ colony-forming units (cfu) per mL
Laboratory-confirmed UTI	Pyuria (>10 WBC/mm ³ per HPF) plus bacteriuria ($\geq 10^5$ cfu/mL)
Asymptomatic bacteriuria	Bacteriuria in the absence of genitourinary signs or symptoms
Symptomatic UTI	Bacteriuria in the presence of genitourinary symptoms (ie, dysuria, suprapubic pain or tenderness, frequency, or urgency)
Uncomplicated UTI	Genitourinary symptoms (ie, dysuria, suprapubic pain or tenderness, frequency, or urgency) with evidence of pyuria plus bacteriuria in a structurally normal urinary tract
Complicated UTI	UTI occurring in a patient with a structural or functional urinary tract abnormality

DEFINITIONS OF ASYMPTOMATIC BACTERIURIA

Asymptomatic bacteriuria (ASB) is defined as the presence of bacteria in the urine in quantities of 10^5 colony-forming units per milliliter (cfu/mL) or more in 2 consecutive urine specimens in women or 1 urine specimen in men, in the absence of clinical signs or symptoms suggestive of a UTI.⁵ Distinguishing UTI from ASB in older adults, although challenging, is particularly important, as antibiotics are necessary for the treatment of symptomatic UTI, but not for ASB. This review focuses on the most recent literature and guidelines on diagnosis, management, and prevention of both UTI and ASB in older adults.

EPIDEMIOLOGY OF URINARY TRACT INFECTION

Both ASB and UTI are common among older adults. UTI is the second most common infection diagnosed in the acute hospital setting,⁶ and accounts for almost 5% of all emergency department visits by adults aged 65 years and older in the United States each year.⁷ In long-term care facilities, UTI accounts for approximately 30% to 40% of all health care–associated infections, with an estimated point prevalence of 1.5% to 1.64%.^{8,9} In community-dwelling older adults, the incidence and prevalence of UTI varies with age and gender. The incidence of UTI ranges from 0.07 per person-year in postmenopausal women¹⁰ to 0.13 per person-year in adults older than 85.¹¹ The prevalence of UTI in one cohort study in women older than 65 years was found to be approximately 16.5% over a 6-month period.¹² Another cohort study in women older than 85 found almost 30% of women to have reported at least 1 UTI within a 12-month period.¹³ In men, the annual incidence of UTI ranges from 0.05 in men aged 65 to 74 years and is estimated to increase to 0.08 in men aged 85 and older.¹⁴ Although UTI is one of the most commonly reported infections in older adults, definitions for symptomatic UTI vary significantly across the literature, making the reported incidence and prevalence of symptomatic UTI in this population variable.

EPIDEMIOLOGY OF ASYMPTOMATIC BACTERIURIA

ASB is uncommon in younger adults, but increases significantly with age in both men and women. The prevalence of ASB is estimated to be between 6% and 10% in women older than 60 years and approximately 5% in men older than 65.¹⁵ A cohort

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