

Q21 Urine Testing for Infection in Older Adults

Which *one* of the following statements about urine testing to rule out infection in patients older than 65 is *false*?

- ☐ 1. For patients with indwelling catheters, urine cultures should only be collected from the first void in a newly replaced catheter.
- ☐ 2. Urine dipstick testing is not recommended to diagnose urinary tract infection (UTI) in adults living in long-term care.
- ☐ 3. Treating asymptomatic bacteriuria (ASB) reduces the risk of developing a subsequent UTI.
- ☐ 4. In the absence of urinary signs or symptoms or signs of sepsis, asymptomatic bacteriuria is an unlikely cause of delirium.

Educational Point: Urinary tract infections are widely recognized as being over-diagnosed in adults aged 65 or older, and UTIs are a primary driver of unnecessary antimicrobial use in this population that contributes to antimicrobial resistance. As we age, rates of expected colonization of the bladder increase such that as many as half of patients tested will have bacteria isolated from cultured urine, and urinalysis results will be positive most of the time. Asymptomatic bacteriuria (ASB) refers to this known colonization state. **Several randomized controlled trials have demonstrated that treating patients for ASB with antibiotics confers no benefit in terms of avoidance of UTI or improved outcome.** In fact, the opposite is true. Treatment of ASB results in considerable harm, ranging from drug related adverse effects to stepwise development of antimicrobial resistance and premature diagnostic closure that can lead to other explanations for a patient's presentation being missed.

In contrast to common perception, ASB is not a health threat and may actually be protective against risk of ascending infection. On the other hand, antibiotics aimed at ASB do the exact opposite, leading to loss of microbiome diversity and increasing the risk of UTI by as much as 300%. Common occurrences such as falls, anorexia, lethargy, and confusion may prompt reflexive urine culture testing and result in misattribution of ASB as UTI, along with delays in recognition of actual causes of these symptoms. **Multiple systematic reviews suggest any association between UTI and delirium in older adults is likely overestimated and, in the absence of localizing urinary signs or symptoms or signs of sepsis, ASB is an unlikely cause of delirium.** Current evidence suggests antimicrobial therapy for ASB does not lead to improved resolution of changes in mental status, improved Brief Confusion Assessment Method results, reduced risk of mortality, or reduced risk of functional decline. Correspondingly, Infectious Diseases Society of America guidelines strongly recommend against antimicrobial treatment for older adults with delirium without local genitourinary symptoms or systemic signs of infection such as fever or hypotension.

How, then, can clinicians carefully assess older adults for possible UTI while mitigating harms of overdiagnosis and unnecessary antibiotics? For patients without indwelling catheters, urine culture should be ordered for those with acute dysuria alone or with fever and at least 1 acute localizing lower urinary tract finding (eg, new or worsening urgency, frequency, suprapubic pain, gross hematuria, costovertebral angle tenderness, urinary incontinence). For patients with chronic indwelling urinary catheters, urine culture is indicated only if fever, new costovertebral tenderness, rigours, or new-onset delirium without another obvious cause is present. **Because urinary catheters are colonized with bacteria and may not indicate the cause of infection, urine cultures should be collected only from the first void in the newly replaced urinary catheter.**

Urinalysis and urine dipsticks are frequently implicated in the broad-spectrum workup of older adults presenting for medical attention. While validated in younger adults, urinalysis has extremely poor performance characteristics in older populations. A multihospital cohort study published in 2024 demonstrated poor performance parameters of urinalysis for older adults and particularly for older women. Accordingly, guidelines from England and Scotland, among other countries, now recommend against use of urinalysis in the diagnosis of UTI in adults older than 65 years. **Choosing Wisely Canada has similarly issued a practice change recommendation against using dipsticks or urinalysis to diagnose UTI in older adults in LTC settings. Long-term care homes are discouraged from purchasing, storing, or using dip sticks altogether. Similar approaches should be adopted in adults older than 65 presenting to a clinic, emergency department, or any other health care setting as dipsticks do not add diagnostic value and introduce potential for misdiagnosis.**

The correct answer is 3.