

Best Practice Message

August 2025

Diagnosis of Urinary Tract Infection in Aged Residential Care

Practice changing moments

- Urine dipsticks for **diagnosing** UTI in ARC are not recommended because they have a very high false positive rate.
- If a UTI is suspected, use a validated Aged Residential Care UTI decision support tool and consider empiric antibiotics according to guidance.
- Only send urine samples for testing when clinically indicated.
- When antibiotics are required, avoid overtreatment by; using a narrow spectrum agent, and modify the treatment and duration if needed once the mid-stream urine (MSU) test culture and sensitivity results are reported.

Background

A urine dipstick test can help identify bacterial presence by detecting nitrites, as some bacteria convert urinary nitrates into nitrites. Additionally, the analysis tests for the presence of leukocytes, which are often elevated during an infection. However, the test has a very high false positive rate. A positive urine culture may be due to contamination, asymptomatic bacteriuria, or a symptomatic urinary tract infection (UTI).

Asymptomatic bacteriuria (the presence of bacteria in the absence of urinary symptoms) is a common clinical condition and often leads to unnecessary treatment. The presence of asymptomatic bacteriuria increases with age; it is uncommon in children, occurs in up to 5% of healthy premenopausal women, and up to 9.5% of pregnant women. The prevalence in older adults in long term care facilities is up to 50%, and 100% in people with a long-term indwelling catheter.¹ Treating asymptomatic bacteriuria leads to adverse effects, antibiotic resistance, and increased recurrent clinical infections as well as significant microbiome damage.²

In 2022 Te Tāhū Hauora -The Health Quality & Safety Commission (HQSC) rolled out guidelines for optimising the use of antibiotics in the management of UTI in Aged Residential Care (ARC). The HQSC guide discourages the use of routine dipstick urinalysis diagnosing UTI and states that dipstick analysis should only be used in ruling out the diagnosis of UTI in patients who cannot report their symptoms.³

Several of the aged residential care facilities in Hawke's Bay have adopted a no dipstick approach to UTI management.

Urine dipsticks in the ARC setting

High false positives

A dipstick showing leucocytes and nitrites does not confirm UTI in the ARC setting because half of the population ordinarily have bacteria in their urine. In a study of older hospitalised adults, dipsticks produced false positive of 42.4% in patients with a negative culture result.⁴ A similar result was found in a study of ARC residents where the positive predictive value was 45%.⁵

Negative predictive value

While a positive reading for both nitrite and leukocyte esterase has a low positive predictive value for UTI, a dipstick that reads **negative** for **both** nitrite and leukocyte esterase is more reliable at **excluding** a urinary tract infection.

The negative predictive value for urinary dipstick is around 90 - 95%.⁶ i.e. in most cases urinary culture should not be obtained in cases of a negative dipstick for leukocyte esterase and nitrite, and causes other than UTI should be evaluated.

When to collect a urine specimen for lab testing.

It can be difficult to make a diagnosis of urinary UTI in some older patients due to the higher prevalence of chronic urinary symptoms and cognitive impairments. The HQSC guidelines suggest using a decision-support tool to check whether signs and symptoms meet criteria for UTI before collecting a urine specimen. The decision support tool can be found [here](#) and was adapted from the McGeer UTI criteria and the Ontario UTI assessment algorithm. This decision-support tool captures the pathway for residents both with and without a urinary catheter.

All catheters, unless freshly inserted, will be colonised with bacteria, making urine cultures very difficult to interpret. The most accurate way to diagnose catheter-associated UTI is to remove the existing catheter and obtain either an MSU, or a sample from a freshly replaced catheter.⁷

Prescribing and reviewing antibiotics

Empiric treatment should be started only when diagnostic criteria are met. Treatment of bacteriuria in patients with delirium, but no signs or symptoms of infection, has been shown to have no beneficial effect on clinical outcomes when compared with no treatment.⁸

In all patients who require antibiotics for a UTI, narrow-spectrum antibiotics such as [nitrofurantoin modified release](#) should be used first. If nitrofurantoin is contraindicated (such as a creatinine clearance <60mL/min), [trimethoprim](#) or [cefalexin](#) remain appropriate options. For more details on antibiotics of choice see [here](#).



Systems should be implemented so that **antibiotics** can be **reviewed once the culture report is available**.

Tools:

- **HQSC**
[Guide to improving the use of antibiotics in the management of urinary tract infections in aged residential care](#)
- **HealthPathways**
[UTI in adults \(see section on older adults\)](#)
- **bpac^{nz}**
[Primary care antibiotic guide](#)
- **Health Hub**
[Driving down UTI rates in aged residential care webinar recording. Ben Harris](#)

References:

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Authored by: Riani Albertyn

Reviewed by: Brendan Duck

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