Australian Government
Aged Care Quality and Safety Commission

Better use of antibiotics

To Dip or Not to Dip project

Project background

Low-value urine dipstick testing practice in aged care is a common, yet modifiable, driver of antibiotic overuse for conditions such as asymptomatic bacteriuria (ASB).

The Aged Care Quality and Safety Commission (the Commission) strongly encourages quality improvement in urine dipstick testing. The Commission launched "To Dip or Not to Dip" (TDONTD) in October 2021. TDONTD was adapted from a widely implemented UK quality initiative that has successfully reduced antibiotic prescribing for urinary tract infection (UTI) treatment and prophylaxis in English aged care homes. TDONTD resources include a best practice clinical pathway for assessment of residents with suspected UTI. Other resources include case-based education, a training video, posters, an antibiotic audit tool and consumer brochure.

The Commission undertook a pilot and evaluation of the feasibility and useability of TDONTD resources to support improvement in UTI management in Australian residential aged care services. Evaluation was undertaken by:

- Participant nurses and pharmacists at 12 residential aged care pilot sites sharing their implementation experience through interviews at baseline and three months
- Service surveys of urine dipstick testing practice and antibiotic prescribing audits.

Project key findings

- TDONTD can feasibly be considered for implementation in Australian aged care services.
- TDONTD resources were sufficient for implementation, including tools to deliver education to nursing and care staff, and engagement with GPs and consumers.
- TDONTD was effective in changing clinical processes and behaviours around urine dipstick testing when assessing residents routinely or with suspected UTI.
- TDONTD was effective in raising awareness of inappropriate antibiotic use for asymptomatic bacteriuria, a common condition in older people where bacteria is found in the urine without symptoms of UTI.
- TDONTD resulted in changes to policy and process for nursing assessment of residents with suspected UTI.
- Common approaches to implementation included pharmacist delivered case-based education and audits. Nurse champions delivered clinician education and reinforced use of the clinical pathway.
- The intervention increased participants' confidence and those of their peers in not using urine dipstick tests to detect UTIs. There was increased focus on clinical assessment to identify symptoms and signs, and consideration of all possible causes of presentation.

Pilot sites

Eight were in Queensland and four in Victoria. There was a mix of metropolitan (7) and rural services (5). Service sizes ranged from 40 to 183 beds (median 76 beds).

Project interviews

Baseline

Nurse champions and pharmacists were interviewed about why they participated:

> We have to think of the future and ensure antibiotics are used appropriately... I have been tearing my hair out for many years to find ways to change practice. *(Nurse 11)*

> Staff seem to jump on UTI for every symptom rather than looking for something else... We do a dipstick, and it lights up like a Christmas tree. We should be asking "Do you have symptoms?". *(Nurse 10)*

When asked about urine dipstick testing practice, nurses provided the following responses:

> Often, it's a case of nurses not wanting to miss something as they want to be thorough. There is this attitude of better to be safe than sorry. They don't want to get things wrong. *(Nurse 7)*

> It's very hard to get the RNs to not do the dipstick. It's not written policy or process, but we just do it. *(Nurse 1)*

Follow-up

Follow-up interviews were conducted from March 2022 to June 2022. In the pilot, pharmacists delivered case-based education. Feedback from pharmacists and nurses reflected strong appreciation of the resources:

> (TDONTD) made the principles easy to grasp...The fact that it was produced by government and based on research, evidence, has a very professional finish... *(Pharmacist 3)*

> We use the protocol (clinical pathway) when determining whether urinalysis should be performed... It is very clear to help nurses make a decision...We have now seen cases where we used the pathway and instead of treating for UTI, when we sent off an MSU, we were surprised it was not a UTI. *(Nurse 6)*

The TDONTD intervention was noted as an opportunity to change practice:

> We now have a different approach. (TDONTD) helps to reinforce, to develop skills, to assess residents instead of just dipping all the time. The clinical pathway helps this the most...the program gives... knowledge to tell us what to look for...This (also) makes you look for other causes for the underlying symptom. *(Nurse 5)*

TDONTD challenged and changed nurse perceptions of how residents present with UTI:

> If someone is "off" in the past it was always a UTI, but we now realise that this may not have always been correct...It has changed practice, our way of thinking and decision-making. *(Nurse 6)*

Feedback was also received on TDONTD implementation in services:

> The job is already... demanding, this is another task to add but benefit outweighs this...There has been some resistance to change... You need to spend time explaining the benefits to them. *(Nurse 12)*

Surveys of urine dipstick testing practice

A diagnosis of UTI should not be made on the basis of a urine dipstick test result. Dipstick testing in asymptomatic residents is not recommended. This results in frequent detection of asymptomatic bacteriuria (ASB), a condition that does not require antibiotic treatment. ASB is frequently misdiagnosed as UTI. Diagnosis of UTI should be made by taking into consideration a person's clinical signs and symptoms. Use of a clinical protocol supports this.

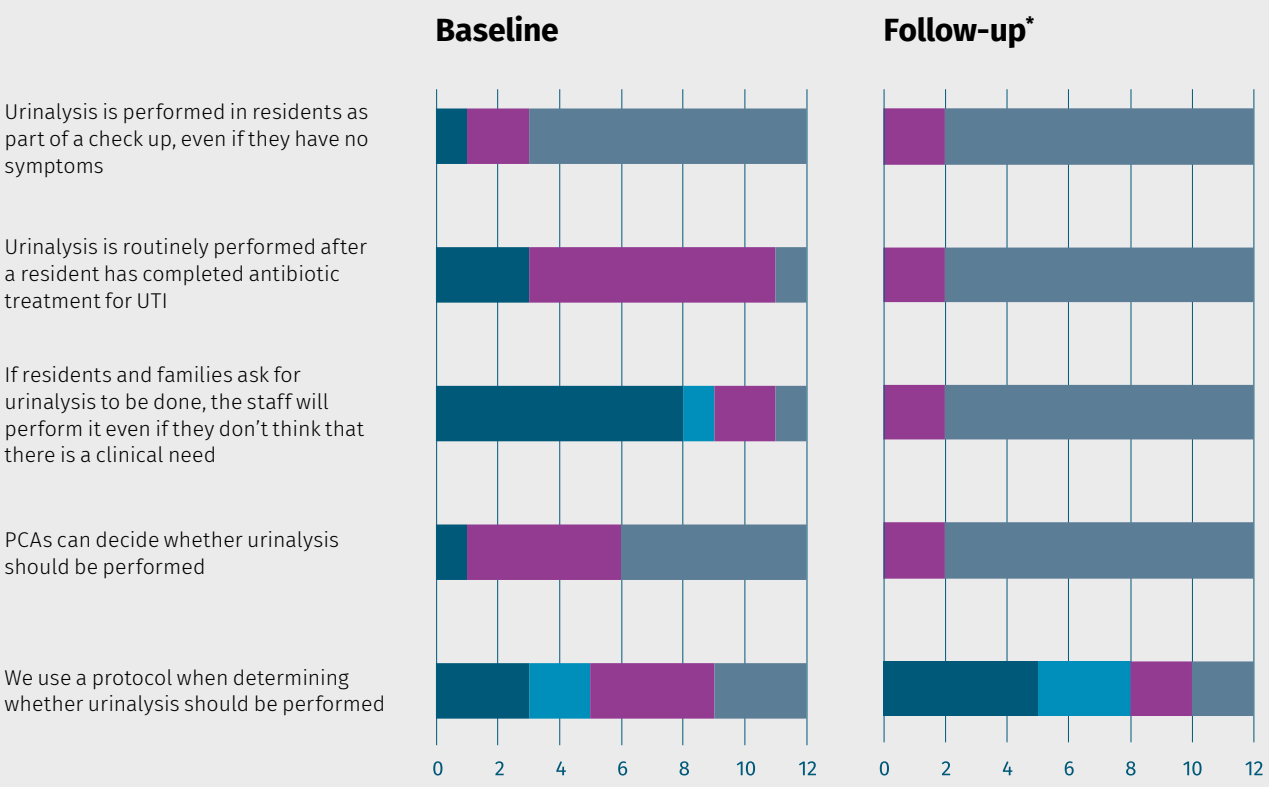

Figure 1

Figure 2

** TDONTD clinical pathway was not implemented in 2 services*

> Before we always had to do dipstick testing after residents completed antibiotic courses for UTI. Now we have been told it is OK not to do it.
>
> It has changed our staff thought processes. Instead of dipstick and antibiotics, we are doing more promoting hygiene, toileting regularly, changing pads regularly, encouraging fluids. *(Nurse 2)*

Antibiotic audits

12 services contributed data at baseline and 3-months. 6 services contributed 6-month data prior to finalisation of the TDONTD project. At any point in time, up to 8 residents out of 100 were on an oral antibiotic, with UTI a common reason for antibiotic prescribing (**Fig 3**).

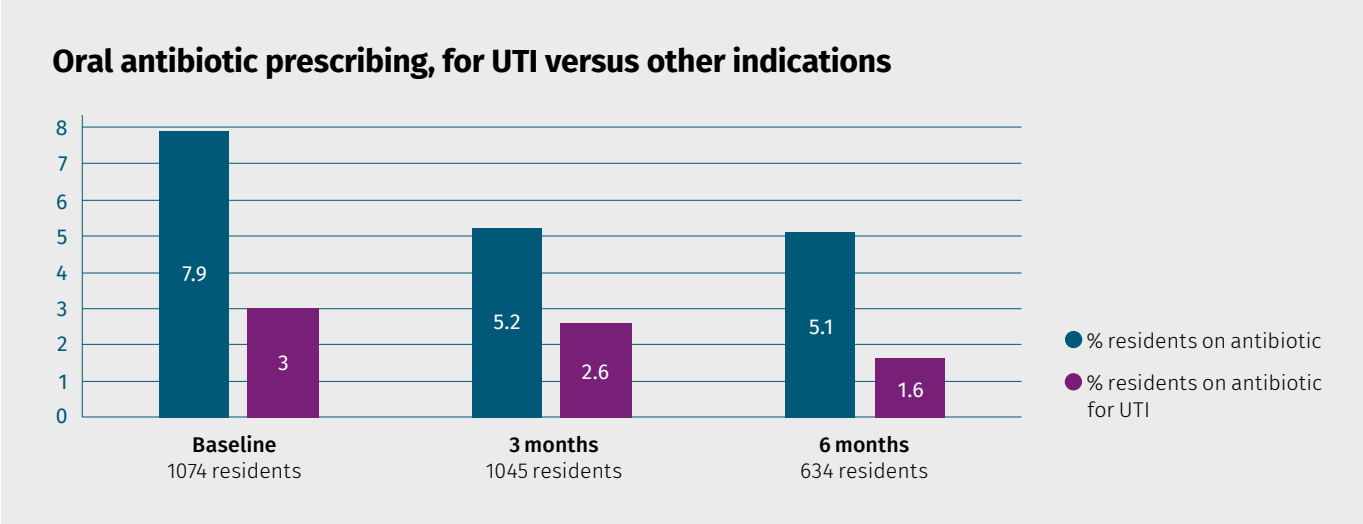

Figure 3

Common reasons for inappropriate prescribing were antibiotic initiation for residents with no documented signs or symptoms, for ASB, or for durations in excess of guidelines with no documentation of clinical reason for continuation. Audit improvements were seen in prescribing appropriateness by indication and duration of UTI treatment (**Fig 4**) and by indication for prophylaxis antibiotics used to prevent infection (**Fig 5**).

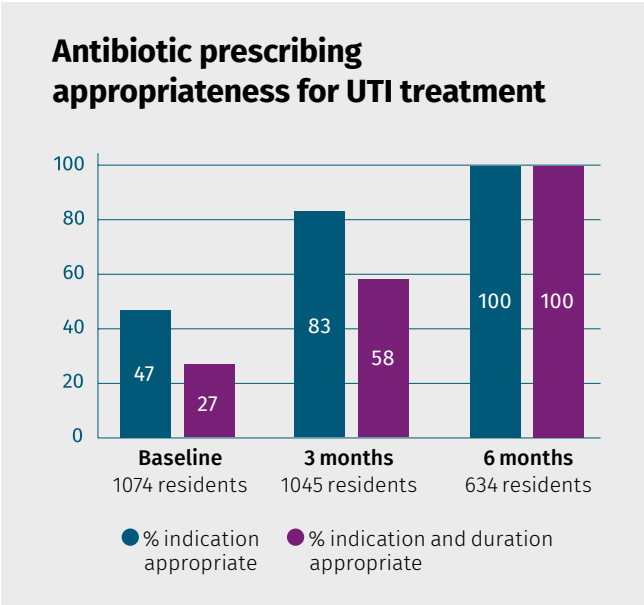

Figure 4
Prescribing for these indications was considered inappropriate: ASB, charted prn, urinary tract indication uncertain and no signs or symptoms at antibiotic commencement. Accepted prescribing durations for cystitis were up to 7 days, for pyelonephritis up to 14 days.

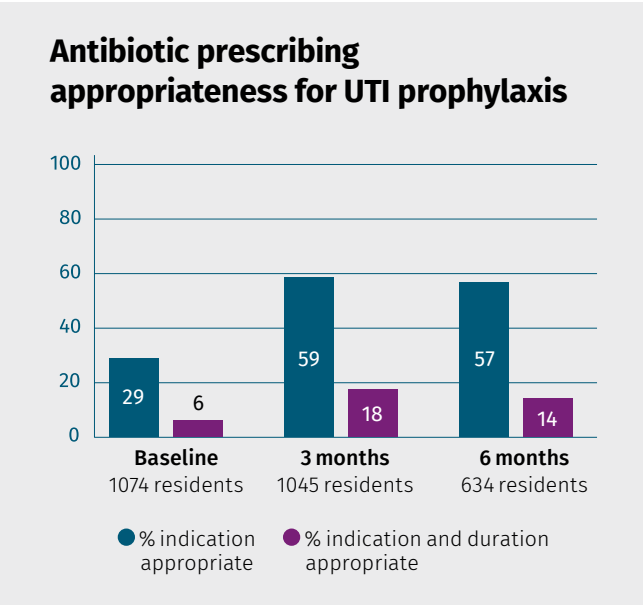

Figure 5
Prescribing for ASB or where indication was unknown or not documented was considered inappropriate. Prescribing durations over 180 days were considered inappropriate.

Key outcomes and lessons learned

- A quality improvement approach that is structured and collaborative is the most effective way to deliver change. This recognises the challenges in designing, delivering and sustaining a quality improvement activity.
- Services need to plan around competing priorities, make time for quality improvement, identify leads willing and able to champion the project, and engage organisational and leadership support.
- Antimicrobial Stewardship or Medication Advisory Committee (or interdisciplinary working group) engagement in planning and addressing findings supports change processes.
- Attention to sustainability ensures the collective impact of quality improvement efforts will not be lost. TDONTD offers multi-modal strategies to support clinician education during implementation and to support sustainability.
- Pharmacists can support implementation activities such as education, antimicrobial audits, providing antimicrobial expertise, and dissemination of audit findings.
- TDONTD resources will be updated by the Commission based on participants' feedback.
- TDONTD would benefit from being incorporated as a continuing professional education activity for nurses and pharmacists.

Further opportunities

The pilot identified widespread gaps in urine dipstick knowledge, understanding and practice. This was evident in aged care clinicians, general practitioners, pharmacists, groups supporting aged care (such as outreach teams) or reported practice for residents returning from Emergency Departments.

Urine dipstick practice is deeply ingrained, and practice change requires a strong, coordinated national and interdisciplinary approach. The Commission will promote this as an important area for healthcare education, aged care practice quality improvement and antimicrobial stewardship.

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The clinical pathway was adapted from Therapeutic Guidelines: Antibiotics "Management algorithm for residents with suspected UTI in RACF".

Information on To Dip or Not to Dip resources is available on www.agedcarequality.gov.au/antimicrobial-stewardship

For further enquiries, contact the Commission at pharmacyunit@agedcarequality.gov.au