Understanding UTIs vs Asymptomatic Bacteriuria in the older person

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CNC QSAMSP

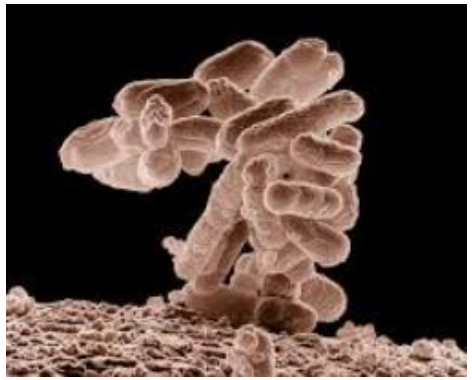
February 2026

QSAMSP

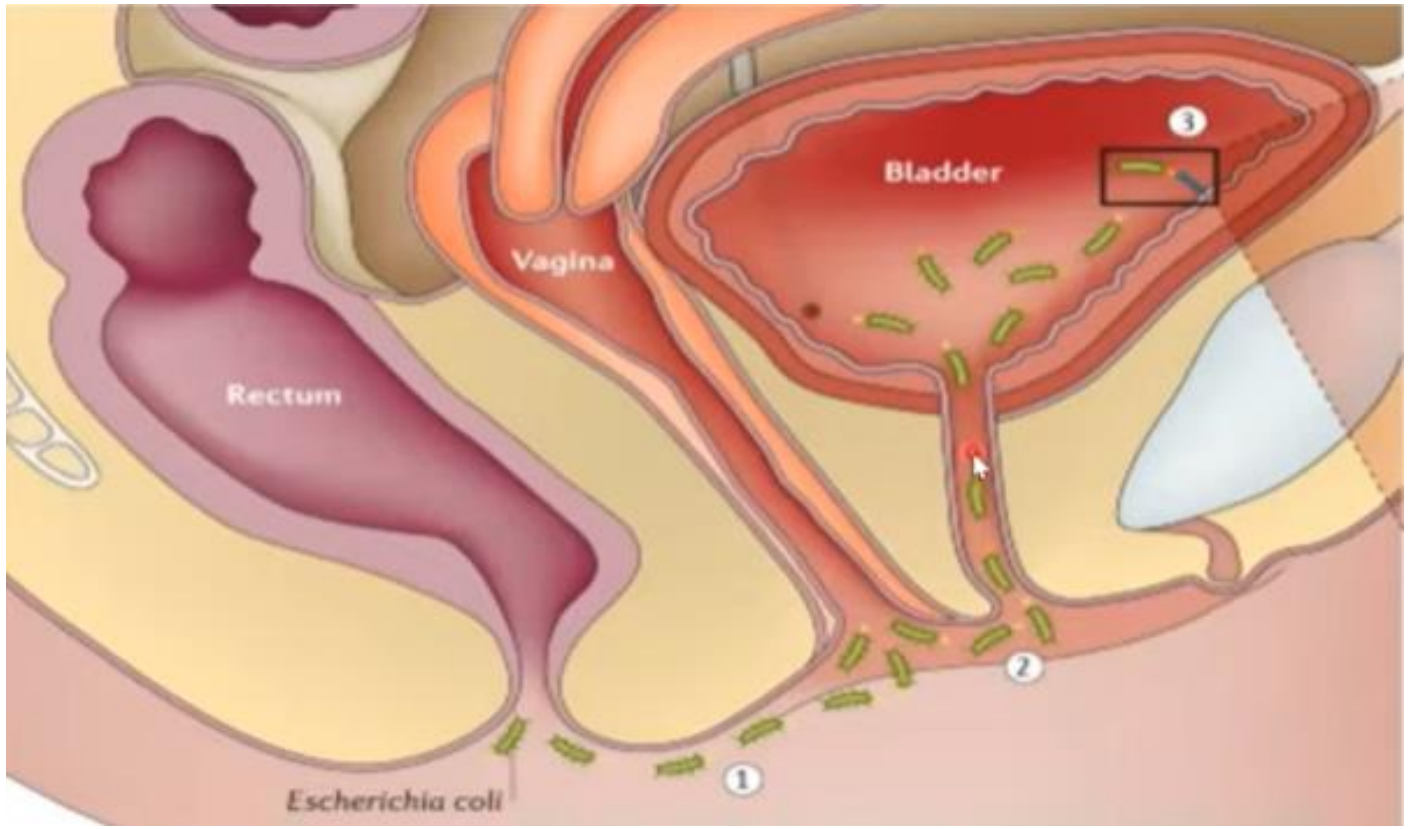
- Queensland Statewide Antimicrobial Stewardship Program
- Multi-disciplinary team of Medical, Pharmacy, Nursing & Program Support Officer
- Focused on support and education of rural and remote HHS with no ID physician/Microbiologist:
  - Torres & Cape HHS
  - North West **HHS**
  - Central West HHS
  - South West HHS

What is Asymptomatic bacteriuria (ASB)

- Presence of bacteria in urine – **without** signs or symptoms of urinary tract infection (UTI)
- ASB is not an infection
- ASB is a colonisation of urinary tract with bacteria
- Most common bacteria - *Escherichia coli (E.coli)*

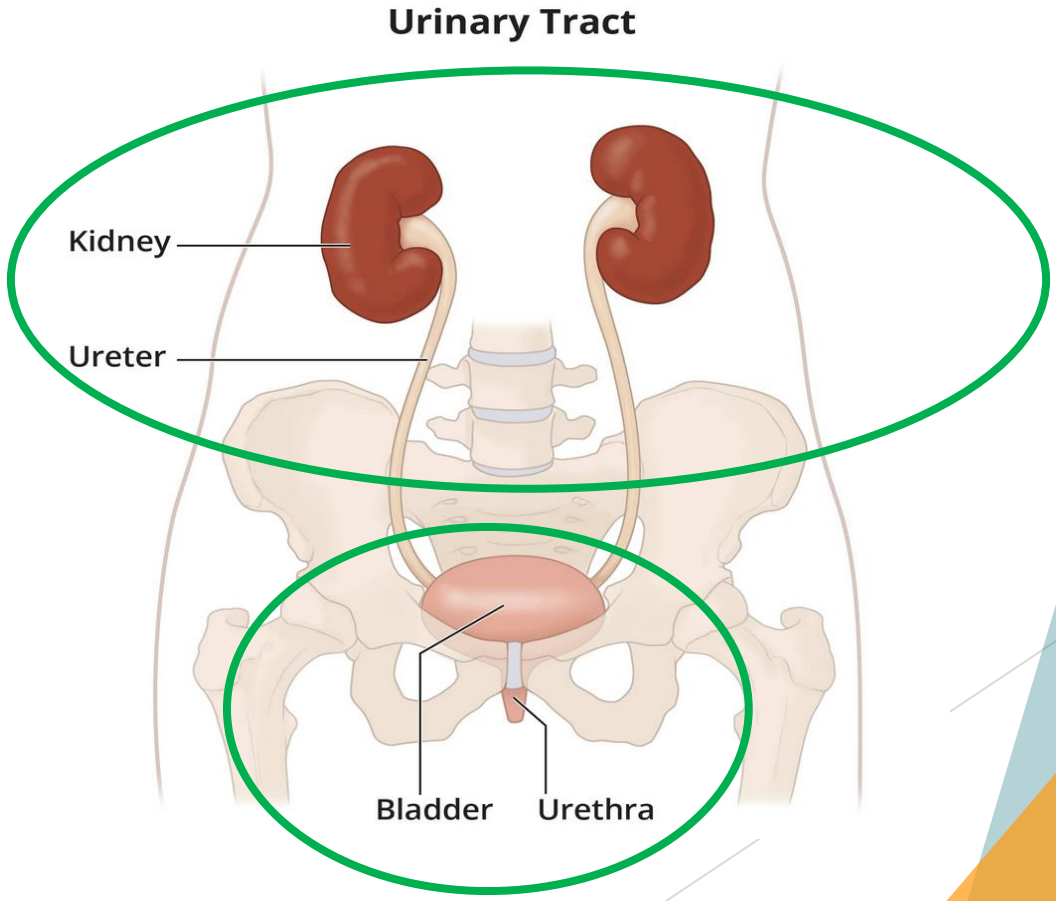


ASB & Colonisation

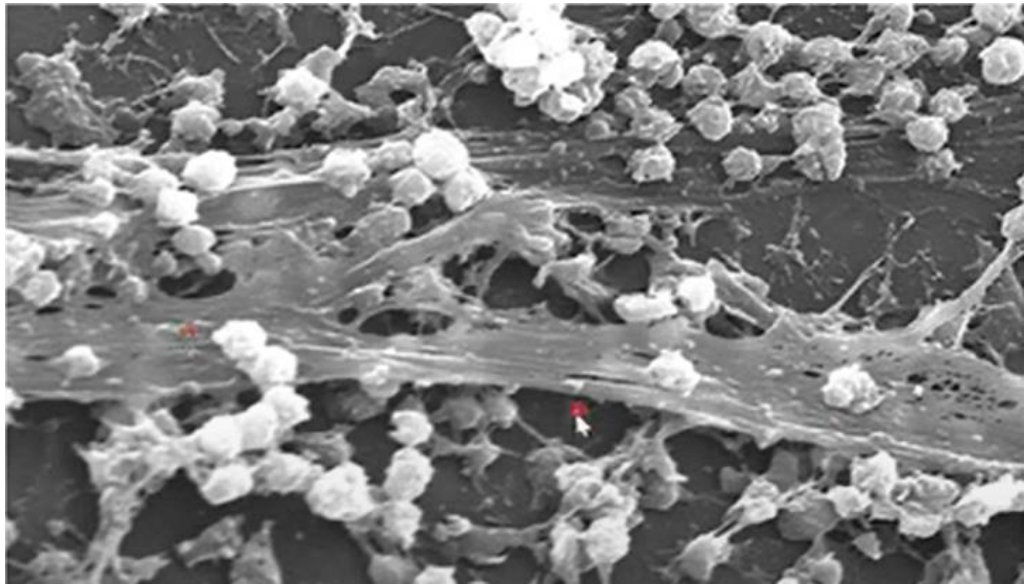


What is a Urinary Tract Infection (UTI)?

- Infection of any part of the urinary tract
  - Upper
    - Ureters or kidneys
    - Known as pyelonephritis
  - Lower
    - Urethra (urethritis)
    - Bladder (cystitis)

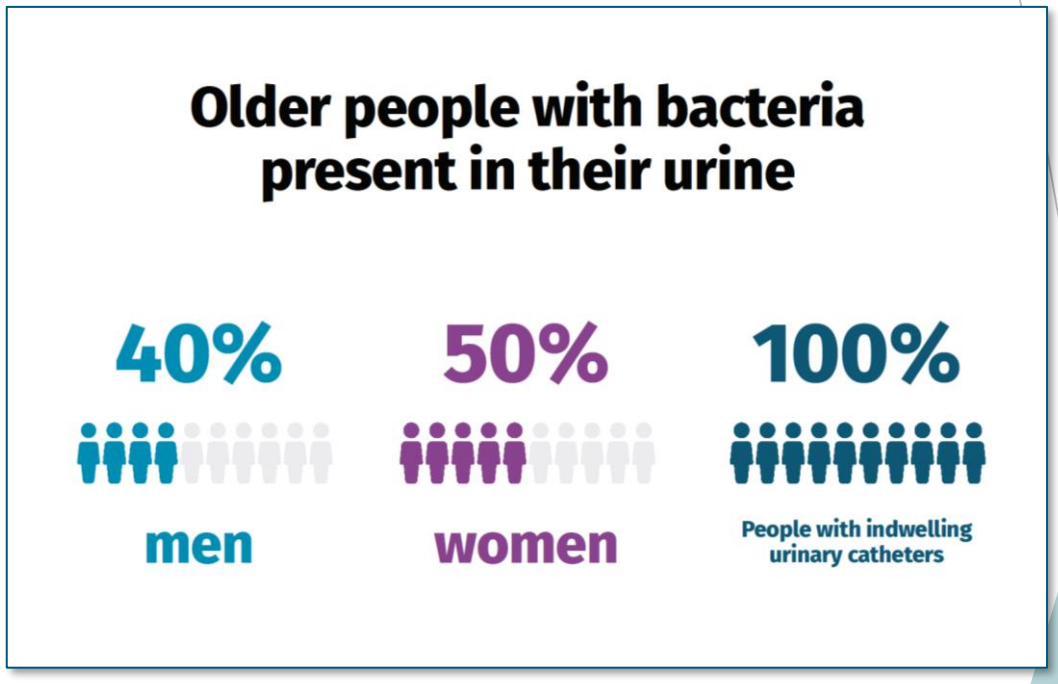


ASB & urinary catheters



Why does it matter?

- Antibiotic treatment is not required
- Antibiotics do not reduce likelihood of UTI in future
- Antibiotic side-effects from treatment of ASB is preventable harm:
  - Side- effects
  - C.diff infection
  - Increased risk of developing antibiotic resistant infections



RACF residents

- High prevalence ASB along with:
  - Impaired cognition
  - Frequent clinical deterioration + non localising symptoms

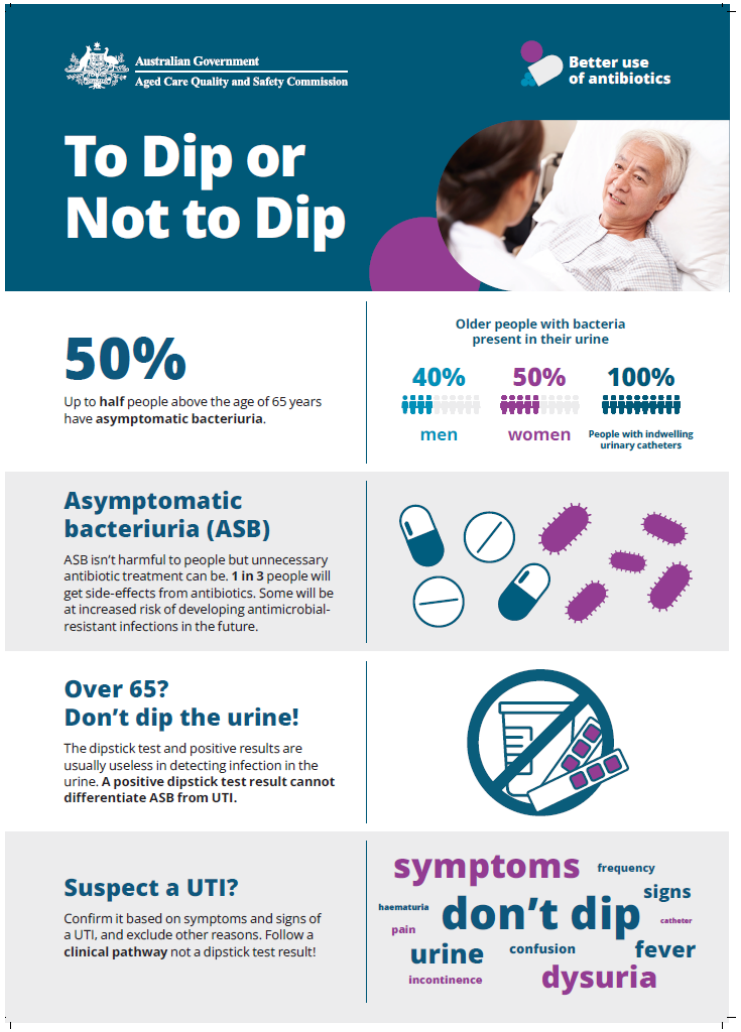
=

Over diagnosis of UTI

Over treatment of presumed symptomatic UTI

PINCHME mnemonic to help identify obvious causes of delirium

ASB & dipstick test



- ASB is common and not harmful
- 50% of people >65years have ASB
- Positive dipstick results are not useful in detecting infection
- A positive dipstick test result cannot differentiate between ASB and UTI
- Suspect a UTI?
  - Assess signs & symptoms and exclude other reasons
  - Follow a pathway/checklist – not a dipstick

ASB or UTI?
Approach in aged care residents

- UTIs are one of the common indication for use of antibiotics
- ASB common – do not screen or treat (except patients undergoing elective urological procedures)
- Assess symptoms:
  - ASB is common – only test for UTI if there are clinical signs or symptoms of UTI
  - Don’t use dipstick alone – cannot distinguish ASB from UTI
  - If UTI suspected & criteria met – notify medical team, collect clean MSU sample & send for culture

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Clinical pathway for older people in aged care homes: Suspected Urinary Tract Infections (UTI)

Without Catheter

Nurse/Carer: Complete resident details, assessment and management sections.
File in resident notes. **DO NOT PERFORM AN INITIAL URINE DIPSTICK.**

Resident name			**Staff name starting form**		
Date of birth	/ /	**Gender** M F	**Date** / /	**Time** :	
Observations	Pulse	Blood pressure /	Respiratory rate	Temperature	

Assessment — PCA and/or RN

PCA/Nurse to complete		**Nurse to complete**	
NEW or WORSE problem with no other reason found in resident without catheter ☑		**Interpretation in resident without catheter**	**Final interpretation** ☑
Category A			
Dysuria, pain or burning on passing urine		If **Category A** ticked: **UTI possible**, for UTI investigation and management.	**UTI possible.**
Category B			
Fever (≥38°or >1.5° above usual temperature) NB paracetamol formulations e.g. Panadol Osteo™ may mask fever		If **Category B** — If **both** ticked: **UTI possible**, for UTI investigation and management.	**Consider other causes as well as UTI.** **Do not perform urine Dipstick.**
Confusion, agitation		If **one** of **Category B** and **one** or more of **Category C** ticked: **UTI possible**, for UTI investigation and management.	
Category C			
Frequency on passing urine		If **one** of **Category B** ticked: Consider other causes as well as UTI and discuss with GP. **Do not perform urine Dipstick** (unless specific GP request). If UTI considered possible, for further UTI investigation and management.	**UTI unlikely.** **Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.
Urgency on passing urine			
Urinary incontinence		If **Category C only** ticked: **Consider other causes as well as UTI.** **Do not perform urine Dipstick.** If concern contact GP as usual and monitor resident for changes.	
Flank, loin, kidney pain or tenderness			
Low abdominal pain			
Visible blood in urine		If **Category D** ticked: **UTI unlikely.** **Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.	
Category D			
No signs or symptoms			

Actions — RN to Update

☑	**Action — update as conducted (tick ☑ if undertaken)**	**Date of action**
	If **UTI possible: send urine culture.** Preferred collection techniques: MSU, clean-catch (e.g., if incontinent). Transport to lab within 2 hours or refrigerate (4-10°C until transported).	/ /
	Dipstick performed? **Do not perform dipstick** unless specific GP request.	/ /
	GP review requested.	/ /
	Assess hydration status and encourage fluid intake if dehydrated.	/ /
	Were antibiotics prescribed? If YES, document prescription (e.g. trimethoprim 300mg orally nocte for 3-days).	/ /
	Urine culture sent: results followed up? Lab results usually available within 72 hours. Nursing staff should follow up and discuss with GP (and resident) culture results, review clinical progress and antibiotic plan.	/ /

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File in resident notes. **DO NOT PERFORM AN INITIAL URINE DIPSTICK.**

Resident name			**Staff name starting form**		
Date of birth	/ /	**Gender** M F	**Date** / /	**Time** :	
Observations	Pulse	Blood pressure /	Respiratory rate	Temperature	

Assessment — PCA and/or RN

PCA/Nurse to complete	**Nurse to complete**	
NEW or WORSE problem with no other reason found in resident with catheter ☑	**Interpretation in resident with catheter**	**Final interpretation** ☑
Category A		
Fever (≥38°or >1.5° above usual temperature) NB paracetamol formulations e.g. Panadol Osteo™ may mask fever	**Category A** — if **one** of **Category A** ticked: **UTI possible**, for further investigation and management. Also consider other causes of symptoms and signs. Contact GP as usual and monitor resident for changes.	**UTI possible.**
Flank, loin, kidney pain or tenderness		
Rigors, chills, shivering (even if infection at another site possible)	If **Category B** ticked: **UTI unlikely.** **Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.	**UTI unlikely.** **Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.
Confusion, agitation		
Category B		
No signs or symptoms		

Actions — RN to Update

☑	**Action — update as conducted (tick ☑ if undertaken)**	**Date of action**
	If **UTI possible: send urine culture.** Collection techniques (in order of preference): MSU (if IDC not needed), CSU from newly inserted IDC, CSU from existing IDC using aseptic techniques from sampling port. Transport to lab within 2 hours or refrigerate (4-10°C) until transported.	/ /
	Urine Dipstick — is not recommended. Even with IDC change. Nearly all will have bacteria in urine.	/ /
	GP review requested.	/ /
	Assess hydration status and encourage fluid intake if dehydrated.	/ /
	Were antibiotics prescribed? If YES, document prescription (e.g. trimethoprim 300mg orally nocte for 3-days).	/ /
	Urine culture sent: results followed up? Lab results usually available within 72 hours. Nursing staff should follow up and discuss with GP (and resident) culture results, review clinical progress and antibiotic plan. **Note:** Urine culture from IDC >48h usually positive for bacteria even if no UTI.	/ /

Version 2. February 2022 Pathway based on Therapeutic Guidelines: Assessment and treatment of aged care residents with suspected UTI.

Revised McGeer Criteria for Infection Surveillance Checklist

[Facility Logo]

Patient Name: _____ **MRN:** _____ **Location:** _____

Date of Infection: _____ **Date of Review:** _____ **Reviewed by:** _____

UTI: ☐ evaluated ☐ criteria met RTI: ☐ evaluated ☐ criteria met SSTI: ☐ evaluated ☐ criteria met GITI: ☐ evaluated ☐ criteria met

Table 1. Constitutional Criteria for Infection

Fever	Leukocytosis	Acute Mental Status Change	Acute Functional Decline
Single oral temp >37.8 °C (100 °F), OR Repeated oral temp >37.2 °C (99 °F), OR Repeated rectal temp >37.5 °C (99.5 °F), OR Single temp >1.1 °C (2 °F) from baseline from any site	>14,000 WBC / mm³, OR >6% band, OR ≥1,500 bands / mm³	Acute onset, AND Fluctuating course, AND Inattention, AND Either disorganized thinking, OR altered level of consciousness	3-point increase in baseline ADL score according to the following items: 1. Bed mobility 2. Transfer 3. Locomotion within LTCF 4. Dressing 5. Toilet use 6. Personal hygiene 7. Eating [Each scored from 0 (independent) to 4 (total dependence)]

Table 2. Urinary Tract Infection (UTI) Surveillance Definitions

Syndrome	Criteria	Selected Comments*
UTI without indwelling catheter	*Must fulfill both 1 AND 2.* ☐ 1. At least one of the following sign or symptom ☐ Acute dysuria or pain, swelling, or tenderness of testes, epididymis, or prostate ☐ Fever or leukocytosis, and ≥ 1 of the following: ☐ Acute costovertebral angle pain or tenderness ☐ Suprapubic pain ☐ Gross hematuria ☐ New or marked increase in incontinence ☐ New or marked increase in urgency ☐ New or marked increase in frequency ☐ If no fever or leukocytosis, then ≥ 2 of the following: ☐ Suprapubic pain ☐ Gross hematuria ☐ New or marked increase in incontinence ☐ New or marked increase in urgency ☐ New or marked increase in frequency ☐ 2. At least one of the following microbiologic criteria ☐ ≥ 10^5 cfu/mL of no more than 2 species of organisms in a voided urine sample ☐ ≥ 10^5 cfu/mL of any organism(s) in a specimen collected by an in-and-out catheter	The following 2 comments apply to both UTI with or without catheter: • UTI can be diagnosed without localizing symptoms if a blood isolate is the same as the organism isolated from urine and there is no alternate site of infection • In the absence of a clear alternate source of infection, fever or rigors with a positive urine culture result in the non-catheterized resident or acute confusion in the catheterized resident will often be treated as UTI. However, evidence suggests that most of these episodes are likely not due to infection of a urinary source. • Urine specimens for culture should be processed as soon as possible, preferably within 1-2 h • If urine specimens cannot be processed within 30 min of collection, they should be refrigerated and used for culture within 24 h
UTI with indwelling catheter	*Must fulfill both 1 AND 2.* ☐ 1. At least one of the following sign or symptom ☐ Fever, rigors, or new-onset hypotension, with no alternate site of infection ☐ Either acute change in mental status or acute functional decline, with no alternate diagnosis and leukocytosis ☐ New-onset suprapubic pain or costovertebral angle pain or tenderness ☐ Purulent discharge from around the catheter or acute pain, swelling, or tenderness of the testes, epididymis, or prostate ☐ 2. Urinary catheter specimen culture with ≥ 10^5 cfu/mL of any organism(s)	• Recent catheter trauma, catheter obstruction, or new onset hematuria are useful localizing signs that are consistent with UTI but are not necessary for diagnosis • Urinary catheter specimens for culture should be collected after replacement of the catheter if it has been in place >14 d

☐ **UTI criteria met** ☐ **UTI criteria NOT met**

* Refer to original article [Stone ND, *et al.* Infect Control Hosp Epidemiol 2012;33:965-77] for full comments

ASAP

Clinical Criteria to test for UTI

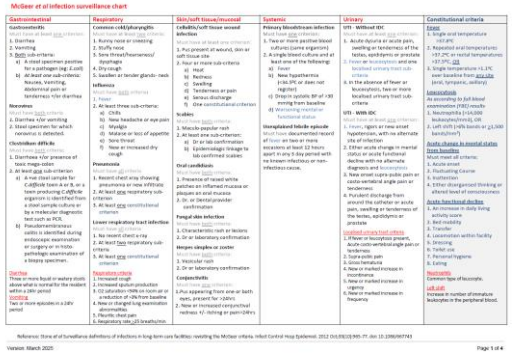
Therapeutic Guidelines

Without urinary catheter

- Test only if:
  - Acute dysuria (pain, burning/stinging when urinating) OR
  - 2 or more symptoms/signs (at least 1 from general)

    General
    - Fever
    - Acute deterioration in mental state

    Other
    - New/worsening
      - urinary urgency
      - urinary frequency
      - Suprapubic pain/tenderness
      - Urinary incontinence
      - Costovertebral pain or tenderness (upper mid back where ribs meet spine)

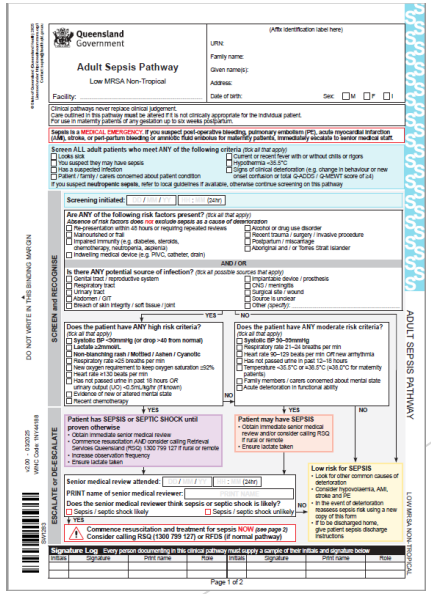


With urinary catheter

- Test only if:
  - 1 or more signs:
    - Fever
    - Costovertebral pain or tenderness (upper mid back where ribs meet spine)
    - Rigors
    - Acute deterioration of mental state – in absence of other causes

Screening & testing for UTI

- Screen if the resident has signs & symptoms of UTI
  - A delay in starting antibiotics to assess for UTI – generally doesn't lead to adverse outcomes for residents in aged care
- ? sepsis –urgent escalation – use local guidelines/pathway
- Residents' goals of care
  - ?antibiotics in line with resident's own plan


Queensland Government

Adult Sepsis Pathway

Low MRSA Non-Tropical

ADULT SEPSIS PATHWAY

LOW MRSA NON-TROPICAL

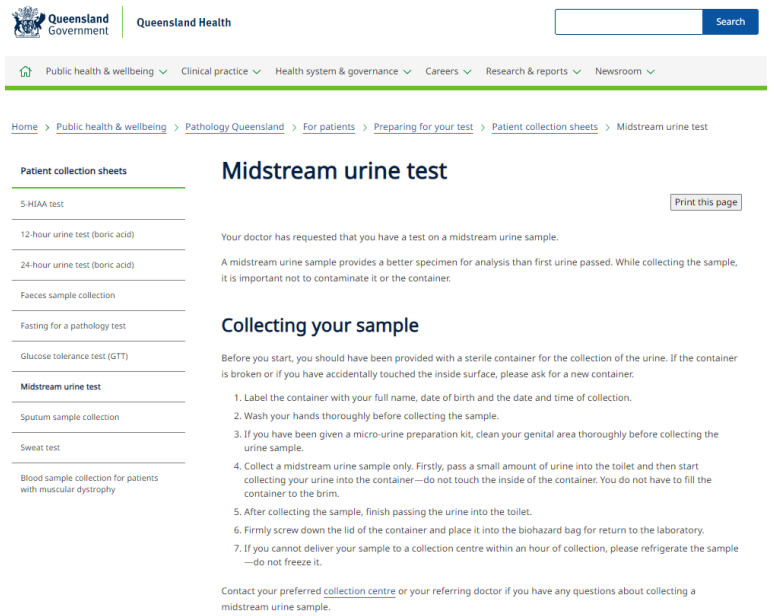
Collecting urine sample

- Collect **before** starting antimicrobials
- However, if resident too unwell – do not delay antimicrobials
- mid-stream

MSU

Can be self-directed by the resident or assisted by staff. If assisting a resident to collect the sample:

- Wash hands and don gloves
- Make a clean wipe of the head of penis (males) or vaginal area (females).
- Allow a small amount of urine to fall into toilet first, then collect the middle of the urine stream into the container. Allow the resident to finish voiding in the toilet.
- If the sample cannot be sent to laboratory within 1 hour, store in fridge. Do not keep in fridge for >24 hours.



- Results take time – usually 2-3 days (location dependant!)

Practical tips for collecting urine samples in residents living with cognitive impairment and/or chronic urinary incontinence

Obtaining a urine sample from someone living with dementia can be difficult, especially if they are experiencing changed behaviors such as agitation, confusion or if they are incontinent. Dementia Support Australia (DSA) provide fact sheets and information to support continence and toileting for a person living with dementia, which may be useful when there is a need to collect a urine sample.

Some principles remain the same as for general urine culture collection but can require more time to explain, ask, and offer support to the resident when collecting the sample

- Monitor when the resident usually goes to the toilet to be able to assist with collecting the urine sample
- Accompany the resident to the toilet explaining the procedure and offering reassurance and positive encouragement
- Ensure there is privacy and minimise the number of staff present
- Turn on the tap allowing the resident to hear running water
- When collecting a MSU is not possible, alternative techniques can be used (the last two apply for residents with urinary incontinence)
  - Clean catch technique into urine container (i.e. catch urine stream even if it is not mid-stream)
  - Take a sample during personal care using a bedpan, commode or for males, bottle (taking care to ensure urine is not contaminated e.g. with faecal matter)
  - Sterisets/Newcastle urine collection pads (incontinence pads with insert pad, syringe can be used to aspirate urine from insert pad into urine container)

Use positive encouragement, not negative comments. If someone with dementia cannot provide a sample, then just let it go. If you suspect a UTI and cannot get a sample, explain that to the doctor. They should be able to provide best care even without the help of urine culture results noting that contaminated urine culture results are as unhelpful as not having urine culture results.

Principles remain same however:

- allow more time to explain & offer support resident when collecting sample
- monitor when resident goes to toilet & assist
- Stay with resident, explain & reassure
- Ensure privacy & minimise staff
- Turn on the taps
- If no luck – let it go! (let dr know)

Best care can still be provided without urine culture as contaminated results are as unhelpful as not having urine culture results

Collecting from IDC

- Remove the indwelling catheter – collect sample
- Replace the IDC – collect from the port

- Do not collect from the drainage bag for MCS
- Path request clearly document specimen is from IDC
- Antibiotics are not required for IDC insertion, change or removal

Therapeutic Guidelines

CSU

If a resident has suspected catheter-associated UTI, one of the first steps is to review whether they still need the catheter or if it can be removed. If removal is not possible then the next question is whether the catheter should be changed. These considerations are important when working out how to best collect a fresh uncontaminated sample of urine for CSU.

- If the catheter is going to be changed in a timely fashion, it is be best to collect a sample from the new system.
- If the catheter is not going to be changed in a timely fashion, it is important to collect the urine from the sampling port using an aseptic, non-touch technique. Samples should not be collected from the drainage bag as that urine is likely contaminated.

What is a urine MC&S?

Urine microscopy, culture and susceptibility test

Microscopy

- High white cell count >40 ++ or +++ in urine – infection more likely
- Epithelial cells >10 - likely contamination (not a good quality specimen)

Culture

- Bacteria count >10.6/l, ++ or +++ bacteria – true infection more likely
- More than one bacteria species – uncommon – likely contamination

Susceptibility

- Antibiotic reported as:
  - *susceptible* (*S*) or *susceptible, increased exposure* (*I*)
  - *resistant* (*R*)

UTI treatment in aged care residents

- Know residents' goals of care – is antibiotic treatment in line with resident goals?

- If antibiotic therapy indicated

Therapeutic Guidelines

Antibiotic recommendations for treatment of UTI in aged- care facility residents (current June 2025) [1,2,3]

Acute cystitis

Nitrofurantoin 100mg orally, 6-hourly for 5 days (7 days for men)

Fosfomycin 3g orally, as a single dose (women only, currently not available on Pharmaceutical Benefits Scheme)

Trimethoprim 300mg orally, daily for 3 days (7 days for men)

If nitrofurantoin, fosfomycin or trimethoprim cannot be used for empirical therapy, or contraindication, use:

Cefalexin 500mg orally, 12-hourly for 5 days (7 days for men)

- Once urine results are back:
  - confirms UTI -organism identified & best antibiotic to use

  OR

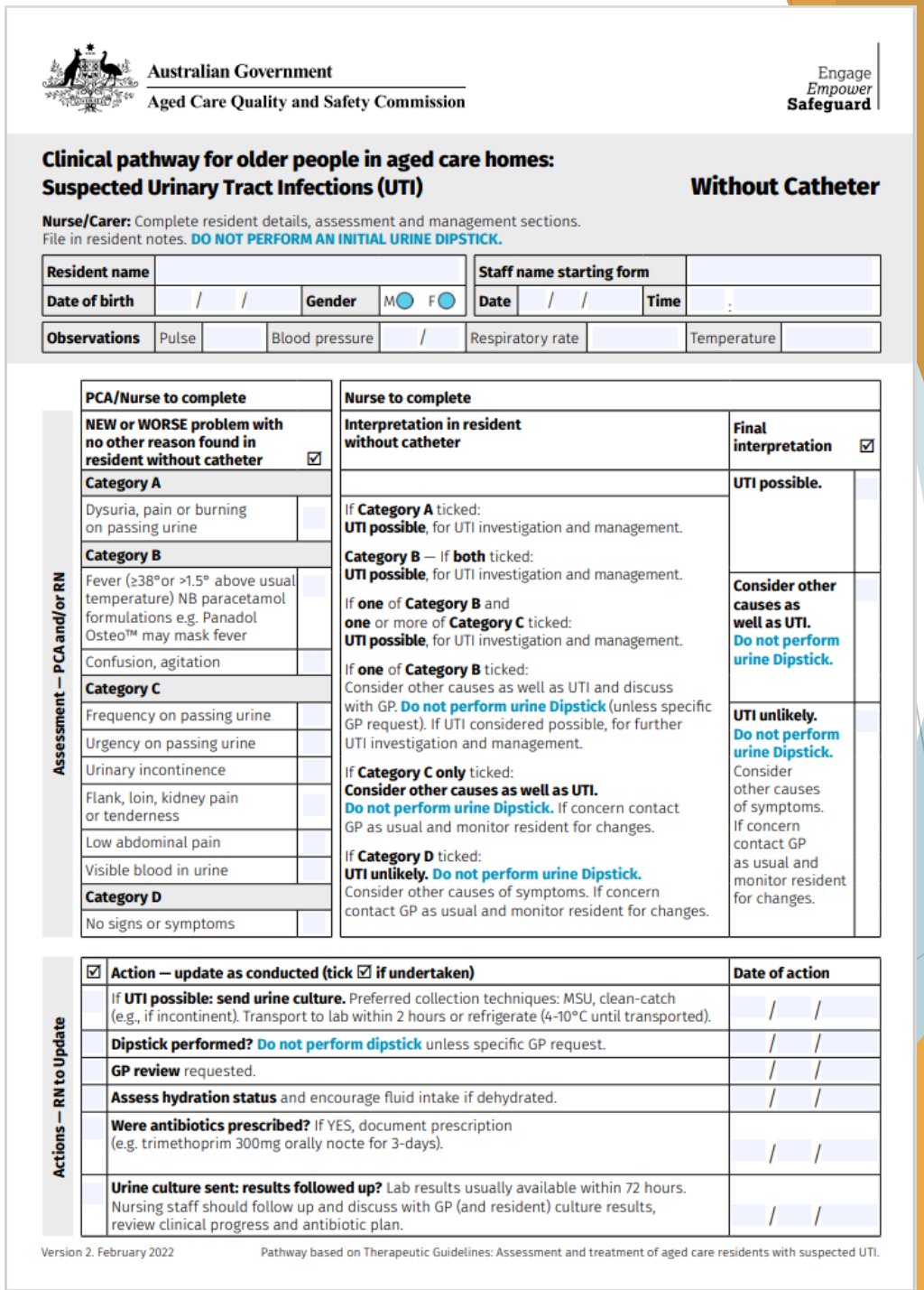
  - No organisms of concern identified – cease antibiotic

- Post treatment urine specimen – not recommended
  - Indicator - resolution of symptoms

Case examples

Resident has cloudy urine, no pain, fever or behavioural changes

Resident has new confusion + dysuria



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File in resident notes. **DO NOT PERFORM AN INITIAL URINE DIPSTICK.**

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Date of birth	/ /	**Gender**	M F	**Date**	/ /	**Time**	:
Observations	Pulse		Blood pressure	/	Respiratory rate		Temperature

Assessment — PCA and/or RN

PCA/Nurse to complete	
NEW or WORSE problem with no other reason found in resident without catheter	☑
Category A	
Dysuria, pain or burning on passing urine	
Category B	
Fever (≥38°or >1.5° above usual temperature) NB paracetamol formulations e.g. Panadol Osteo™ may mask fever	
Confusion, agitation	
Category C	
Frequency on passing urine	
Urgency on passing urine	
Urinary incontinence	
Flank, loin, kidney pain or tenderness	
Low abdominal pain	
Visible blood in urine	
Category D	
No signs or symptoms	

Nurse to complete		
Interpretation in resident without catheter		**Final interpretation** ☑
If **Category A** ticked: **UTI possible**, for UTI investigation and management.		**UTI possible.**
Category B — If **both** ticked: **UTI possible**, for UTI investigation and management.		
If **one** of **Category B** and **one** or more of **Category C** ticked: **UTI possible**, for UTI investigation and management.		**Consider other causes as well as UTI.** **Do not perform urine Dipstick.**
If **one** of **Category B** ticked: Consider other causes as well as UTI and discuss with GP. **Do not perform urine Dipstick** (unless specific GP request). If UTI considered possible, for further UTI investigation and management.		
If **Category C only** ticked: **Consider other causes as well as UTI.** **Do not perform urine Dipstick.** If concern contact GP as usual and monitor resident for changes.		**UTI unlikely.** **Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.
If **Category D** ticked: **UTI unlikely. Do not perform urine Dipstick.** Consider other causes of symptoms. If concern contact GP as usual and monitor resident for changes.		

Actions — RN to Update

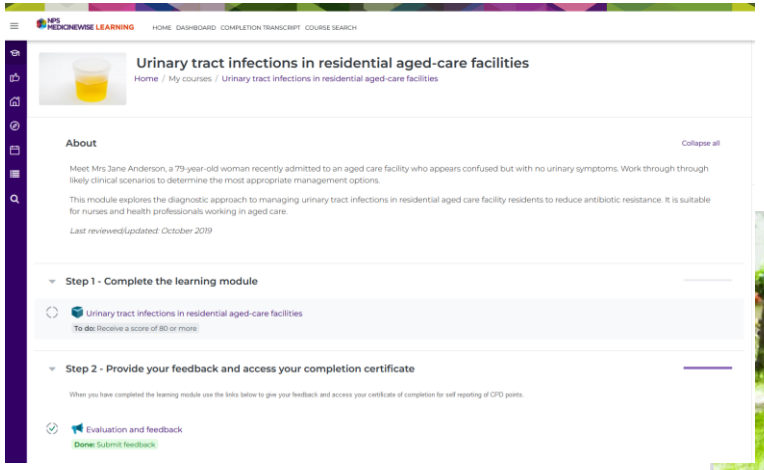
☑	**Action — update as conducted (tick ☑ if undertaken)**	**Date of action**
	If **UTI possible: send urine culture.** Preferred collection techniques: MSU, clean-catch (e.g., if incontinent). Transport to lab within 2 hours or refrigerate (4-10°C until transported).	/ /
	Dipstick performed? **Do not perform dipstick** unless specific GP request.	/ /
	GP review requested.	/ /
	Assess hydration status and encourage fluid intake if dehydrated.	/ /
	Were antibiotics prescribed? If YES, document prescription (e.g. trimethoprim 300mg orally nocte for 3-days).	/ /
	Urine culture sent: results followed up? Lab results usually available within 72 hours. Nursing staff should follow up and discuss with GP (and resident) culture results, review clinical progress and antibiotic plan.	/ /

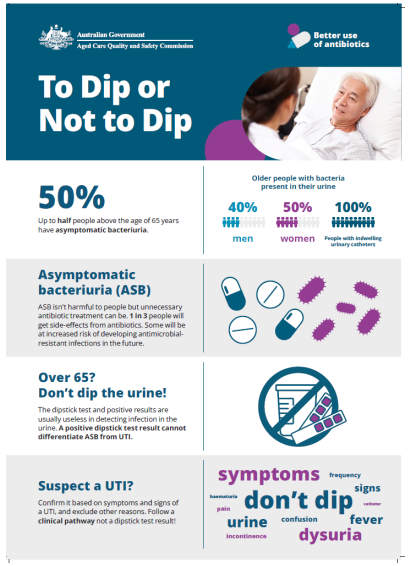
Version 2. February 2022 Pathway based on Therapeutic Guidelines: Assessment and treatment of aged care residents with suspected UTI.

Key take away

- ASB
  - Common in aged care residents – but **not** an infection!
- UTIs
  - Cause symptoms – no symptoms – no testing!
- Our role
    - Assessing the whole person
    - Avoid unnecessary testing
    - Collaborate with medical/pharmacy/nursing – don’t be afraid to ask!

Resources


Urinary tract infections in residential aged-care facilities
Home / My courses / Urinary tract infections in residential aged-care facilities
About
Collapse all
Meet Mrs Jane Anderson, a 79-year-old woman recently admitted to an aged care facility who appears confused but with no urinary symptoms. Work through through likely clinical scenarios to determine the most appropriate management options.
This module explores the diagnostic approach to managing urinary tract infections in residential aged care facility residents to reduce antibiotic resistance. It is suitable for nurses and health professionals working in aged care.
Last reviewed/updated: October 2019
Step 1 - Complete the learning module
Urinary tract infections in residential aged-care facilities
To do: Receive a score of 80 or more
Step 2 - Provide your feedback and access your completion certificate
When you have completed the learning module use the links below to give your feedback and access your certificate of completion for self reporting of CPD points.
Evaluation and feedback
Done: Submit feedback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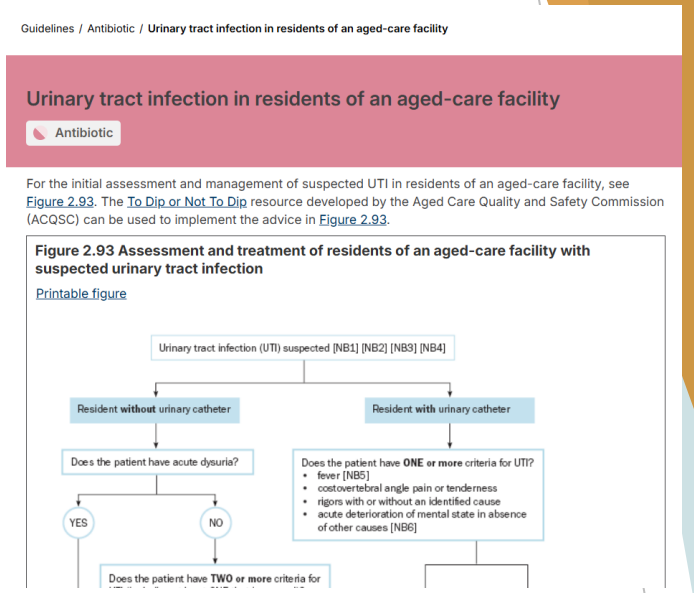
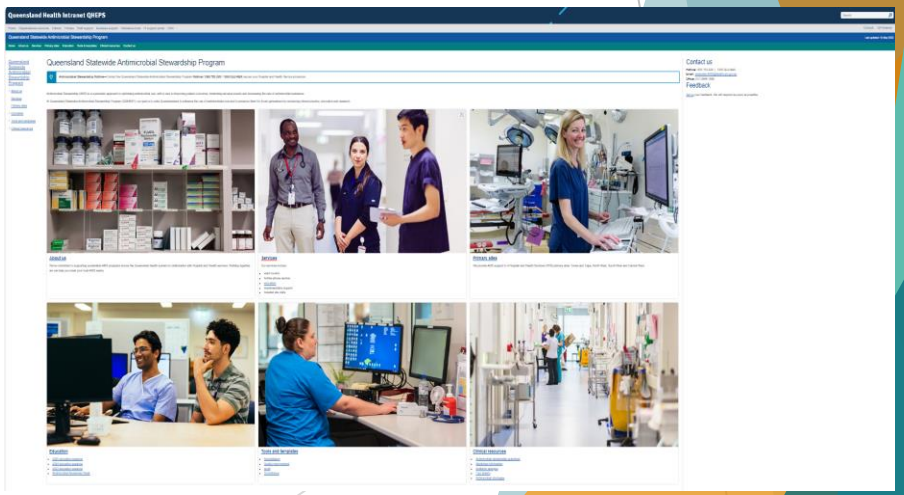
Better use of antibiotics
To Dip or Not to Dip
50%
Up to half people above the age of 65 years have asymptomatic bacteriuria.
Older people with bacteria present in their urine
40% men
50% women
100% People with indwelling urinary catheters
Asymptomatic bacteriuria (ASB)
ASB isn't harmful to people but unnecessary antibiotic treatment can be. 1 in 3 people will get side-effects from antibiotics. Some will be at increased risk of developing antimicrobial-resistant infections in the future.
Over 65? Don't dip the urine!
The dipstick test and positive results are usually useless in detecting infection in the urine. A positive dipstick test result cannot differentiate ASB from UTI.
Suspect a UTI?
Confirm it based on symptoms and signs of a UTI, and exclude other reasons. Follow a clinical pathway not a dipstick test result!
symptoms
frequency
signs
don't dip
urine
confusion
fever
dysuria
incontinence


User Guide to the Clinical Pathway for older people in aged care homes:
Suspected Urinary Tract Infections
Version 1. 8 September 2021. For review: 8 September 2022.
Australian Government
Aged Care Quality and Safety Commission
Better use of antibiotics


Guidelines / Antibiotic / Urinary tract infection in residents of an aged-care facility
Urinary tract infection in residents of an aged-care facility
Antibiotic
For the initial assessment and management of suspected UTI in residents of an aged-care facility, see Figure 2.93. The To Dip or Not To Dip resource developed by the Aged Care Quality and Safety Commission (ACQSC) can be used to implement the advice in Figure 2.93.
Figure 2.93 Assessment and treatment of residents of an aged-care facility with suspected urinary tract infection
Printable figure
Urinary tract infection (UTI) suspected [NB1] [NB2] [NB3] [NB4]
Resident without urinary catheter
Resident with urinary catheter
Does the patient have acute dysuria?
Does the patient have ONE or more criteria for UTI?
fever [NB5]
costovertebral angle pain or tenderness
rigors with or without an identified cause
acute deterioration of mental state in absence of other causes [NB6]
YES
NO
Does the patient have TWO or more criteria for


Queensland Health Intranet QHEPS
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Feedback

Thank you