RACF Medicinewise Report - Antibiotics for urinary tract infections

Nursing Home - Ground Floor
Nursing Home - Level 1
Nursing Home - Level 2
Nursing Home - Level 3A
Nursing Home - Level 3B

Metropolitan Pharmacy

Date of report: 18/02/2015

Report date range: 01/02/2015 - 01/02/2016

IMPORTANT NOTICE

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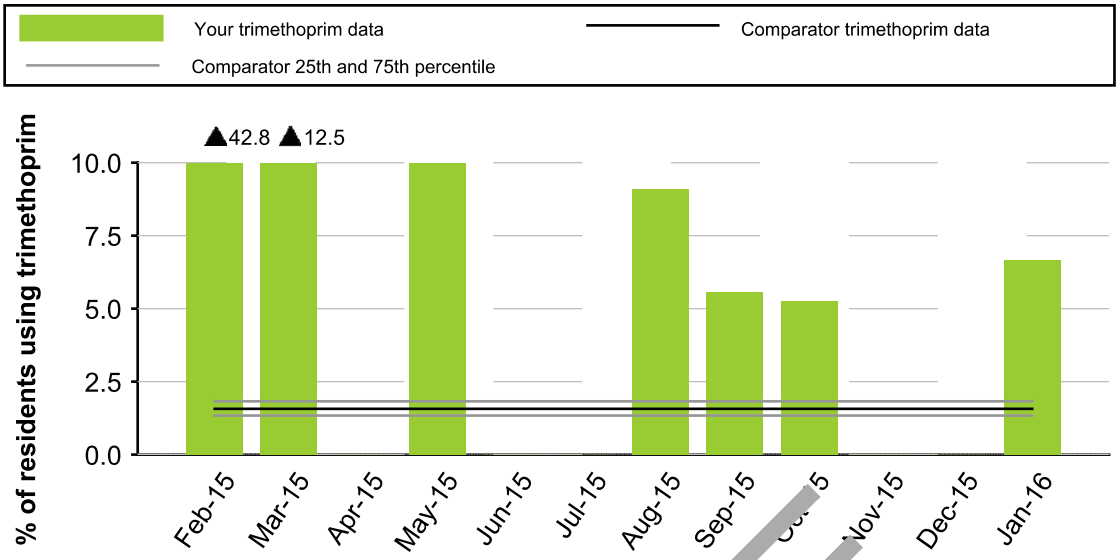
How does your trimethoprim use compare with other facilities?



Interpreting the graph

This graph compares use of trimethoprim for acute treatment of UTI (14 day course or less) for your RACF to a sample group of 847 residents from 9 RACFs over a 10 month period (March 2014 - December 2014). The comparator results are provided as a median with the associated 25th and 75th percentiles shown. These are provided as a comparison but should not be used as a benchmark or target. The comparator data used for the sample and your individual results are not linked to indication. Although trimethoprim is commonly used for UTIs, it can also be used for other indications.

RACFs should aim for judicious prescribing of antibiotics; the overall pattern of usage will be dependent on your patient mix. This report includes additional information relating to your antibiotic use and helpful hints to assist you to achieve best practice management of UTIs.

How do I act on my results?

There may be multiple reasons for your individual facility results. Correct assessment of suspected UTI is critical in RACFs

- Practice good hand hygiene and ensure appropriate environmental cleaning to minimise the spread of resistant organisms.[1] Follow facility infection control guidelines.
- Avoid routine screening for and treatment of asymptomatic bacteriuria* in aged-care facilities. Antibiotic treatment increases the risk of these residents developing antibiotic resistant infections and doesn't improve mortality or morbidity.[2]
- Do not investigate or treat cloudy or malodorous urine in residents who do not have other signs or symptoms of a UTI.[2] Display and use the algorithm *(Initial assessment and management of aged-care facility residents with suspected urinary tract infection)* to help evaluate the likelihood of a UTI.
- Consider whether an alternative diagnosis is more likely in residents who have mental state changes. However, fever or mental state change as a single symptom may be sufficient to warrant investigation if there is a strong suspicion of UTI and the resident can't communicate symptoms because of cognitive impairment.[2]

* Defined as a urine bacteria concentration greater than 10^8 colony-forming units/L without symptoms of a UTI.

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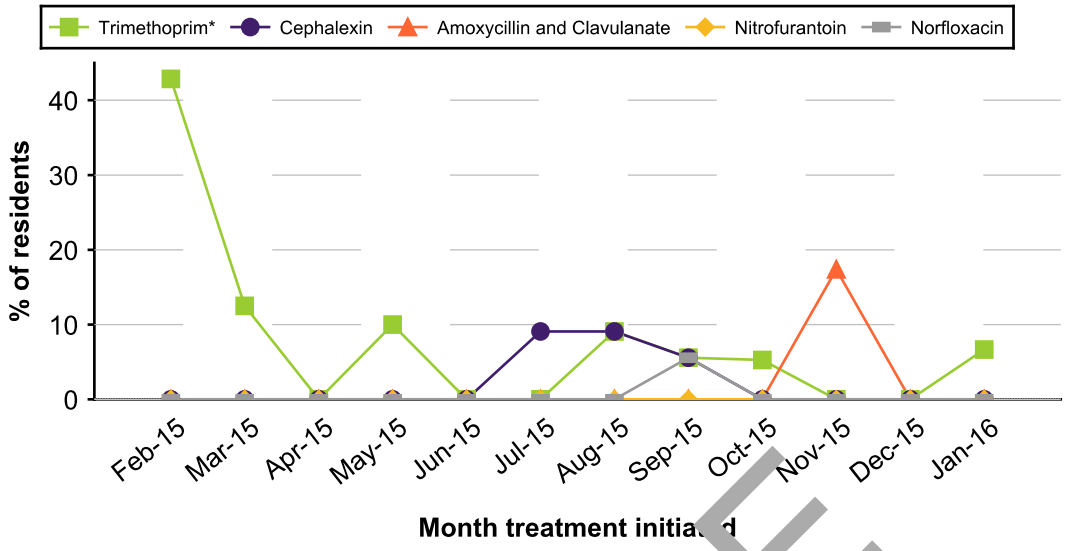
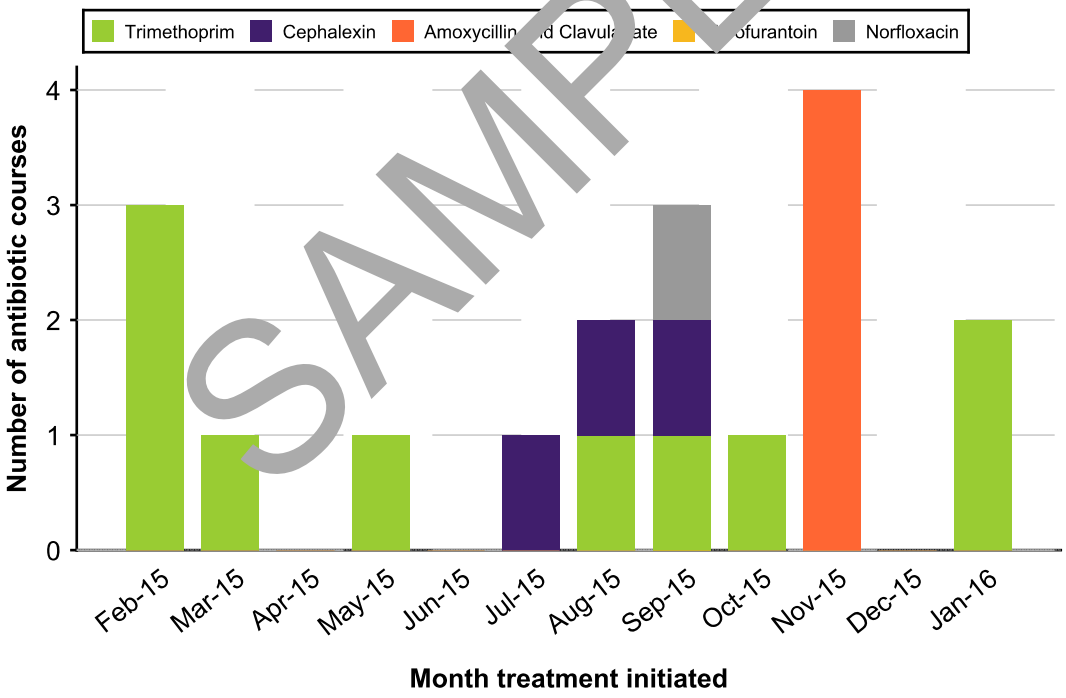
How is antibiotic use changing at your facility?





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Month	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16
Number of residents	7	8	8	10	10	11	11	18	19	23	25	30

Practice points to consider

- Try to obtain a urine sample for culture and susceptibility testing routinely before administering empirical antibiotics for a suspected UTI, as aged-care residents are at a higher risk of infection by multidrug-resistant bacteria.[2] The feasibility of this depends on the resident's well-being and capacity.
- Use nitrofurantoin with caution in older people. Avoid when creatinine clearance is < 60 mL/minute as inadequate concentrations of the medicine occur in the urine and there is an increased risk of adverse effects including peripheral polyneuropathy.[3,4]
- Avoid fluoroquinolones (e.g. norfloxacin) as first-line antibiotic medicines as they are the only available orally active antibiotic to treat *Pseudomonas aeruginosa* infections and other multidrug-resistant bacteria.[2]

How do I act on my results?

There may be multiple reasons for your individual facility results. Below are some actions that you may need to take (in relation to antibiotics for UTI only):

- Obtain a clean-catch urine sample. Consider sampling with an in-out catheter for women or a newly applied condom catheter for men.[2] Aspirate the catheter tubing port (not the drainage bag) for residents with short-term indwelling catheters. Replace the catheter and collect the sample immediately following insertion for residents with long-term catheters.[2]
- Adhere to the guideline recommendations for choice of antibiotic treatment (and resident's most recent susceptibility results if available) if starting empirical antibiotic treatment while waiting for culture results (see *Table 1: Summary of recommendations for treatment of urinary tract infections in RACFs*).

*Antibiotic data is not linked to indication. Medicines listed are commonly used for UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis. Residents may be taking more than one antibiotic. Refer to individual resident notes or chart for indication. Antibiotic courses included are 7–14 days or less (acute treatment).

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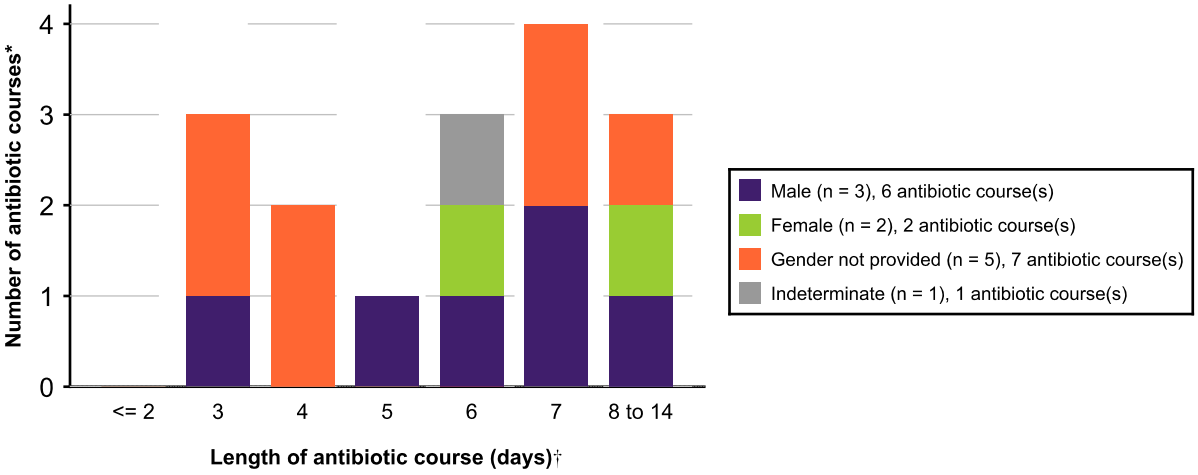
How long are antibiotics prescribed for at your facility?



Practice points to consider

- Recommend a 3-5 day course of antibiotic treatment in women (depending on chosen antibiotic) and a 7 day course in men with lower uncomplicated UTI. This is associated with good outcomes and minimises the risk of adverse effects. See Table 1: Summary of recommendations for treatment of urinary tract infections in RACF.
- Clinicians are advised where practical to examine all men with UTIs (including a rectal examination) and investigate to exclude underlying abnormalities of the urinary tract function or structure.[2]
- Recommend a 7-14 day course of therapy for acute pyelonephritis depending on the antibiotic chosen.[2] Obtain a follow-up urine culture 1-2 weeks after treatment course has finished.[2]
- Severe pyelonephritis requires intravenous treatment and if able to be administered in the facility, (e.g. through a residential hospital reach program) can avoid admission to hospital.[2] The use of IV antibiotics is not presented in the above graph.

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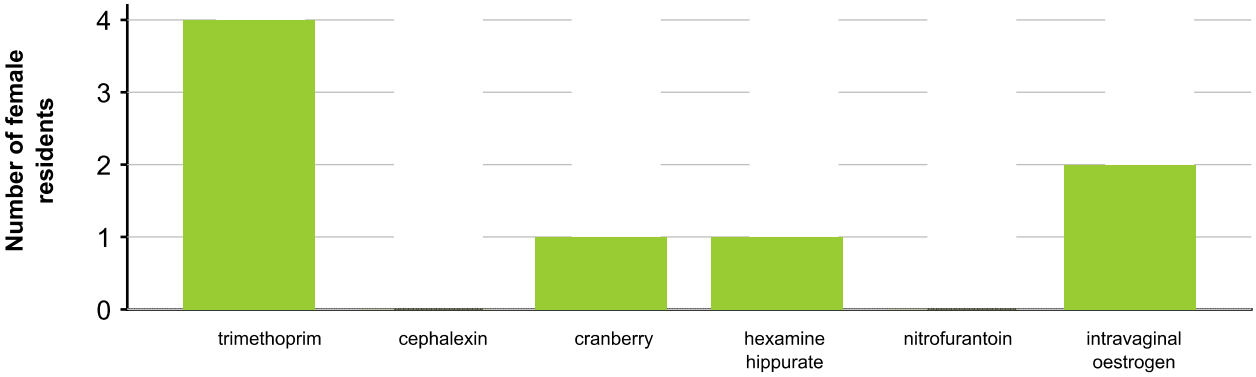
How do I act on my results?

There may be multiple reasons for your individual facility results. Below are some actions that you may need to take (in relation to antibiotics for UTI only)

- Display and adhere to guideline recommendations for dose and duration of individual antibiotics (see Table 1).
- Request prescribers include indication and duration of treatment on antibiotic orders as pack sizes may be more than required by Therapeutic guidelines: Antibiotic.[2]
- Always check short-term order section of the drug chart when administering medicines to ensure doses of antibiotics are given as prescribed.

* Includes trimethoprim, cephalexin, amoxycillin+clavulanate, nitrofurantoin, norfloxacin and ciprofloxacin started < 6 months before date of report. Antibiotics listed are commonly used for UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis. Refer to individual resident notes or chart for indication.
†Antibiotic courses included are for 14 days or less (acute treatment).
n = number of unique patients

What preventive treatments are women using at your facility?



Practice points to consider

- Address modifiable causes of relapse/reinfection before considering preventive treatment.[2]
- Intravaginal oestrogen may reduce recurrent UTIs in post-menopausal women with signs or symptoms of vaginal atrophy.[2,4]
- The effectiveness of cranberry products for UTI prevention is unclear. The optimum dosage, method of administration and duration are currently uncertain.[2,5]
- Before starting a preventive antibiotic, balance the risks of antibacterial resistance and adverse effects against the perceived gains in UTI reduction. There is limited evidence for preventive antibiotics in recurrent UTIs in older people.[4]
- Consider preventive antibiotics for women who have frequent symptomatic UTIs (i.e. two or more confirmed infections in 6 months, or three or more infections in 12 months).[2]
- If antimicrobial prophylaxis is appropriate, guidelines recommend trimethoprim 150 mg at night as first-line treatment and cephalexin 250 mg at night as an alternative.[2] Continue treatment for 3-6 months, in some cases longer. Seek expert advice if recurrent infections occur despite antibiotic treatment.
- Evidence for efficacy of hexamine hippurate in preventing UTIs is poor.[3] It may be effective for preventing a UTI in a resident without renal tract abnormalities, particularly if used for short-term prophylaxis.[6]

How do I act on my results?

There may be multiple reasons for your individual facility results. Below are some actions that you may need to take (in relation to antibiotics for UTI only)

- Monitor and report to the prescriber any adverse effects of long-term treatments. For nitrofurantoin, be aware of peripheral paraesthesia and sensory loss (usually in lower limbs) as symptoms may indicate peripheral polyneuropathy. Renal impairment is the main predisposing factor.[3]
- Recommend review of preventive treatment after at least 3-6 months to assess ongoing need for treatment.[2,4]
- Specify on the medicine chart the time and day(s) of the week to apply intravaginal oestrogens to ensure administration occurs.[3]

Medicine data is not linked to indication. Medicines listed are commonly used for UTI prevention but may also be prescribed for other indications e.g. cephalexin for cellulitis prophylaxis. Refer to individual resident notes or chart for indication. Includes courses of cephalexin, nitrofurantoin and trimethoprim dosed once daily for > 14 days; cranberry (single ingredient oral forms excluding juice); hexamine hippurate and intravaginal oestrogen dosed > 14 days regardless of daily frequency. Number of residents using preventive treatment on date of report.

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Where do we go for more information?

- **NPS MedicineWise knowledge hub**
  for the latest evidence-based information and resources about UTI diagnosis and treatment, and antibiotic resistance. www.nps.org.au/utis

- **Medicinewise News 'Antibiotic resistance and UTIs'**
  provides up-to-date independent information and evidence-based advice on quality prescribing and use of medical tests. www.nps.org.au/medicinewise-news

- **Health, News and Evidence article**
  explores non-antibiotic strategies for managing UTIs. www.nps.org.au/h-n-e/managing-utis

- **NPS MedicineWise online module 'Managing urinary tract infections in RACFs'**
  designed for nurses and provides an overview of the diagnostic approach to urinary tract infections in residents in aged-care facilities. www.nps.org.au/utis-in-aged-care-course

- **NPS MedicineWise interactive case study 'Urinary tract infections - exploring antibiotic treatment'**
  follows the diagnosis and treatment of an aged-care facility resident with a suspected UTI. To complete the case study visit www.nps.org.au/case-studies

- **Therapeutic guidelines: Antibiotic**
  provides clear, practical, succinct and up-to-date therapeutic information and treatment guidance. Available for purchase at www.tg.org.au

- **Prevention and control of infection in residential and community aged care pocket book**
  supports the aged care sector to improve staff knowledge and skills in the area of infection prevention and control. http://www.nhmrc.gov.au/guidelines/publications/d1034

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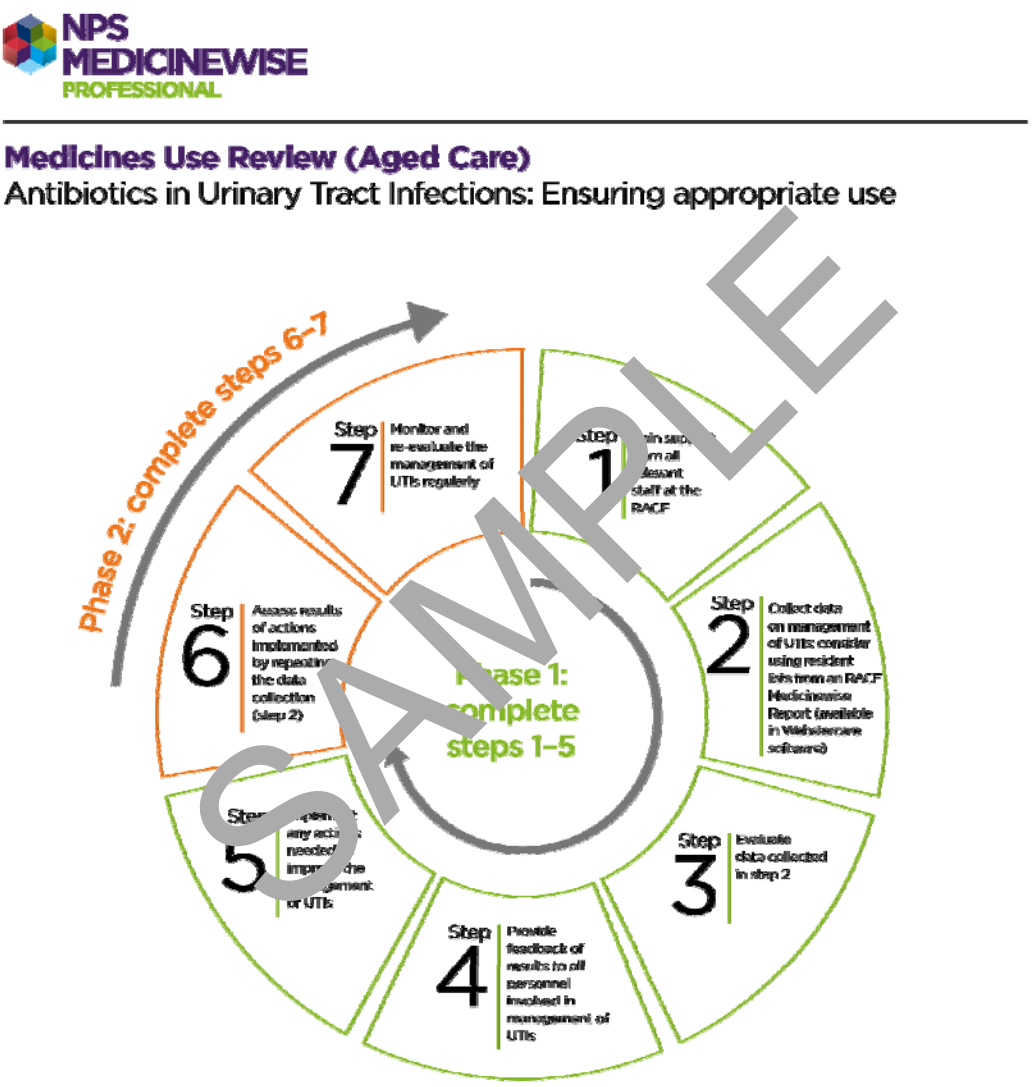
Improve your results and earn CPD points

Gain deeper insight into improving management of UTIs in your facility by participating in the *Medicines Use Review (Aged Care), Antibiotics in Urinary Tract Infections: Ensuring appropriate use* at www.nps.org.au/medicines-use-review. This quality improvement activity provides you with a step-by-step guide to conducting an in-depth review of UTI management and allows you to generate solutions that are specific to your facility. Results can be easily shared with GPs and other health professionals.



This quality improvement activity has been accredited for CPD suitable for inclusion in an individual pharmacist's or nurse's CPD plan.

Concerned you don't have the resources or time to complete the full *Medicines Use Review (Aged Care)*? Completing Phase 1 (Steps 1-5) will still entitle you to CPD points.

To enrol and for more information see www.nps.org.au/medicines-use-review

Residents prescribed acute antibiotic treatments

Nursing Home - Level 3A (NH3A)

Resident	Antibiotic*	Dose	Duration (days)	Date started†	Indication Enter from care plan, chart or notes
MCDONALD, COSMO	Alprim 300mg Tablet	(crushed) 1 2x daily	6	31/01/2016	

SAMPLE

* Residents prescribed trimethoprim, cephalexin, amoxycillin+clavulanate, nitrofurantoin, norfloxacin and ciprofloxacin in the 2 months prior to date of report. Antibiotics listed are commonly used for UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis. Refer to individual resident notes or chart for indication. Antibiotic courses included are for 14 days or less (acute treatment).

†Date started on administration chart may vary to MMS software date listed by up to 2 days for nurse initiated / emergency medication box courses. If a temporary break in therapy was for 2 days or less, the duration of medicine use is considered from the date the medicine was originally started. Residents may have been using medicines for longer than the duration stated if they were using the medicine before admission or have recently been re-admitted.

Residents prescribed acute antibiotic treatments

Nursing Home - Level 3B (NH3B)

Resident	Antibiotic*	Dose	Duration (days)	Date started†	Indication Enter from care plan, chart or notes
NEWLAND, JANETTE	Alprim 300mg Tablet	(crushed) 1 2x daily	8	01/01/2016	

SAMPLE

* Residents prescribed trimethoprim, cephalexin, amoxycillin+clavulanate, nitrofurantoin, norfloxacin and ciprofloxacin in the 2 months prior to date of report. Antibiotics listed are commonly used for UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis. Refer to individual resident notes or chart for indication. Antibiotic courses included are for 14 days or less (acute treatment).

†Date started on administration chart may vary to MMS software date listed by up to 2 days for nurse initiated / emergency medication box courses. If a temporary break in therapy was for 2 days or less, the duration of medicine use is considered from the date the medicine was originally started. Residents may have been using medicines for longer than the duration stated if they were using the medicine before admission or have recently been re-admitted.

Female residents using preventive treatments

Nursing Home - Ground Floor (NHGR)

Resident	Current medicine(s)*	Dose	Duration (days)†	Indication Enter from care plan, chart or notes	Last review date
ANTON, JANE	Ellura (Flordis) Capsule *Date first prescribed: 17/12/2015*	(crushed) 1 morning	46		
CLIFFORD, VANESSA	Alprim 300mg Tablet *Date first prescribed: 06/01/2016*	(crushed) 1 dinner	26		
JONES, JACKLYN	Hiprex 1g Tablet *Date first prescribed: 06/01/2016*	(crushed) 1 morni	26		
KING, MARIA	Vagifem 25m g Pessary *Date first prescribe 17/1 2015*	1 a ight	46		

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* Residents using trimethoprim, cephalexin, cranberry, hexamine hippurate and nitrofurantoin on 'date of report'. Courses of cephalexin, nitrofurantoin and trimethoprim dosed once daily for > 14 days are included. Courses of cranberry (single ingredient oral forms excluding juice) and hexamine hippurate > 14 days are included regardless of daily frequency. Medicine listed are commonly used for preventing UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis prophylaxis. Refer to individual resident notes or chart for indication.

†Date started on administration chart may vary to MMS software date by up to 2 days for nurse initiated / emergency medication box courses. If a temporary break in therapy was for 2 days or less, the duration of medicine use is considered from the date the medicine was originally started. Residents may have been using medicines for longer than the duration stated if they were using the medicine before admission or have recently been re-admitted.

Females residents using preventive treatments

Nursing Home - Level 3A (NH3A)

Resident	Current medicine(s)*	Dose	Duration (days)†	Indication	Last review date
				Enter from care plan, chart or notes	
LEE, HARMONY	Alprim 300mg Tablet (crushed) *Date first prescribed: 06/01/2016*	1 dinner	26		

SAMPLE

* Residents using trimethoprim, cephalexin, cranberry, hexamine hippurate and nitrofurantoin on 'date of report'. Courses of cephalexin, nitrofurantoin and trimethoprim dosed once daily for > 14 days are included. Courses of cranberry (single ingredient oral forms excluding juice) and hexamine hippurate > 14 days are included regardless of daily frequency. Medicine listed are commonly used for preventing UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis prophylaxis. Refer to individual resident notes or chart for indication.

†Date started on administration chart may vary to MMS software date by up to 2 days for nurse initiated / emergency medication box courses. If a temporary break in therapy was for 2 days or less, the duration of medicine use is considered from the date the medicine was originally started. Residents may have been using medicines for longer than the duration stated if they were using the medicine before admission or have recently been re-admitted.

Females residents using preventive treatments

Nursing Home - Level 3B (NH3B)

Resident	Current medicine(s)*	Dose	Duration (days)†	Indication	Last review date
				Enter from care plan, chart or notes	
MAXWELL, LINDA	Alprim 300mg Tablet (crushed) *Date first prescribed: 06/01/2016*	1 dinner	26		
NEWLAND, JANETTE	Alprim 300mg Tablet (crushed) *Date first prescribed: 12/01/2016*	1 dinner	20		
	Vagifem 25mcg Pessary *Date first prescribed: 01/01/2016*	1 bedtime	31		

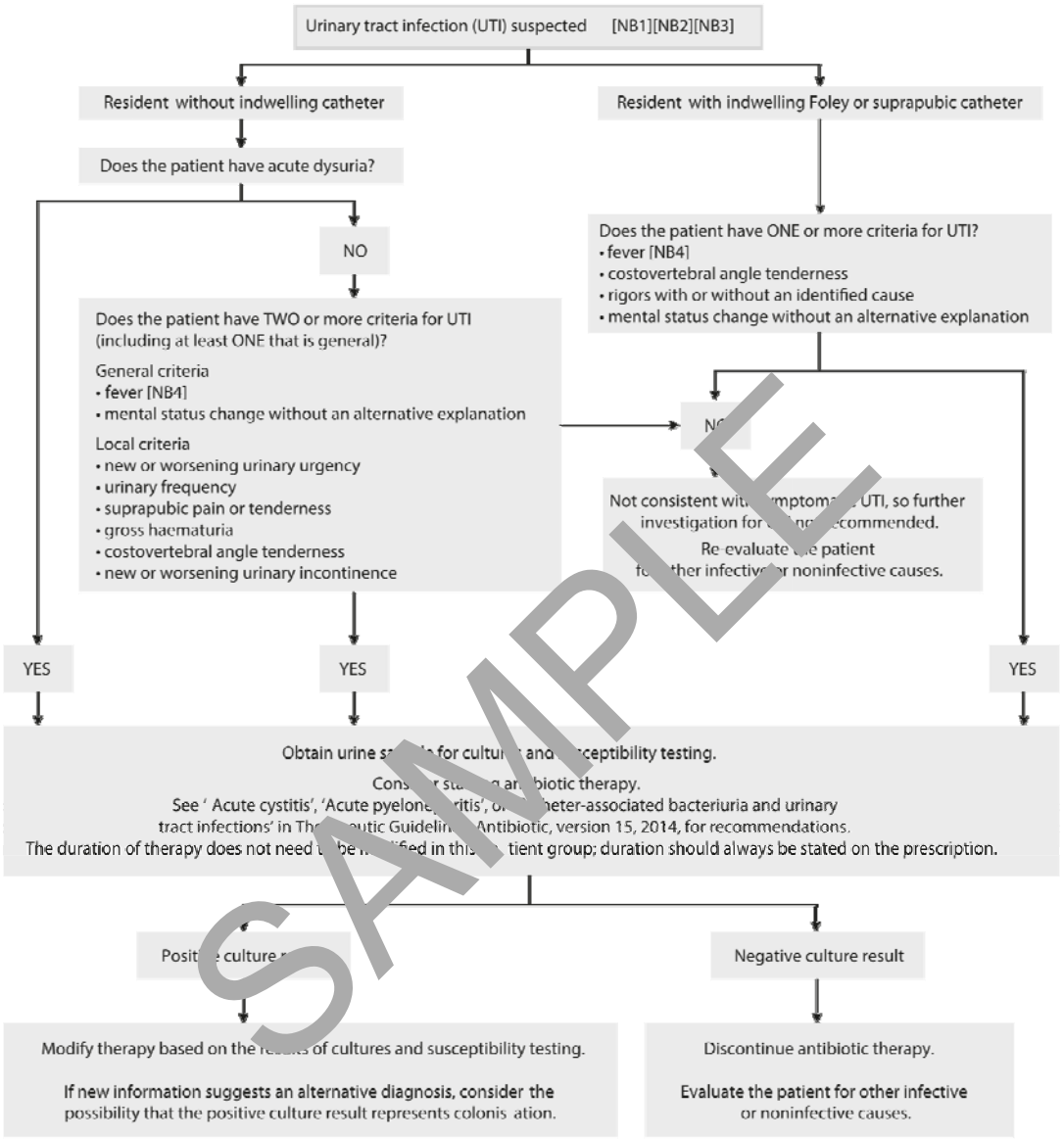
SAMPLE

* Residents using trimethoprim, cephalexin, cranberry, hexamine hippurate and nitrofurantoin on 'date of report'. Courses of cephalexin, nitrofurantoin and trimethoprim dosed once daily for > 14 days are included. Courses of cranberry (single ingredient oral forms excluding juice) and hexamine hippurate > 14 days are included regardless of daily frequency. Medicine listed are commonly used for preventing UTIs but may also be prescribed for other indications e.g. cephalexin for cellulitis prophylaxis. Refer to individual resident notes or chart for indication.

†Date started on administration chart may vary to MMS software date by up to 2 days for nurse initiated / emergency medication box courses. If a temporary break in therapy was for 2 days or less, the duration of medicine use is considered from the date the medicine was originally started. Residents may have been using medicines for longer than the duration stated if they were using the medicine before admission or have recently been re-admitted.

Therapeutic Guidelines

Initial assessment and management of aged-care facility residents with suspected urinary tract infection*



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NB1: Do not investigate or treat cloudy or malodorous urine in aged-care facility residents who do not have other symptoms or signs of UTI.

NB2: Consider whether an alternative diagnosis is likely. Consider both infective (eg pneumonia) and noninfective causes (eg medication-related adverse events).

NB3: Establish whether an advanced care plan is in place that may influence assessment and management (eg whether investigations are performed or antibiotics given).

NB4: Fever is defined as a temperature higher than 38°C or an increase of more than 1.5°C above baseline temperature.

* Validated criteria for diagnosing UTI in residents of aged-care facilities are lacking. This algorithm is intended as a general guide for the initial assessment and management of suspected UTI in aged-care facility residents.

References

D'Agata E, et al. J Am Geriatr Soc 2013;61:62-6.
High KP, et al. Clin Infect Dis 2009;48:149-71.
Juthani-Mehta M, et al. J Am Geriatr Soc 2009;57:963-70.
Loeb M, et al. Infect Control Hosp Epidemiol 2001;22:120-4.

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TABLE 1 **Summary of recommendations for treatment of urinary tract infections in RACFs**

Acute cystitis

WOMEN

- In symptomatic residents, consider starting empirical antibiotics. Obtain a urine sample for culture and susceptibility testing before administration of antibiotics.
  If a decision is made to start antibiotics while waiting for culture results use:
  1. trimethoprim 300 mg orally, daily for 3 days **OR**
  2. cephalexin 500 mg orally, 12-hourly for 5 days **OR**
  3. amoxycillin+clavulanate 500 mg + 125 mg orally, 12-hourly for 5 days **OR**
  3. nitrofurantoin 100 mg orally, 12-hourly for 5 days (avoid in creatinine clearance < 60 mL/min).

If resistance to all the above drugs is proven and if susceptible, a suitable alternative is:

norfloxacin 400 mg orally, 12-hourly for 3 days.

MEN

- There may be associated infection of the posterior urethra, prostate or epididymis. If feasible, examine males with a UTI (including rectal examination) and investigate to exclude an underlying abnormality. In presence of fever or loin pain manage as acute pyelonephritis.
- In symptomatic residents, consider initiating empirical antibiotics. Obtain a urine sample for culture and susceptibility testing before administering antibiotics. If a decision is made to start antibiotics while waiting for culture results use:
  1. trimethoprim 300 mg orally, daily for 7 days **OR**
  2. cephalexin 500 mg orally, 12-hourly for 7 days **OR**
  3. amoxycillin+clavulanate 500 mg + 125 mg orally, 12-hourly for 7 days **OR**
  3. nitrofurantoin 100 mg orally, 12-hourly for 7 days (limit to afebrile men in whom prostatitis is considered unlikely, avoid if creatinine clearance < 60 mL/min).

If resistance to above drugs is proven and if susceptible, a suitable alternative

norfloxacin 400 mg orally, 12-hourly for 7 days.

Acute pyelonephritis – men and women

- It is imperative that adequate urine samples are collected for culture and susceptibility testing before administering antibiotics. Blood cultures should also be performed in hospitalised residents.

MILD INFECTION IN ADULTS (LOW-GRADE FEVER, NO NAUSEA OR VOMITING)

While awaiting culture results use:

1. amoxycillin+clavulanate 875 mg + 125 mg orally, 12-hourly for 10–14 days **OR**
1. cephalexin 500 mg orally, 6-hourly for 10–14 days **OR**
1. trimethoprim 300 mg orally, daily for 10–14 days

- A follow up culture 1 to 2 weeks after the conclusion of therapy is advised.

If resistance to all the above drugs is proven or the causative organism is *Pseudomonas aeruginosa*, use:

1. ciprofloxacin 500 mg orally, 12-hourly for 7 days **OR**
1. norfloxacin 400 mg orally, 12-hourly for 7 days.

SEVERE INFECTION IN ADULTS (ASSOCIATED WITH SEPSIS OR VOMITING)

- Consider investigations to define or exclude any underlying anatomical or functional abnormality. In particular, obstruction of the upper urinary tract should be excluded as this may represent a urological emergency.
- Parenteral treatment is recommended see Therapeutic Guidelines: Antibiotic for specific therapy.

Recurrent urinary tract infections – women

- Before using antibiotic preventive therapy attempt to address modifiable causes for relapse/reinfection.
  See **www.nps.org.au/h-n-e/managing-utis**
- Consider prophylaxis for women who have frequent symptomatic infections
  (e.g. two or more infections in 6 months or 3 or more infections over 12 months).
- Prophylaxis may be considered for 3–6 months, in some cases, longer, if recurrences continue to occur despite prophylaxis, seek specialist advice.

If antibiotic prophylaxis is appropriate use:

1. trimethoprim 150 mg orally, at night **OR**
2. cephalexin 250 mg orally, at night.

Sources used: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Ltd, 2014.
AMH aged care companion (online). Adelaide: Australian Medicines Handbook Pty Ltd, 2014. **www.amh.net.au**

Note: The recommended order of preference is indicated by the number next to each regimen.
Alternatives of equal preference are marked with the same number.

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The data presented from the Webstercare Medication Management Software (MMS) includes all medicines used in your aged care facility supplied by the stated pharmacy. Indications for medicine use cannot be determined for medicines used in this report.

Please note: this report is from one unique pharmacy only. If your aged care facility is supplied medicine by multiple pharmacies, reports need to be collated to give an accurate reflection of your use.

Discrepancies may occur between the data provided and your own facility's medicine charts. Some pharmacies may not include all non-packed medicines such as liquids, wafers and injections or residents who self-administer in the Webstercare data system. You can contact your supply pharmacy to confirm whether this report is a complete record of all administered medicines for your aged care facility.

If you consider your individual data to be incorrect, please contact your community/supply pharmacy for assistance. If you have questions about clinical content or general feedback, please contact NPS MedicineWise on 02 9217 8700 (and select option 2) or by email at info@nps.org.au

Webstercare can provide your community/supply pharmacy with guidance on how to enter data for the maximum benefit when using this report. Please contact Webstercare on 02 9563 4900 or by email at info@webstercare.com.au.

Notes

Clinical information and review steps are relevant to residents using antibiotics for UTIs only. Resident medicine charts, notes and care plans should be read to assist resident medicine review.

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References

1. Stuart R, et al. Prevalence of antimicrobial-resistant organisms in residential aged care facilities. MJA 2011;195:530-3. https://www.mja.com.au/journal/2011/195/9/prevalence-antimicrobial-resistant-organisms-residential-aged-care-facilities?0=ip_login_no_cache%3D3e0dcbad9e8c25fa142f558dc2aa5e99 (accessed 11 Aug 2014).

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