

CLINICAL AUDIT

# Appropriate prescribing of **norfloxacin** for **urinary tract infections**



Valid to July 2021

## Audit focus

This audit focuses on the appropriate prescribing of norfloxacin for people with uncomplicated urinary tract infections (UTIs). With resistance to antibiotics an increasing problem, primary care clinicians need to be aware of what the appropriate empiric choices of antibiotics are when treating patients for suspected uncomplicated urinary tract infections.

## Background

Lower UTIs are a common problem in general practice.

The recommended first line empirical treatment for an uncomplicated lower UTI is trimethoprim, with nitrofurantoin an alternative choice. A urinary sample for culture and microscopy is not required before starting empirical treatment except in patients with complicated lower UTIs. When a patient fails to respond to treatment, a urinary culture to determine bacterial sensitivities is recommended prior to prescribing a second agent.

Trimethoprim, nitrofurantoin and norfloxacin have a narrow range of indications for prescribing, and are predominantly used in the treatment of UTIs. The majority of people who present with symptoms and signs of a UTI in primary care can be initially classified as having an uncomplicated UTI; most of these will respond well to a short course of trimethoprim or nitrofurantoin.

Norfloxacin is not recommended as a first line treatment for the treatment of lower UTIs. It is a broad spectrum antibiotic and its overuse contributes to increased resistance and to an increased risk of treatment failure in the future. It is recommended that norfloxacin is only considered as second line medicine, when first line empiric antibiotics have failed or resistance is confirmed.<sup>1</sup> This is consistent with the 2014 amendment to the Pharmaceutical Schedule stating that norfloxacin is fully funded but only if it is prescribed for patients with uncomplicated UTIs where there is proven resistance or a lack of response to first line medicines and the prescription is endorsed accordingly.

A re-analysis of national dispensing data for norfloxacin has shown that the rate of prescribing has decreased significantly since 2012\*.<sup>2</sup> The 2014 Schedule change requiring prescription

endorsement is likely to have contributed to this decrease as has education regarding appropriate antibiotic prescribing.

A further change that may have affected prescribing for UTIs in New Zealand is that trimethoprim has been available over the counter since 2012, according to defined criteria, from accredited pharmacists for women with uncomplicated UTIs.

When prescribing antibiotics for patients with acute uncomplicated UTI, several factors should be considered. These include local bacterial susceptibility, the patient's renal function, potential adverse effects and tolerance and the dosing regimens.

## Recommendations

In the majority of patients with uncomplicated lower UTIs, trimethoprim should be considered the antibiotic of choice. Nitrofurantoin is an alternative first line antibiotic when trimethoprim is contraindicated or not tolerated.

Norfloxacin should only be prescribed in a patient with an uncomplicated UTI when there is:

- A lack of response in a patient with lower UTI treated empirically with a first line medicine
- and/or
- Urine culture results showing resistance to first line agents such as trimethoprim and nitrofurantoin

For further information see: "Quinolone antibiotics – limit use", BPJ 35 (Apr, 2011) and "An update on the use of nitrofurantoin in patients with renal impairment", BPJ 71 (Oct, 2015)

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## References

1. Scottish Intercollegiate Guidelines Network. Management of suspected bacterial urinary tract infection in adults. Guideline No. 88 July 2012 Available from: [www.sign.ac.uk/pdf/sign88.pdf](http://www.sign.ac.uk/pdf/sign88.pdf) (Accessed Jun, 2016).
2. Pharmaceutical Collection, Ministry of Health, 2016.

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\* A previous norfloxacin audit is now out of date and no longer available

# Audit plan

## Summary

This audit focuses on the appropriate use of norfloxacin for the treatment of patients with uncomplicated UTI. A urine culture is not recommended for patients who present with classic symptoms and signs of an uncomplicated UTI. Trimethoprim or nitrofurantoin should be the first line choices for empiric treatment. Norfloxacin should be reserved for patients where there is proven resistance or a lack of response to first line medicines.

## Recommended audit standards

Ideally all patients who were prescribed norfloxacin for an uncomplicated UTI should have documented evidence in their notes that there was a lack of response to first line medicines or proven resistance on urinary culture. This is consistent with the endorsement restriction for norfloxacin on the Pharmaceutical Schedule that has been in place since 2014. However, for the purposes of this audit a target of 90% with documented evidence of treatment failure or resistance is suggested.

## Data

### Eligible people

Any patient that has received a prescription for norfloxacin for a UTI, in a time frame to be determined as below, is eligible for this audit.

### Identifying patients

You will need to have a system in place that allows you to identify eligible patients who have been prescribed norfloxacin and audit their clinical notes. Many practices will be able to identify patients by running a “query” through their PMS system.

### Sample size

The number of eligible patients will vary according to your practice demographic and your prescribing patterns. Only 5 dispensings for norfloxacin per 1000 patients were recorded for the average general practice in New Zealand between 1 July, 2014 and 30 June, 2015.<sup>2</sup> A reasonable sample size for an audit is 20 patients, however, with the smaller numbers of patients now prescribed norfloxacin it may take 2 – 3 years of data to find sufficient patients. We suggest you initially

search for patients prescribed norfloxacin over a 12 month period and if suitable numbers are not reached within this timeframe, extend the search to include a further 12 – 24 months. If the number of patients is still less than 20 beyond this time frame it would indicate that your prescribing of norfloxacin is appropriate.

### Criteria for a positive result

Identify patients who have been prescribed norfloxacin for a UTI.

A positive result is any patient who had norfloxacin prescribed second line, i.e.:

- After a lack of response to a first line medicine OR
- If a urinary culture result showed resistance to first line medicines

## Identifying opportunities for Audit of Medical Practice

The first step to improving medical practice is to identify the criteria where gaps exist between expected and actual performance and then to decide how to change practice.

Once a set of priorities for change have been decided on, an action plan should be developed to implement any changes.

### Taking action

It may be useful to consider the following points when developing a plan for action (RNZCGP 2002).

#### Problem solving process

- What is the problem or underlying problem(s)?
- Change it to an aim
- What are the solutions or options?
- What are the barriers?
- How can you overcome them?

#### Overcoming barriers to promote change

- Identifying barriers can provide a basis for change
- What is achievable – find out what the external pressures on the practice are and discuss ways of dealing with them in the practice setting

- Identify the barriers
- Develop a priority list
- Choose one or two achievable goals

#### Effective interventions

- No single strategy or intervention is more effective than another, and sometimes a variety of methods are needed to bring about lasting change
- Interventions should be directed at existing barriers or problems, knowledge, skills and attitudes, as well as performance and behaviour

## Review

### Monitoring change and progress

It is important to review the action plan developed previously against the timeline at regular intervals. It may be helpful to review the following questions:

- Is the process working?
- Are the goals for improvement being achieved?
- Are the goals still appropriate?
- Do you need to develop new tools to achieve the goals you have set?

Following the completion of the first cycle, it is recommended that the doctor completes the first part of the Audit of Medical Practice summary sheet (Appendix 1).

### Undertaking a second cycle

In addition to regular reviews of progress with the practice team, a second audit cycle should be completed in order to quantify progress on closing the gaps in performance.

It is recommended that the second cycle be completed within 12 months of completing the first cycle. The second cycle should begin at the data collection stage. Following the completion of the second cycle it is recommended that practices complete the remainder of the Audit of Medical Practice summary sheet.



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### Claiming MOPS credits

This audit has been endorsed by the RNZCGP as an Audit of Medical Practice activity (previously known as Continuous Quality Improvement – CQI) for allocation of MOPS credits; 10 credits for a first cycle and 10 credits for a second cycle. General practitioners taking part in this audit can claim credits in accordance with the current MOPS programme.

To claim points go to the RNZCGP website: [www.rnzcgp.org.nz](http://www.rnzcgp.org.nz)

Record your completion of the audit on the MOPS Online credit summary, under the Audit of Medical Practice section. From the drop down menu, select the audit from the list or select "Approved practice/ PHO audit" and record the audit name in "Notes", the audit date and 10 credits.

General practitioners are encouraged to discuss the outcomes of the audit with their peer group or practice.

As the RNZCGP frequently audit claims you should retain the following documentation, in order to provide adequate evidence of participation in this audit:

1. A summary of the data collected
2. An Audit of Medical Practice (CQI) Activity summary sheet (included as Appendix 1).



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Te Whare Tohu Rata o Aotearoa

**Endorsed CPD Activity**

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## Data sheet – cycle 1 Appropriate prescribing of norfloxacin for urinary tract infections

Patient	Do patient records document evidence of:				
	Failure of first line empiric treatment?		OR	Proven resistance to first line medicines on urinary culture?	
	Yes	No		Yes	No
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
Total					
%					

Please retain this sheet for your records to provide evidence of participation in this audit.

## Data sheet – cycle 2 Appropriate prescribing of norfloxacin for urinary tract infections

Patient	Do patient records document evidence of:				
	Failure of first line empiric treatment?		OR	Proven resistance to first line medicines on urinary culture?	
	Yes	No		Yes	No
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
Total					
%					

Please retain this sheet for your records to provide evidence of participation in this audit.



## Audit of Medical Practice (CQI activity) Summary Sheet

Topic:

The activity was designed by  
(name of organisation if relevant):

Doctors Name:

### FIRST CYCLE

<b>DATA:</b>	Date of data collection:
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<b>CHECK:</b>	Describe any areas targeted for improvement as a result of analysing the data collected.

<b>ACTION:</b>	Describe how these improvements will be implemented.

<b>MONITOR:</b>	Describe how well the process is working. When will you undertake a second cycle?

## SECOND CYCLE

<b>DATA:</b>	Date of data collection:
<b>CHECK:</b>	Describe any areas targeted for improvement as a result of analysing the data collected.
<b>ACTION:</b>	Describe how these improvements will be implemented.
<b>MONITOR:</b>	Describe how well the process is working.
<b>COMMENTS:</b>	