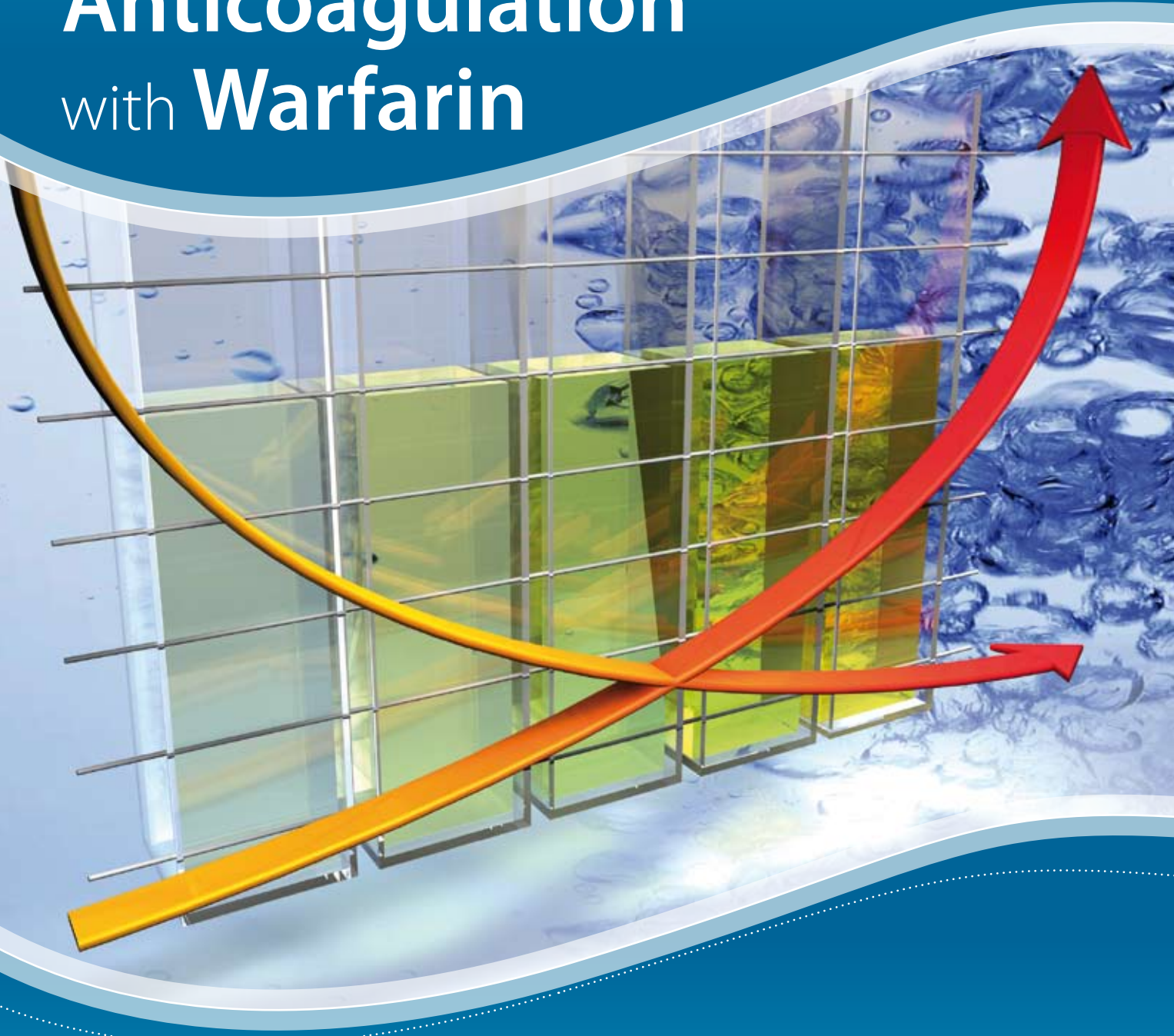


CLINICAL AUDIT

Safe and Effective  
**Anticoagulation**  
with **Warfarin**



RNZCGP endorsed  
CQI credits  
**MOPs**

Valid to September 2013



**bpac<sup>nz</sup>**  
better medicine



## Focus of this audit

This audit focuses on the safer prescribing of warfarin to help maintain the INR within a safe range and therapeutic window. It is designed to:

- Provide a benchmark of your warfarin prescribing and monitoring of INR
- Stimulate reflection on the systems in place that allow you to prescribe warfarin and monitor INR safely

We encourage you to make this audit a practice-wide activity and involve all practice members including reception staff.

## Background

Warfarin is the most frequent cause of adverse drug reactions in New Zealand. Making changes to improve the safety of warfarin therapy involves the key components of: patient education, easily accessible information in patients' notes and safe prescribing practices.

Patient education, which includes information about bleeding risk, diet, medicines and testing, is an important component of achieving acceptable INR levels. Patients who are well informed are more likely to benefit from warfarin treatment and less likely to come to harm. Patient information, such as the "Starting on Warfarin" leaflet is a good resource and is available to order from bpac<sup>nz</sup>.

Safer prescribing relies on the prescriber being able to easily access key information including: that the patient is on warfarin, the condition for which it is prescribed, the target INR range, the planned duration of treatment, and the brand of warfarin. This information should be immediately obvious to anyone accessing the notes. Errors can be reduced when standardised methods are used to record the management plan in the clinical notes. The latest INR result and current warfarin dose is also required to modify the dose prescribed.

How the prescription for warfarin is written can also improve safety:

- Warfarin should be prescribed by brand name not generically
- The dose should be prescribed in mg not number of tablets
- Labelling is used to highlight the importance of ongoing INR monitoring e.g. "Take the dose prescribed by your doctor or nurse. You need regular INR tests to make sure this dose is safe for you", instead of labels such as "PRN" or "as instructed".

In most situations the INR target range is 2.0–3.0. This range is appropriate for the prophylaxis or treatment of venous thrombo-embolism and reduction of the risk of systemic embolism for people with atrial fibrillation and valvular heart disease. In some situations higher ranges are recommended.

Regular INR testing is used to monitor that the results are in range and that warfarin doses are changed as required. Ineffective anticoagulation and increased risk of thrombosis (INR levels <1.5) or overcoagulation and increased risk of bleeding (INR levels >5) are situations to avoid.

To minimise confusion and ensure safe and effective anticoagulation, it is recommended that a systematic, practice-wide approach to warfarin therapy and the maintenance of INR levels within target range is adopted. Common protocols should cover:

- How to initiate warfarin for patients in primary care
- Patient education including appropriate written material
- A standard method of recording that a patient is on warfarin plus any key information: the current INR result and dose, and when the next INR is due
- How to monitor warfarin therapy, significant medicine interactions, modifying warfarin dosage and frequency of INR testing
- Where the practice supply of vitamin K is kept

# Plan

## Indicators

1. Information regarding a patient's warfarin therapy should be easily accessible
2. Information regarding a patient's last INR, current warfarin dose and the recommended timing of the next INR test is easily accessible
3. Prescriptions for warfarin are written in a way that minimises medicine errors
4. The patient's INR is kept in a safe range and within the therapeutic window
5. Practice clinicians follow agreed practice wide protocols that increase the safety of warfarin prescribing

## Criteria

1. The patient notes record the following key information about a patient's warfarin therapy:
  - That the patient is on warfarin
  - Condition for which it is prescribed
  - Target INR range
  - Start date
  - Planned duration of treatment
  - End date (where applicable)
  - Brand of warfarin
2. The patient notes record the last INR dose, the current warfarin dose, and the recommended timing of the next INR test
3. Prescriptions for warfarin are by brand name, with the dose in mg and labelling that emphasises the importance of INR monitoring
4. The most recent INRs are within the target range with no levels above 5 or below 1.5
5. Practice clinicians are aware of and follow agreed practice-wide protocols and systems covering:
  - How to initiate warfarin in the community
  - Patient education including appropriate written material
  - A standard method of recording that the patient is on warfarin plus key information, the current INR result and dose, and when next INR is due
  - How to monitor warfarin therapy, significant drugs interactions, modifying warfarin dosage and frequency of INR
  - Where the practice supply of vitamin K is kept

## Standards

1. 100% of the patient notes record the key information about a patient's warfarin therapy
2. 100% of the patient notes record the last INR and the current warfarin dose, and the recommended timing of the next INR test
3. 100% of prescriptions for warfarin are by brand name, with the dose in mg and labelling that emphasises the importance of INR monitoring
4. >55%<sup>1</sup> of the most recent INRs are within the target range and 100% are between 5 and 1.5
5. 100% of practice clinicians are aware of the practice protocols and systems guiding warfarin therapy which are adhered to 90% of the time

1. Lane DA, Lip GYH. Maintaining therapeutic anticoagulation: the importance of keeping "within range". Chest 2007;131:1277-9

# Data

## Eligible people

All patients who are currently on warfarin are eligible for this audit.

## Identifying patients

You will need to have a system in place that allows you to identify eligible patients. Many practices will be able to identify patients on warfarin by running a 'query' through their PMS system.

## Sample size

The number of eligible patients will vary according to your practice demographic. It would be optimal to identify 20 to 30 patients. If you identify more, take a random sample of 20 to 30 patients whose notes you will audit.

## What data should be recorded?

Use the data sheet to record your data:

- Whether or not key information is easily found in the notes
- If the prescription is written and labelled in a way that improves safety
- If the most recent INR is within the therapeutic window and a safe range
- The presence or absence of practice wide protocols

From your findings calculate the percentage of cases where these parameters are met. Standards are suggested in this protocol but may also be set at a practice/practitioner level, dependent upon the practice population. Discussion amongst peers may be useful in establishing standards.

## Data sheet – cycle 1 Safe and effective anticoagulation with warfarin

Patient	Information easily found in notes							
	On warfarin	Condition	Target INR range	Start date	Duration	End date	Brand of warfarin	Last INR level
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
<b>Total</b>								
<b>%</b>								

### I am aware of the practice wide protocol for:

Initiation of warfarin in the community	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provision of patient education, including written material covering bleeding risk, diet, drugs and testing	Yes <input type="checkbox"/>	No <input type="checkbox"/>
A standard method of recording that the patient is on warfarin plus key information, the current INR result and dose, and when next INR is due	Yes <input type="checkbox"/>	No <input type="checkbox"/>
How to monitor warfarin therapy, significant drugs interactions, modifying warfarin dosage and frequency of INR	Yes <input type="checkbox"/>	No <input type="checkbox"/>



## Data sheet – cycle 2 Safe and effective anticoagulation with warfarin

Patient	Information easily found in notes							
	On warfarin	Condition	Target INR range	Start date	Duration	End date	Brand of warfarin	Last INR level
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
<b>Total</b>								
<b>%</b>								

### I am aware of the practice wide protocol for:

Initiation of warfarin in the community	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provision of patient education, including written material covering bleeding risk, diet, drugs and testing	Yes <input type="checkbox"/>	No <input type="checkbox"/>
A standard method of recording that the patient is on warfarin plus key information, the current INR result and dose, and when next INR is due	Yes <input type="checkbox"/>	No <input type="checkbox"/>
How to monitor warfarin therapy, significant drugs interactions, modifying warfarin dosage and frequency of INR	Yes <input type="checkbox"/>	No <input type="checkbox"/>



# Identifying opportunities for CQI

## Taking action

The first step in taking action is to identify where gaps exist between expected and actual performance and decide on priorities for change.

Once priority areas for change have been decided on, an action plan should be developed to implement any changes.

The plan should assign responsibility for various tasks to specific members of the practice team and should include a timeline.

It is important to include the whole practice team in the decision-making and planning process.

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

### 1. 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?

### 2. Overcoming barriers

- 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

### 3. 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 against the timeline at regular intervals with the practice team. It may be helpful to discuss 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 practices complete the first part of the CQI activity 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 CQI activity summary sheet.

### Claiming MOPS credits

This audit has been endorsed by the RNZCGP as a CQI Activity for allocation of MOPS credits. General practitioners taking part in this audit can claim credits in accordance with the current MOPS programme. This status will remain in place until **22 September 2013**.

To claim MOPS points, you can indicate completion of the audit on the annual claim sheet, or alternatively you can go to the RNZCGP website, and claim your points at "MOPS online" at [www.rnzcgp.org.nz](http://www.rnzcgp.org.nz)

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. A Continuous Quality Improvement (CQI) Activity summary sheet (included as Appendix 1).

# Appendix 1: RNZCGP Summary Sheet – CQI Activity

<b>DOCTORS NAME</b>	
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The activity was designed by (please tick appropriate box):

- RNZCGP
- Organisation e.g. IPA/PHO/BPAC (name of organisation) bpac<sup>nz</sup>
- Individual (self)

<b>TOPIC</b>	<b>Safe and effective anticoagulation with warfarin</b>
Describe why you chose this topic (relevance, needs assessment etc):	

## FIRST CYCLE

<b>1. DATA</b>	<b>Information collected</b>
Date of data collection:	
Please attach: <ul style="list-style-type: none"><li>▪ A summary of data collected <b>or</b></li><li>▪ If this is an organisation activity, attach a certificate of participation.</li></ul>	

<b>2. CHECK</b>	Describe any areas targeted for improvement as a result of the data collected.

<b>3. ACTION</b>	Describe how these improvements will be implemented.

<b>4. MONITOR</b>	Describe how well the change process is working. When will you undertake a second cycle?

## SECOND CYCLE

<b>1. DATA</b>	<b>Information collected</b>
Date of data collection:	
Please attach:	
<ul style="list-style-type: none"><li>▪ A summary of data collected <b>or</b></li><li>▪ If this is an organisation activity, attach a certificate of participation.</li></ul>	

<b>2. CHECK</b>	Describe any areas targeted for improvement as a result of the data collected.

<b>3. ACTION</b>	Describe how these improvements will be implemented.

<b>4. MONITOR</b>	Describe how well the change process is working. Will you undertake another cycle?

<b>ADDITIONAL COMMENTS</b>	





## AUDIT CHECKLIST

Date:

1  Audit Planning

### FIRST CYCLE

2  Data collected

3  RNZCGP Summary Sheet completed

4  MOPS Credits claimed

### SECOND CYCLE

5  Data collected

6  RNZCGP Summary Sheet completed

7  MOPS Credits claimed

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