CLINICAL AUDIT

Lowering **serum urate levels** in patients with **gout**

July 2023

bpac nz
better medicine

Audit focus

This audit focuses on optimising allopurinol treatment in patients with gout and ensuring that they are being treated to target.

Background

Gout, caused by increased levels of urate in the blood (hyperuricaemia), is the most common type of inflammatory arthritis. Acute flares are the first symptom of gout, i.e. self-limiting, inflammatory attacks of arthritis, usually in the metatarsophalangeal joint. In the presence of prolonged hyperuricaemia some people will develop chronic tophaceous disease and erosive arthritis. Hyperuricaemia occurs due to a combination of genetic and environmental factors. As the level of serum urate rises, the risk of gout increases. Hyperuricaemia is also associated with chronic kidney disease, hypertension and diabetes. In addition, people with hyperuricaemia have an increased risk of developing kidney stones.

The symptoms of gout are caused by monosodium urate crystals forming in the joints and other tissues resulting in an inflammatory response. This deposition occurs when urate levels in the blood reach saturation point. When serum urate is lowered to < 0.36 mmol/L, urate crystals dissolve. A more stringent target of < 0.30 mmol/L is recommended for patients with severe gout. Treating to target reduces the risk of acute flares, and tophi shrink and may eventually disappear. Long-term maintenance of serum urate at levels below the treatment target prevents further urate crystal formation and the development of complications.

Allopurinol is the first-line urate-lowering medicine and initiation should be discussed with all patients with gout, as soon as a diagnosis has been established. The target for allopurinol treatment is a serum urate level < 0.36 mmol/L. The dose of allopurinol must be titrated to achieve the treatment target and serum urate testing should be performed at each dose adjustment. Once the patient has reached the treatment target, serum urate levels should ideally be checked at least once annually.

When allopurinol is initiated, "start low and go slow". A lower starting dose and lower dose increments are recommended in patients with renal impairment.

For further information, see: "Managing gout in primary care – Part 1 – Talking about gout: time for a re-think" (2021) **bpac.org.nz/2021/gout-part1.aspx** and "Managing gout in primary care – Part 2 – Controlling gout with long-term urate-lowering treatment" (2021) **www.bpac.org.nz/2021/gout-part2.aspx**

Audit Plan

Summary

This audit identifies patients with gout who are taking allopurinol and determines if they have been treated to target.

- Allopurinol doses should be titrated to achieve a target serum urate level < 0.36 mmol/L
- Serum urate levels should be tested at least annually, once the serum urate target has been reached, as part of routine patient monitoring

Recommended audit standards

Ideally all patients with gout should be treated to target, but in practice there are many reasons why this is not achievable, e.g. some patients who continue to have serum urate levels slightly above target despite their maximum tolerated dose of allopurinol may choose to persist with allopurinol alone, rather than taking an additional medicine if flares are controlled.

A reasonable audit standard is for 80% of the patient sample to be treated to target, i.e. serum urate level < 0.36 mmol/L and serum urate tested within the past 12 months. This target may be lower in the first cycle of the audit, with an increase in the number of patients who have reached the target urate level after the second cycle

Audit Data

Eligible patients

All patients who have a diagnosis of gout and have been treated with allopurinol for ≥ 12 months are eligible for this audit.

Identifying patients

You will need to have a system in place that allows you to identify eligible patients and audit their clinical notes. Many practices will be able to identify patients by running a "query" through their PMS to find all patients taking allopurinol.

Sample size

The number of eligible patients will vary according to your practice demographic. If a large number of results are returned, a sample size of 30 patients is sufficient for this audit.

Criteria for a positive outcome

A positive result is achieved if the patient has a diagnosis of gout and is being treated with allopurinol, and the patient notes indicate that the target serum urate level of < 0.36 mmol/L has been reached and the serum urate level has been tested within the past 12 months.

Data analysis

Use the sheet provided to record your data. Calculate the percentage of your patients currently 'at target' by taking the number of patients who, in the last 12 months, had a serum urate level ≤ 0.36 mmol/L and dividing it by the total number of patients audited.

Optional: record the patient's serum urate level to assess how far from target they are

Using clinical audits for improving practice and patient outcomes

Clinical audits can be an important tool to identify where gaps exist between expected and actual performance. Once completed, they can provide ideas on how to change practice and improve patient outcomes. General practitioners are encouraged to discuss the suitability and relevance of their proposed audit with their practice or peer group prior to commencement to ensure the relevance of the audit. Outcomes of the audit should also be discussed with the practice or peer group; this may be recorded as a learning activity reflection if suitable.

The Plan, Do, Study, Act (PDSA) model is recommended by the Royal New Zealand College of General Practitioners (RNZCGP) as a framework for assessing whether a clinical audit is relevant to your practice. This model has been widely used in healthcare settings since 2000. It consists of two parts, the framework and the PDSA cycle itself, as shown in Figure 1.

1. The framework

This consists of three questions that help define the "what" and "how" of an improvement project (in this case an audit). The questions are:

- "What are we trying to accomplish?" – the aim
- "How will we know that a change is an improvement?" – what measures of success will be used?
- "What changes can we make that will result in improvement?" – the concept to be tested

2. The PDSA cycle

This is often referred to as the "engine" for creating, testing and carrying out the proposed changes. More than one cycle is usually required; each one is intended to be short, rapid and frequent, with the results used to inform and refine the next. This allows an ongoing process of continuous learning and improvement.

Each PDSA cycle includes four stages:

- **P**lan – decide what the change to be tested is and how this will be done
- **D**o – carry out the plan and collect the data
- **S**tudy – analyse the data, assess the impact of the change and reflect on what was learned
- **A**ct – plan the next cycle or implement the changes from your plan

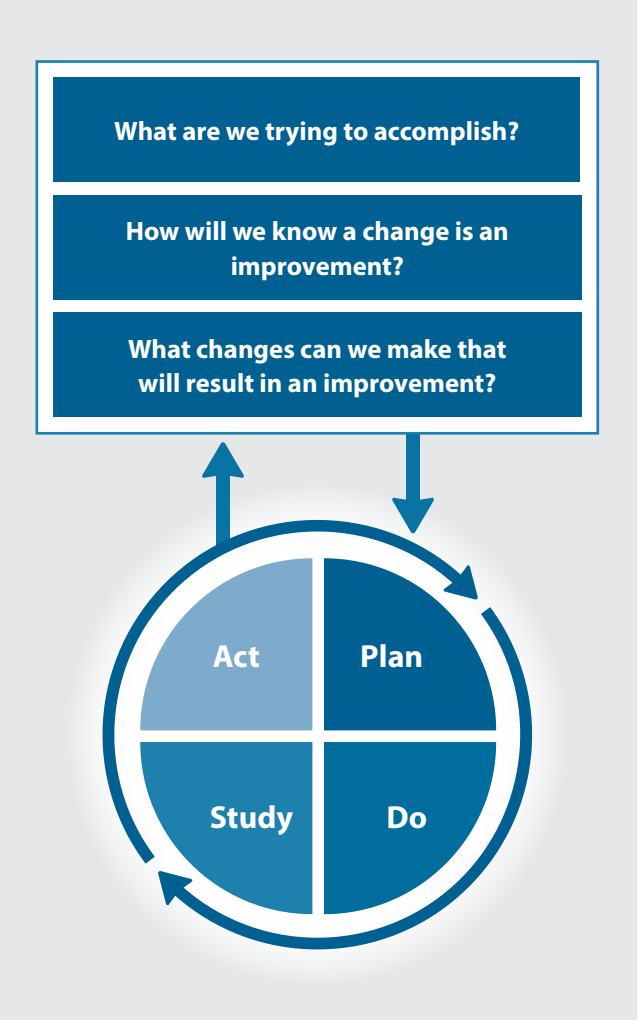

Figure 1. The PDSA model for improvement.

Source: Plan, Do, Study, Act (PDSA) cycles and the model for improvement

Claiming credits for Te Whanake CPD programme requirements

Practice or clinical audits are useful tools for improving clinical practice and credits can be claimed towards the Patient Outcomes (Improving Patient Care and Health Outcomes) learning category of the Te Whanake CPD programme, on a credit per learning hour basis. A minimum of 12 credits is required in the Patient Outcomes category over a triennium (three years).

Any data driven activity that assesses the outcomes and quality of general practice work can be used to gain credits in the Patient Outcomes learning category. Under the refreshed Te Whanake CPD programme, audits are not compulsory and the RNZCGP also no longer requires that clinical audits are approved prior to use. The college recommends the PDSA format for developing and checking the relevance of a clinical audit.

To claim credits go to the RNZCGP website **www.rnzcgp.org.nz**

If a clinical audit is completed as part of Te Whanake requirements, the RNZCGP continues to encourage that evidence of participation in the audit be attached to your recorded activity. Evidence can include:

1. A summary of the data collected
2. An Audit of Medical Practice (CQI) Activity summary sheet (Appendix 1 in this audit or available on the RNZCGP website).

N.B. Audits can also be completed by other health professionals working in primary care (particularly prescribers), if relevant. Check with your accrediting authority as to documentation requirements.

The Royal New Zealand College of General Practitioners
Te Whare Tohu Rata o Aotearoa
Endorsed CPD Activity

bpac^{nz}
PO Box 6032, Dunedin
Phone 03 477 5418
contact@bpac.org.nz

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www.bpac.org.nz/audits

Data sheet – cycle 1

Lowering serum urate levels in patients with gout

Patient prescribed allopurinol for ≥ 12 months	Last recorded serum urate level ≤ 0.36 mmol/L	Optional: record serum urate level	Recorded serum urate level within the past 12 months
	Yes/No		Yes/No
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30			
Results:	____ ÷ ____ × 100 Total "Yes" No. of patients = ____ %		____ ÷ ____ × 100 Total "Yes" No. of patients = ____ %

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

Data sheet – cycle 2

Lowering serum urate levels in patients with gout

Patient prescribed allopurinol for ≥ 12 months	Last recorded serum urate level ≤ 0.36 mmol/L	Optional: record serum urate level	Recorded serum urate level within the past 12 months
	Yes/No		Yes/No
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Results:	____ ÷ ____ × 100 (Total "Yes" / No. of patients) = ____ %		____ ÷ ____ × 100 (Total "Yes" / No. of patients) = ____ %

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

SUMMARY SHEET
Audit of medical practice (CQI activity)

Topic:

Lowering serum urate levels in patients with gout

Activity designed by (name of organisation, if relevant):

Bpac^{nz}

Doctor's name:

Results discussed with peer group or colleagues?

☐ Yes ☐ No

Date:

FIRST CYCLE

DATA: Date of data collection:

CHECK: Describe any areas targeted for improvement as a result of analysing the data collected.

ACTION: Describe how these improvements will be implemented.

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

SECOND CYCLE

DATA: Date of data collection:

CHECK: Describe any areas targeted for improvement as a result of analysing the data collected.

ACTION: Describe how these improvements will be implemented.

MONITOR: Describe how well the process is working.

COMMENTS:

DECEMBER 2016