



NSAIDs
GP Prescribing Indicator
Module
2019-20

Every patient, every time



Adapted with permission



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Section 1: Introduction

1.1 Background

A key aim of Safety in Practice is to reduce the harm experienced by patients from medication use. Adverse events related to medications are a significant cause of patient morbidity and mortality, and a source of substantial costs for both organisations and patients.¹

Non-steroidal anti-inflammatory drugs (NSAIDs) are the most frequently prescribed medicines for analgesia in primary care, after paracetamol.² There are long-standing and well-recognised serious gastro-intestinal and renal safety concerns with all NSAIDs, and substantial evidence confirming an increased risk of cardio-vascular events.³ Studies have also implicated NSAIDs as being a significant cause of admissions to hospitals due to adverse drug events.⁴

The frequency of NSAID use within the community means that the potential for serious NSAID-related adverse events is significant. NSAID use requires careful consideration of individual patient risk factors⁵. Most adverse drug events (ADEs) related to these medications are avoidable as vulnerable groups and drug interactions can be predicted.⁶

The NZ Centre for Adverse Reactions Monitoring (CARM) received 119 reports of renal adverse reactions associated with NSAID (including COX-2 inhibitor) use from 1 January 2000 to 31 December 2012. Approximately 70% of reports were serious, including four deaths and 12 that were considered to be life-threatening. The majority of reports (74%) occurred in patients aged 50 years and over⁷.

This module focuses on high-risk use of NSAIDs, including COX-2 inhibitors. High risk NSAID prescribing is common and varies about four-fold between practices^{8 9}. Evidence shows that when practices review NSAID prescribing, high-risk prescribing is reduced by at least a third. This improvement is associated with reductions in related emergency hospital admissions with adverse events such as gastro-intestinal bleeding.^{10 11} Similar work in all practices in Scotland has shown reductions of up to 50% in high-risk prescribing of NSAIDs. We know that when GPs specifically review prescribing, they judge a significant proportion to be potentially inappropriate and take steps to improve their prescribing safety.^{8,9}

In this prescribing indicator module practices can quickly identify patients for whom higher risk prescribing may have occurred. Practitioners gain insights into their prescribing practices, and information to consider alternatives for these patients to reduce their risk of harm. An increased awareness of patients who are at highest risk might also help practice teams focus education around the risks of over the counter NSAID, which is a recognised source of patients using these medicines.

1.2 Aim

To reduce harm to patients from Non-Steroidal Anti-inflammatory Drugs (NSAIDs) by reviewing prescribing of the medicines in our practice by June 2020.

1.3 Equity

Reducing inequalities in outcomes between Maori and other high needs groups compared to the general population is a priority at all levels of the health system, including Auckland and Waitemata DHBs.¹²

NSAIDs are often used in the management of gout which is more prevalent in Maori males (11.7%) compared to European males (3.7%).¹³ Maori have higher rates of NSAID dispensing, likely related to a higher burden of this disease and poorer control of gout.¹⁴ A higher proportion of Māori aged 65 years and older receive the “triple whammy” combination of ACEI/ARB, diuretic and NSAID than their non-Māori counterparts.¹⁵ Given that Maori are approximately twice as likely as non-Maori to die of cardiovascular disease, and are more at risk of kidney injury, the use of NSAID in this population warrants particular caution and the inequity has even greater implications.¹⁶

It is well recognised that for patient groups who already experience poorer health outcomes, the very reasons that contribute to this could make them more at risk of errors, oversights, miscommunications and receiving care that is less able to meet their needs. Working on processes to improve patient safety overall would be expected to have particular benefit for reducing risk for these groups, which would contribute to reducing inequity.

In the Prescribing Indicator modules, practices will report each month the on the number of “at-risk” prescribing events who are Māori as well as the total number.

Practices may choose focus on specific groups using an equity lens. Some examples could include:

- Focusing specifically on high-risk populations. SIP reports provided by Mohio present Māori patients first followed by Pacific then other. Dr Info allows either selection by Maori, or by high needs.
- Specifically seeking input from patients from these groups on their experiences of NSAID prescribing.

1.4 Measures & rationale

Measure 1 Patients ≥ 65 years prescribed oral NSAID in the last month, and not prescribed a gastro-protective medicine in the last 4 months	
Rationale – Risk identified	
<ul style="list-style-type: none"> Increased risk of GI bleeding x10 compared to NSAID use in middle age.^{17 18} 	
Recommended Action	Comments
<ul style="list-style-type: none"> Review the need for NSAID OR Prescribe a gastrointestinal protective medication. 	<ul style="list-style-type: none"> NSAIDs should be avoided in the elderly. Full dose paracetamol or topical NSAID should be tried first for non-inflammatory musculoskeletal pain, and will provide adequate analgesia in many patients currently taking an NSAID.^{15 19} If an NSAID is essential, then using at the lowest dose for the shortest period of time and co-prescribing a Proton Pump Inhibitor (PPI) is recommended. The safest course is always to avoid NSAIDs in the elderly where possible, and to inform the patient they should not purchase over the counter NSAIDs.
Measure 2 TRIPLE WHAMMY - Prescription of oral NSAID in the last month with an ACE-inhibitor/ARB and diuretic combination within the last 4 months.	
Rationale – Risk identified	
<ul style="list-style-type: none"> Substantially increased risk of acute renal failure and death.^{20 21} Patients with pre-existing CKD have an increased risk of acute renal failure with the triple whammy. Patients with heart failure have additional risks of heart failure exacerbation. These risks are greatest in the first 30 days of use.²² 	
Recommended Action	Comments
<ul style="list-style-type: none"> Review the need for NSAID at all, particularly in those with CKD or heart failure and try to use alternative treatment. 	<ul style="list-style-type: none"> If NSAIDs are essential, then monitor renal function, advise patients to seek professional advice if at risk of dehydration and consider additional renal function monitoring if the patient is at risk of dehydration or unwell. The safest course of action is always to avoid the NSAID where possible and let your patients know they should not purchase NSAIDs over the counter if they have CKD, heart failure, or if they are taking an ACE/ARB and diuretic.

Measure 3 Prescription of an oral NSAID in the last month in a patient with CKD 3,4 or 5 (eGFR<60ml/min).	
Rationale – Risk identified	
<ul style="list-style-type: none"> Increased risk of acute kidney injury, especially if unwell or hypovolaemic. ¹⁵ The risk is greatest at the start of treatment: even short courses are associated with risk. ²¹ 	
Recommended Action	Comments
<ul style="list-style-type: none"> Review the need for an NSAID. Advise patients to discontinue NSAID if they become unwell or dehydrated. Measure renal function 1-2 weeks after treatment and then monitoring regularly. ²³ 	<ul style="list-style-type: none"> See patient information hand-outs Health Navigator for those at risk of acute kidney injury. The safest course of action is always to avoid the NSAID where possible and let your patients know they should not purchase NSAIDs over the counter if they have CKD.
Measure 4 Prescription of an oral NSAID in the last month, without co-prescription a gastro-protective medicine in the last 4 months, to a patient with a history of peptic ulceration	
Rationale – Risk Identified	
<ul style="list-style-type: none"> Increased risk of GI bleeding 	
Recommended Action	Comments
<ul style="list-style-type: none"> Review the need for NSAID OR Prescribe a gastrointestinal protective medication. 	<ul style="list-style-type: none"> A Cochrane review found that both PPIs and H2 antagonists were effective at preventing chronic NSAID-related gastric and duodenal ulcers. ²⁴
Measure 5 Prescription of an oral NSAID in the last month in a patient with heart failure	
Rationale – Risk Identified	
<ul style="list-style-type: none"> Exacerbation of heart failure NSAID use approximately doubles the risk of hospital admission due to heart failure and increases systolic BP by an average of 2-3 mmHg ²² This effect may be more dramatic in patients with pre-existing hypertension or taking BP medications ²² If previous MI then increased risk of further MI or death by at least 1.45 during first 7 days of treatment and persisted throughout treatment ²⁶ 	
Recommended Actions	Comments
<ul style="list-style-type: none"> Review the need for NSAID. Monitor BP and heart failure more closely within the first month, The lowest risk NSAIDs in this area are naproxen up to 1000mg per day or ibuprofen up to 1200mg per day ¹⁵ Full information on risks needs to be given to patients. 	<ul style="list-style-type: none"> Patients with heart failure are recognised to be at high risk of cardiovascular events. ²⁷ The safest course of action is always to avoid the NSAID where possible, and let your patients know they should not purchase NSAIDs over the counter if they have heart failure.

Measure 6 Prescription of oral NSAID in the last month in combination with warfarin or a novel anticoagulant in the last 4 months	
Rationale – Risk Identified	
<ul style="list-style-type: none"> • Significant increased risk (at least x1.5) of gastro-intestinal bleeding.²⁸ • Increased risk (at least x1.6) of hospitalisation.²⁹ 	
Recommended Action	Comments
<ul style="list-style-type: none"> • Review the need for NSAID as this combination should be avoided.²⁸ • Co-prescription of a PPI for gastro-protection should be used regularly even if the NSAID is intermittent. 	<ul style="list-style-type: none"> • Use lowest risk NSAID if required, with gastro-protection. • The safest course of action is always to avoid the NSAID where possible, and let your patients know they should not purchase NSAIDs over the counter if they are on warfarin.

What about COX-2 inhibitors?

The searches include COX-2 inhibitors such as celecoxib as these are within the class of NSAIDs. BPAC gives the following guidance.³⁰

“Celecoxib is recommended for patients at increased risk of gastrointestinal bleeding who require an NSAID because it is associated with a lower risk of GI bleeding than a non-selective NSAID. However as some COX-1 inhibition is present, the use of celecoxib in patients with an elevated risk of GI bleeding is not entirely without risk. Furthermore, the COX-2 enzyme may be involved in the healing of gastric lesions from healing. If the patient has a high risk of GI complications, e.g. a history of NSAID-related GI bleeding, a PPI should be concurrently prescribed.³¹ Risk factors for NSAID-induced GI adverse effects include

- Age >65 years
- A history of gastrointestinal bleeding
- Previous adverse reactions to NSAIDs
- The use of other medicines that increase the risk of bleeding, e.g. aspirin, warfarin, dabigatran, SSRIs and corticosteroids
- Liver disease
- Chronic kidney disease
- Excess alcohol consumption”

Patients on a COX-2 inhibitors are also at the same increased risk of acute kidney injury with the triple whammy, or if they have existing kidney disease, as nonselective NSAID and should be managed with the same caution.

Section 2: Instructions



2.1. Finding patients

Practices are to identify patients in high-risk groups using searches developed for Dr Info or Mohio or your practice’s audit tool on a monthly basis.

This will only take a few minutes to do using the audits provided by these programmes. Practices do not need to develop any queries.

Practices do not need to run the audit – they just need to look up the report in Dr Info or Mohio.

2.1.1 Finding patients using Dr Info

- 

1. Login to DrInfo using your DrInfo key
- 

2. Access the latest audit available, check the word “published” under each folder.
- 

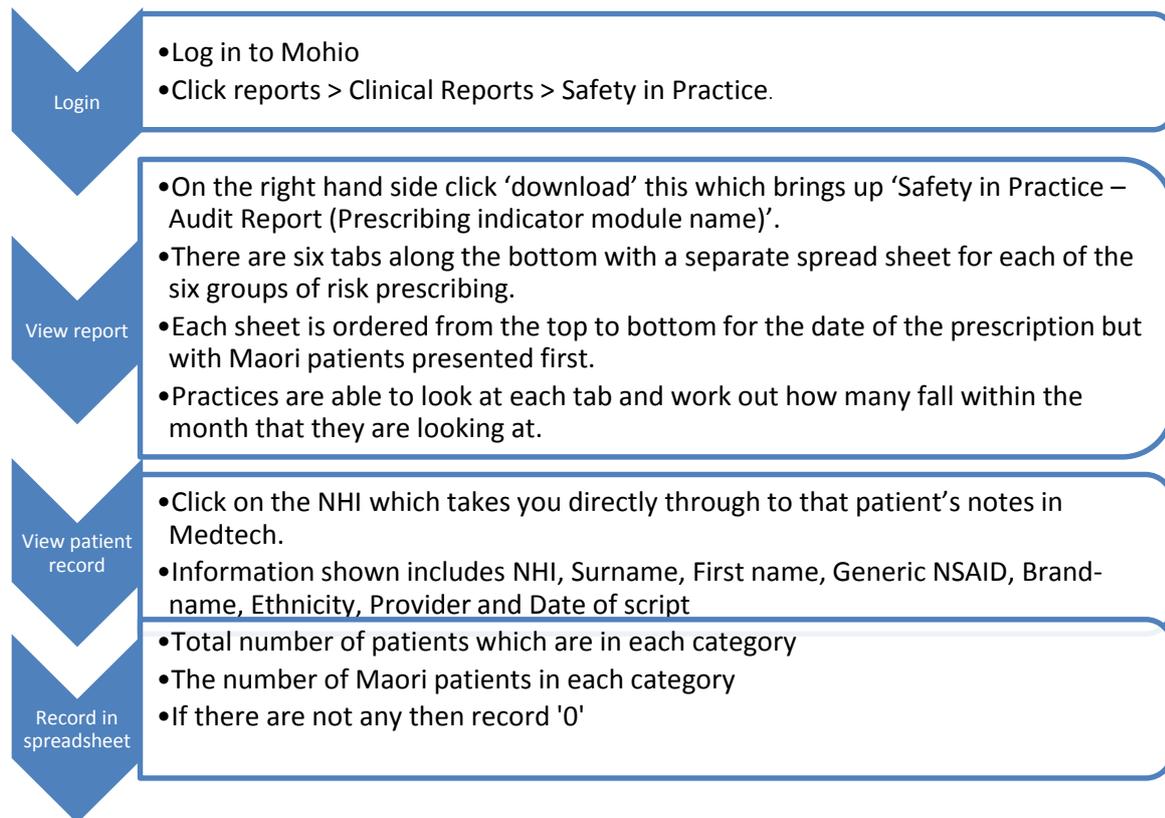
3. Click on the “Safety tab”. This is seen at the bottom of the tabs on the right hand side
- 

4. Select any of the safety patient lists, you are able to access this list by clicking on the “Patients” icon.
- 

5. Once you have the list, you can download to excel, send bulk mail or SMS to all patients or filter the list further using the filter button. If you wish to filter by provider, you can do so by finding any patient where the Provider-Code is your code and click on that Provider-Code.
- 

6. To find the number of patients who are Maori click on the 'Filter' icon. Options including Maori patients will appear.

2.1.2 Finding patient using Mohio



2.1.3 Finding patient in Profile

Profile PMS:

Report

Analysis centre

Patient range – tick all patients

Type – patient

Status enrolled and active

OK

Patient specifications – subset

Age – from 65-100yrs

Relative to now

OK

Scripts

Prior scripts

Formulation write diclofenac (starts with)

Date – first day of month to last day of previous calendar month

OK

ACTION (to load to report window)

From the list in this window then audit each against the 6 measures in the document and record Māori patients.

You can repeat this using the other main NSAID used by the practice team e.g. ibuprofen.

2.2 Completing the spread sheet

Download the spread sheet for your prescribing indicator module from the Resources section of www.safetyinpractice.co.nz

There are two entries for each indicator.

- The total number of patients in each category for each month in the spreadsheet.
- The number of Māori patients in each category

Review Month	Patients ≥ 65 yrs prescribed oral NSAID in the last month, and not prescribed a gastro- protective medicine in the last 4 months		TRIPLE WHAMMY - Prescription of oral NSAID in the last month with an ACE /ARB Diuretic combination within the last 4 months	
	Total no of Patients	No of Maori Patients	Total no of Patients	No of Maori Patients
Aug-19				
Sep-19				
Oct-19				
Nov-19				

In this example, data for high risk prescribing in the month of August should go in the top row. This data should be collected in early September and submitted by September 10th.

There are formulas embedded within the spreadsheet so that the graphs in the third tab auto-populate. Use these to track your progress over the coming months.

2.3 Submit your data

Submit your data by sending the complete spreadsheet on the 10th of each month to audit@safetyinpractice.co.nz AND your PHO facilitator.

You should SAVE the spread sheet somewhere and then next month add the new data to this same spread sheet.

Repeat the process each month.

2.4 Taking appropriate action

What you do with this information is up to you and your practice team. You may not necessarily review each patient in person. Work out with your team what how you will go about making improvement.

Review the records of identified patients, and take appropriate action for each individual

- Stopping the NSAID or adding gastro-protection and may require a clinical review.
- Discussing the benefits and risks with the patient.
- Advising high-risk patient to seek GP or pharmacy advice before purchasing OTC analgesia.
- Using patient information leaflets as appropriate (see Resources).

Collect and review your data again in a month to assess progress and decide on further changes as required cuss the results with your clinical team

- What insights does the data provide?
- What aspects of safe NSAIDs prescribing in your clinic does it high light?
- What aspect of NSAID prescribing in your clinic could makes patients more at risk of harm?
- How could your prescribing of NSAIDs be made safer?

Decide what actions need to be taken to in your practice

- Embed systems within practices to reduce high-risk prescribing of NSAIDs on a long-term basis. The aim is to reduce the risk of harm from NSAID prescribing in the future i.e. develop your own PDSA
- See *Change Ideas* for more information.

Collect and review your data again in a month to assess progress and decide on further changes as required

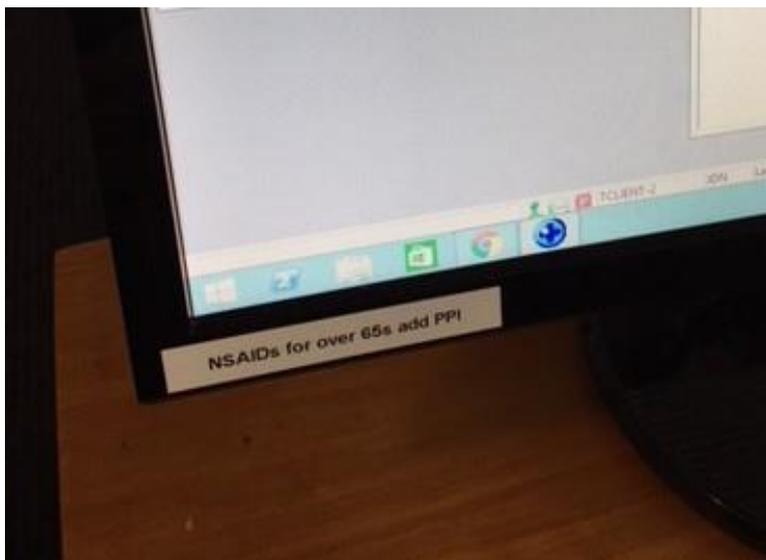
Section 3: Resources

3.1 Change ideas

Below are some ideas practices in previous years have found useful. It's your decision as to which ideas you try and when. You're very welcome to develop your own ideas.

<p>Raising awareness</p>	<ul style="list-style-type: none"> •Practice managers share audit results monthly with prescribers. •Results of audits discussed at partners/clinical meeting. •Education session on risk of NSAID prescribing. •Sharing GP specific prescribing data across practices.
<p>Alerts & reminders</p>	<ul style="list-style-type: none"> •Reminders on computer screen to think about NSAID prescribing. •Dr Info can alerts to let practices know when a patient identified from the searches as being at greater risk form NSAID prescribing is attending the surgery. The system can also send out text messages or letters to patients to ask then to make contact with the practice to discuss their NSAID medication.
<p>Patient contact</p>	<ul style="list-style-type: none"> •Clinicians review patients notes and decide if medication needs discussed or changed – patients informed by telephone letter or to make a face to face appointment. •SafeRX patient information leaflets on NSAIDs and triple whammy.

Tip: Some practices have found it helpful to focus on a particular group of patients first e.g. those on the triple whammy, before developing and testing other changes in following months



Example of a prompt on practice computer screen

3.2 Patient engagement

Patient Resources

- SafeRx® Triple Whammy Patient Information. Available at: [www.SafeRx®.co.nz/triplewhammy-patient-guide.pdf](http://www.SafeRx.co.nz/triplewhammy-patient-guide.pdf)
- SafeRx® Ibuprofen Patient Information. Available at: [http://www.SafeRx®.co.nz/Patient_info_ibuprofen.pdf](http://www.SafeRx.co.nz/Patient_info_ibuprofen.pdf)
- SafeRx® Heart Failure Information. Available in a range of languages at:
 - [http://www.SafeRx®.co.nz/heartfailure-chinese.pdf](http://www.SafeRx.co.nz/heartfailure-chinese.pdf)
 - [http://www.SafeRx®.co.nz/heartfailure-english.pdf](http://www.SafeRx.co.nz/heartfailure-english.pdf)
 - [http://www.SafeRx®.co.nz/heartfailure-korean.pdf](http://www.SafeRx.co.nz/heartfailure-korean.pdf)
 - [http://www.SafeRx®.co.nz/heartfailure-samoan.pdf](http://www.SafeRx.co.nz/heartfailure-samoan.pdf)

3.3 Additional Resources

Prescriber Resources

- BPAC, 2013. NSAIDS. Available at: www.bpac.org.nz/bpj/2013/october/nsaids.aspx
- BPAC, 2018. Triple Whammy. Available at: <https://bpac.org.nz/2018/triple-whammy.aspx>
- Medsafe Information, 2013. NSAIDs and Acute Kidney Injury and Triple Whammy. Available at: www.medsafe.govt.nz/profs/PUArticles/June2013NSAIDS.htm
- New Zealand Formulary www.nzf.org.nz
- SafeRx® Sick Day Rules – Prescriber info. Available at: [www.SafeRx®.co.nz/triplewhammy.pdf](http://www.SafeRx.co.nz/triplewhammy.pdf)

3.4 MOPs & Cornerstone

The Audit of potential high risk NSAID prescribing in General Practice Audit is endorsed by the RNZCGP for Maintenance of Professional Standards (MOPS).

The audits and PDSA cycles found on the Resources section of our website can be used for Cornerstone as a Quality Improvement Activity.

3.5 Glossary

ACE-inhibitor	Angiotensin converting enzyme inhibitor such as Lisinopril. An anti-hypertensive medication.
ADE	Adverse Drug Event
ADHB	Auckland District Health Board
ARB	Angiotensin receptor blocker such as candesartan. An anti-hypertensive.
Bundle	Each of the areas identified as presenting the highest risk to patients within the community have been developed into modules. Each module is structured to include a change package and a bundle.
CARM	Centre for Adverse Reaction Monitoring New Zealand
CoX-2 inhibitors	A form of NSAID that, unlike e.g. ibuprofen, only works on the CoX-2 enzyme.
CKD	Chronic kidney disease
Change package	A collection of change ideas known to produce a desired outcome in a process or system.
Dr Info	A clinical information platform used by general practices. Data is extracted and analysed from practices PMS'.
eGFR	Estimated glomerular filtration rate, renal function test
GI	Gastro-intestinal
IHI	Institute of Healthcare Improvement
H2 antagonists	Gastro-intestinal protective medication
HQSC	Health Quality & Safety Commission of New Zealand
Module	A structured way of improving the processes around patient care: a small, straightforward set of evidence-based practices, generally three to five, that, when performed collectively and reliably, have been proven to improve outcomes.
Mohio	A clinical information platform used by general practices. Data is extracted and analysed from practices PMS'.
NSAIDs	Non-steroidal anti-inflammatory drugs used for pain and inflammation. Examples include ibuprofen, naproxen and diclofenac.
OTC	Over the counter
PPI	Proton pump inhibitor such as omeprazole. These medicines reduce stomach acid.
PMS	Patient management system e.g. MedTech, MyPractice, ToniQ
PHO	Primary health Organisation e.g. Auckland, Alliance Health Plus, Comprehensive Care, East Health Trust, Total Healthcare, National Hauora Coalition, Procure
RNZCGP	Royal New Zealand College of General Practitioners
WDHB	Waitemata District Health Board
SIP	Safety in Practice

3.6 References

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