safety IN PRACTICE

Kidneys
GP Prescribing Indicator Module
2020-21

Every patient, every time

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Waitematā District Health Board
Best Care for Everyone

ALLIANCE HEALTH+ Inspiring Health Transformation

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Contents

1.1 Background

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

Acute Kidney Injury (AKI) is a clinical syndrome with multiple heterogeneous aetiologies that is associated with significant morbidity and mortality.[1] It occurs in over 20% of hospitalisations and is associated with more than a 4 times increased likelihood of death.[2] Estimates are that at least 60% of cases of AKI start in the community.[3] Medicines are reported to contribute to AKI in approximately 20% of cases.[4] Medicines which affect renal blood flow or can contribute to hypovolaemia or hypotension, especially when a patient has an acute illness, are recognised as increasing the risk.

This module focuses on a selection of medicines that are recognised as being of higher risk of AKI if they are not prescribed and monitored appropriately.

Evidence shows that when practices review their prescribing that is recognised as high-risk, it can be reduced by at least a third. A prescribing review was initially done looking at high risk prescribing of NSAIDs and showed reviewing was associated with reductions in related emergency hospital admissions with adverse events such as gastrointestinal bleeding. [5] [6] 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 their prescribing, they judge a significant proportion of it to be potentially inappropriate and take steps to improve their prescribing safety.

Through easily accessible monthly reports, practices can quickly identify patients for whom higher risk prescribing or inadequate monitoring may have occurred. This gives practitioners insights into their prescribing practices, and information to consider alternatives for these patients to reduce the risk of adverse events. It also allows practices to focus on their systems for ensuring that appropriate monitoring is occurring.

1.2 Aim

To reduce harm from medicines that can contribute to acute kidney injury by reviewing prescribing and improving monitoring of these medicines in our practice by June 2021.

1.3 Equity

Reducing inequity in outcomes between Māori and other high needs groups compared to the general population is a priority at all levels of the health system, including Auckland and Waitematā DHBs[7].

Māori and Pacific peoples experience higher rates of Chronic Kidney Disease than other groups, and this is even higher if they have diabetes. They also experience a greater burden of gout for which NSAID are often prescribed. 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.[8]

Given that Maori are approximately twice as likely as non-Māori 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. [9]

It is well recognised that for those groups who are already experiencing poorer health outcomes, the very reasons that contribute to this also could make them more at risk of errors, oversights, miscommunications and receiving care that is less able to meet their needs. Working on safer prescribing 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

<table>
<tr><td colspan="2">Measure 1 Prescription of metformin in the last month to a patient with renal impairment where the eGFR < 30 ml/min</td></tr>
<tr><td colspan="2">Rationale – Risk Identified</td></tr>
<tr><td colspan="2">• Metformin is not metabolised but is excreted by the kidney. It is associated with an increased risk of lactic acidosis if renal function is significantly impaired. Although not common, this condition has a mortality as high as 25-50% [10]
• Doses need to be adjusted according to renal function</td></tr>
<tr><td>Recommended Actions</td><td>Comments</td></tr>
<tr><td>• Review the use and dose of metformin in relation to the patients renal function
• Arrange review with a renal physician if eGFR below 30ml/min.</td><td>• The level at which metformin has been considered contra-indicated has been reducing over time in guidelines. While some guidelines including NICE have gone with contra-indication for eGFR<30ml/min, more recent studies have further reduced this level. Medsafe has adjusted its data sheet to suggest doses maximum of 500 mg/day for eGFR 15-30 ml/min.[11]
• Patients at this level of renal function should be referred for renal assessment and management guided by their advice.[12]</td></tr>
<tr><td colspan="2">Measure 2 TRIPLE WHAMMY - Prescription of oral NSAID in the last month with an ACE /ARB Diuretic combination within the last 4 months</td></tr>
<tr><td colspan="2">Rationale – Risk Identified</td></tr>
<tr><td colspan="2">• Substantially increased risk of acute renal failure and death. [13] [14]
• 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. [15]</td></tr>
<tr><td>Recommended Action</td><td>Comments</td></tr>
<tr><td>• Review the need for NSAID at all, particularly in those with CKD or heart failure and try to use alternative treatment.</td><td>• 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</td></tr>
</table>

	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	
• Increased risk of acute kidney injury, especially if unwell or hypovolaemic. [16] • The risk is greatest at the start of treatment: even short courses are associated with risk. [17]	
Recommended Action	**Comments**
• 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. [18]	• See patient information hand-outs Health Navigator for those are risk of acute kidney injury. • The safest course of action is always to avoid the NSAID where possible and to inform the patient they should not purchase over the counter NSAIDs if they are at risk of AKI.
Measure 4 Patients prescribed metformin in the last month without a serum creatinine in the previous 15 months	
Rationale – Risk Identified	
• **As per risks is measure 1** • **Without regular monitoring of renal function the safe and appropriate dose of metformin cannot be determined.**	
Recommended Actions	**Comments**
• Review the appropriate frequency of renal function testing for the patients situation	• Guidelines for frequency of testing depend on the background renal function – see Auckland Region Health Pathways – but would not be expected to be longer than 1 year
Measure 5 Patients prescribed an ACE inhibitor or angiotensin II receptor antagonist in the last month who have not had a creatinine and electrolytes in the previous 15 months	
Rationale – Risk Identified	
• **Hyperkalaemia or increased serum potassium levels are a recognised risk with these medications, particularly if patients with CKD, diabetes and on multiple medications**[19] • **AKI for patients if they develop significant hypotension or hypovolaemia** [20]	
Recommended Actions	**Comments**
• Ensure that patients on these medicines are having their renal function and electrolytes monitored at an appropriate interval to their medical situation – but no longer than annual	• Dosage of ACEI may also need to be adjusted according to renal function – see Auckland Regional Health Pathways – ACEI dosing in renal impairment

Measure 6 Patients aged ≥75 years prescribed a diuretic in the last month who have not had creatinine and electrolytes checked in the previous 15 months	
Rationale – Risk Identified	
• **Hyponatraemia (low sodium), hyperkalaemia (elevated potassium) and decline in renal function are recognised and significant side effects of diuretic use in elderly** [21] • **Suboptimal monitoring of older people taking medicines may be a more significant problem than inappropriate prescribing** [22]	
Recommended Actions	**Comments**
• Ensure patients are having regular monitoring of electrolytes and renal function appropriate to their clinical situation, but this should be at least annually	• It is increasingly recognised that health care for older people is improved when one prescriber takes responsibility for all of a patient's medicines. Multiple prescribers are associated with increasing polypharmacy, and are also an independent risk factor for adverse drug reactions in older populations[23]

2.0 Instructions

2.1 Finding patients → 2.2 Complete spreadsheet → 2.3 Submit → 2.4 Taking action

2.1. Finding patients

Practices are to identify patients in high-risk groups using searches developed for Dr Info or Mohio on a monthly basis.

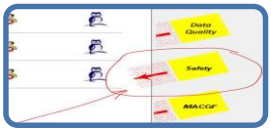
This will only take a few minutes to do using the audit reports provided by these programmes. Practices do not need to develop any Medtech or MyPractice queries.

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

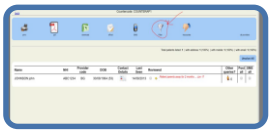
1. Login to DrInfo using your DrInfo key

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. You can also filter by ethnicity and 'high needs'.

2.1.2 Finding patient using Mohio

Login
- Log in to Mohio
- Click reports > Clinical Reports > Safety in Practice.

View report
- On the right hand side click 'download' this which brings up 'Safety in Practice – Audit Report (Prescribing indicator module name)'.
- There are six tabs along the bottom with a separate spread sheet for each of the six groups of risk prescribing.
- Each sheet is ordered from the top to bottom for the date of the prescription but with Maori patients presented first.
- Practices are able to look at each tab and work out how many fall within the month that they are looking at.

View patient record
- Click on the NHI which takes you directly through to that patient's notes in Medtech.
- Information shown includes NHI, Surname, First name, Generic NSAID, Brand-name, Ethnicity, Provider and Date of script

Record in spreadsheet
- Total number of patients which are in each category
- The number of Maori patients in each category
- If there are not any then record '0'

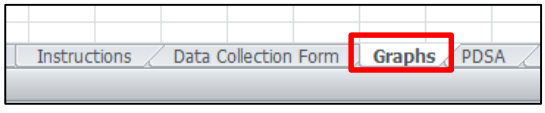
2.2 Completing the spreadsheet

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

Put the total number of patients in each category for each month in the spreadsheet, as well as the number of Māori patients.

	Prescription of metformin in the last month to a patient with renal impairment where the eGFR < 30 ml/min		TRIPLE WHAMMY - Prescription of oral NSAID in the last month with an ACE /ARB Diuretic combination within the last 4 months	
Review Month	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 on the 10th of each month to audit@safetyinpractice.co.nz and your PHO facilitator.

> Tip: Please ensure all data sent to Safety in Practice in anonymised

2.4 Taking appropriate action

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

- Stopping the NSAID or 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

Discuss the results with your clinical team

- What insights does the data provide?
- What aspects of prescribing and monitoring in your clinic does it highlight?
- What aspect of prescribing and monitoring in your clinic could makes patients more at risk of harm?
- How could your prescribing and monitoring of these medicines be made safer?

Decide what actions need to be taken to in your practice

- Embed systems within practices to reduce high-risk prescribing related to increased risk of Acute Kidney Injury on a long-term basis. The aim is to reduce the risk of harm from prescribing and inadequate monitoring 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

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.

Raising awareness	•Practice managers share audit results monthly with prescribers. •Results of audits discussed at partners/clinical meeting. •Education session on risk of prescribing and inadequate monitoring for increasing risk of AKI. •Sharing GP specific prescribing data across practices.
Alerts & reminders	•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 medicine and its monitoring.
Patient contact	•Clinicians review patients notes and decide if medication needs to be 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

3.2 Glossary

ACE-inhibitor	Angiotensin converting enzyme inhbitior such as lisinopril. An anti-hypertensive medication.
ADE	Adverse Drug Event
ADHB	Auckland District Health Board
AKI	Acute Kidney Injury
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'.
EDS	Electronic Discharge Summary
eGFR	Estimated glomerular filtration rate, renal function test
IHI	Institute of Healthcare Improvement
H2 antagonists	Gastro-intestinal protective medication
HQSC	Health Quality & Safety Commission of New Zealand
Medication Reconciliation	The process of collecting, comparing, and communicating the 'most accurate' list of medicines that a patient is taking, together with details of any allergies and/or adverse drug reactions (ADRs), with the outcome of providing correct medicines for a given time period
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, Procare
RNZCGP	Royal New Zealand College of General Practitioners
SIP	Safety in Practice

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