safety IN PRACTICE

Protecting Kidneys General Practice 2020-21

Every patient, every time

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Contents

1.1 Background

Acute Kidney Injury (AKI) is a clinical syndrome with multiple heterogeneous aetiologies that is associated with significant morbidity and mortality.[1] There is not specific treatment to reverse AKI and therefore prevention, early recognition and management is paramount. It occurs in over 20% of hospitalisations and is associated with more than four times the likelihood of death.[2] Estimates are that at least 60% of cases start in the community. [3]

A 2018 study that followed 384,869 adults for an average of 5.3 years, found outpatient AKI more prevalent than inpatient AKI. AKI was associated with a 90% increased risk of death and a 33% increased risk of renal events compared with no AKI. [4] Patients in this study who recovered from outpatient AKI had a 2.1-fold increased risk of death and a 73% increased risk of a renal event compared with patients who had no AKI.

Most people who experience acute kidney injury have some degree of pre-existing chronic kidney disease (CKD).[5] Diabetes, hypertension, obesity, proteinuria, older age and polypharmacy are independent risk factors for AKI, and people with several of these co-existing are at even greater risk. [6]

Medicines are reported to contribute to AKI in approximately 20% of cases.[7] 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 risk.

This module will have a focus on the prevention of AKI for a group of patients recognised as being higher risk i.e. having pre-existing CKD. Optimising the appropriate monitoring, management and safe prescribing for this group has the aim of reducing the risk of acute on chronic kidney injury.

Development work is being undertaken with a view to being able to recognise and identify AKI earlier in the community setting along with optimising its early management, as an extension of this module in 2019/20.

1.2 Aim

All patients with Chronic Kidney Disease 3 will be monitored and managed according to guidelines to reduce their risk of Acute Kidney Injury by June 2021.

1.3 Equity

Reducing inequalities 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 Waitemata DHBs[8]

Maori 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. These combinations contribute to these groups being at higher risk of AKI.

General Practices can produce clinically significant improvements in outcomes for patients at high risk of progressing to kidney failure by instigating relatively simple complementary nurse-led interventions.[9] The DEFEND trial involving Māori and Pacific patients with diabetes, moderate CKD and hypertension showed clinically significant reductions in systolic BP and proteinuria, delayed progression of LVH and diastolic dysfunction. This was achieved through providing culturally appropriate care with more frequent follow-up and frequent prompting for patients to take medicines. This reduced costs to patients because of home visits by Māori and Pacific health-care assistants.[10] This highlights the benefit of a number of important factors, including culturally appropriate, accessible, frequent follow-up.

While Safety in Practice is not a programme specifically focused on equity issues, 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 communication, safe monitoring and 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 audit practices will report the ethnicity of each patient.

Practices can focus on specific groups using an equity lens.

Some examples might be:

- In using the information from the audits in your practice, focus as a priority on Māori and other high needs patients. Both Dr Info and Mohio both allow either selection by Māori, or by high needs, or ordering them according to ethnicity.
- Specifically seeking input from patients from these groups on their experiences of monitoring and prescribing related to CKD and risk of AKI.

1.4 Measures & rationale

Measure 1: Has the patient had their renal function measured (creatinine and eGFR) in the appropriate time frame according to guidelines based on their previous last eGFR and ACR readings?
Measure 2: Has the patient had their urine ACR measure in the appropriate time frame according to guidelines based on their previous last eGFR and ACR readings?
Measure 3: Has the patient had their last BP checked in the appropriate time frame according to guidelines based on their previous last eGFR and ACR readings?

The timeframe based on CKD monitoring guidelines for measures 1-3 would be
• In the last 2 years if previous eGFR 45-59 with ACR < 2.5/3.5 (men/women)
• In the last 7 months if
  ○ Previous eGFR 45-59 with ACR 2.5/3.5 – 29 (men/women)
  ○ Previous eGFR 30-44 with ACR < 2.5/3.5 (men/women)
• In the last 4 months if previous eGFR30-59 but ACR 29-70
NB the current eGFR is the first one that is <60 (CKD diagnosed if 2 readings 3 months apart <60) then the patient should NOT be included in the audit.

Rationale
• Regular monitoring of patients will help to detect deterioration in CKD and give a baseline trend which facilitates the recognition of changes that could represent AKI
• Patients with CKD 3 (eGFR 30-59 ml/min) are recommended to be reviewed every 3-6 months with
  ○ laboratory assessment of creatinine, electrolytes, urea, eGFR, HbA1c (if diabetes) FBC, calcium and phosphate, along with urine test for ACR
  ○ clinical assessment with BP, weight, medication review, lifestyle factor review e.g. smoking

Sources • Auckland Regional Health Pathways Chronic Kidney Disease(CKD) in adults – on-going monitoring frequency of CKD • BPAC 2015 "The detection and management of patients with chronic kidney disease in primary care" Best Practice Journal 66 https://bpac.org.nz/BPJ/2015/February/docs/BPJ66-ckd.pdf
Measure 4 Is their most recent clinic BP less than 140/90 (<150/90 if <75 yrs)?
Rationale • Controlling blood pressure is one of the most important aspects of CKD management as it delays the progression of CKD • Target BP is <140/90 (or 130/80 if the patient has diabetes, or ACR>30, or long standing hypertension with ACR >3.5). In patients aged>75 yrs, BP of <150/90 may be a more reasonable target and this should be reached gently.
Sources • BPAC 2015 "The detection and management of patients with chronic kidney disease in primary care" Best Practice Journal 66 https://bpac.org.nz/BPJ/2015/February/docs/BPJ66-ckd.pdf • Auckland Regional Health Pathways Chronic Kidney Disease(CKD) in adults – ongoing monitoring frequency of CKD

Measure 5 If the patient's ACR >30 and they have hypertensive disease OR if their ACR >70 even without hypertensive disease, is the patient on an ACEI/ARB?

Rationale

- Use of ACE inhibitors or ARBs in people with CKD reduces the risk for kidney failure and cardiovascular events [11]
- In the absence of diabetes, ACR>30 indicates clinically significant proteinuria which is an established risk factor for renal disease progression for which ACE/ARB are recognised as protective particularly if they have existing hypertensive disease.
- **Target blood pressure as per ARHP**
    - First line ACEI or ARB
    - < 130/80 if:
        - diabetes, or
        - ACR > 30, or
        - long-standing hypertension with ACR >3.5.

In patients aged >75 years, blood pressure of < 150/90 may be a more reasonable target. This should be reached gently.

Sources

- Auckland Regional Health Pathways Chronic Kidney Disease(CKD) in adults – management
- NICE Guidelines Chronic Kidney Disease in Adults -: Assessment and Management – Pharmacotherapy 1.6.3

Measure 6 The patient has NOT been prescribed an NSAID within the past year?

Rationale

- Increased risk of acute kidney injury, especially if unwell or hypovolaemic. [12]
- The risk is greatest at the start of treatment: even short courses are associated with risk. [13]
- **NSAID includes Cox-2 inhibitors such as celecoxib**

Sources

- Non-steroidal Anti-inflammatory Drugs NSAID – Making safer treatment choices. 2013 https://bpac.org.nz/BPJ/2013/October/docs/BPJ55-pages8-19.pdf

Measure 7 Is it recorded that the patient has received written information about their renal disease, including how to take appropriate action if they become unwell?

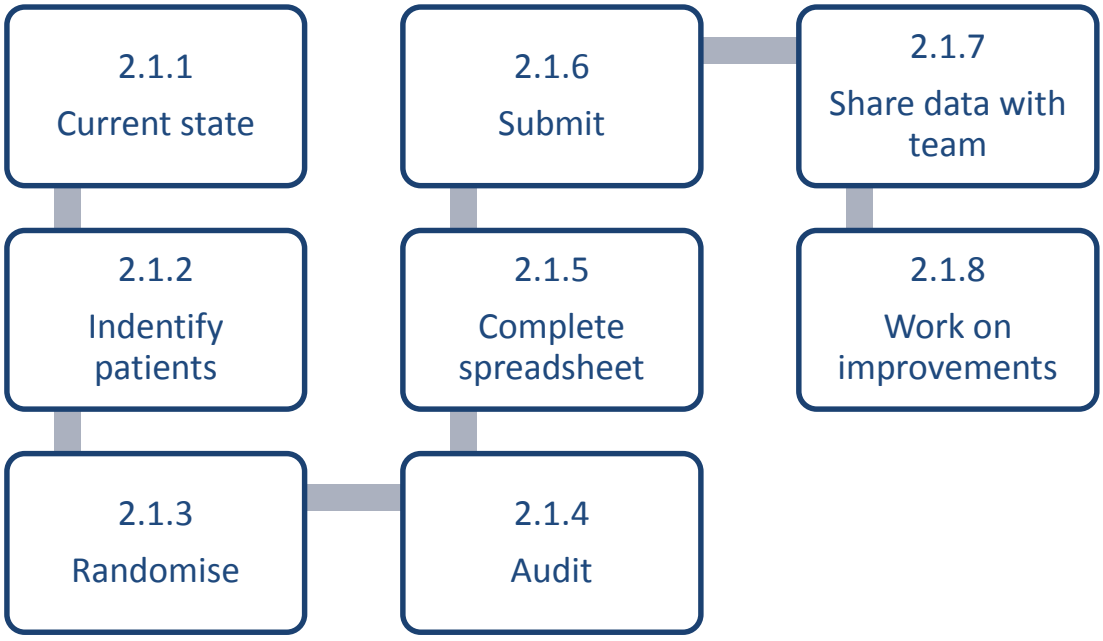
Rationale

- Patients' being educated around the factors that can put their kidneys at increased risk enables them to be active participants in their care and avoid risky medicines that are available Over the Counter at supermarkets and pharmacies
- "Sick Day Rules" are not encouraged, however, giving written advice about protecting their kidneys and reducing the risk of AKI should include the advice to seek medical assessment early if they are unwell.

Sources

- Health Navigator "Kidney Protection – How to protect your kidneys" https://www.healthnavigator.org.nz/health-a-z/k/kidney-protection/
- "Protecting your Kidneys – Information for patients at risk of Acute Kidney Injury" https://www.healthpoint.co.nz/public/nephrology/waitemata-dhb-renal-services/ download

2.1 Collect your baseline data



2.1.1 Current state

To assess your processes you will collect data from 10 *random* patients every month. As a team, you will then reflect on your results, look for opportunities for improvement and use PDSA cycles (Plan, Do, Study, Act)
Your first set of data (baseline data) is relating to the month of August and is due on September 10th.
Note: we expect low scores for the baseline, or 'Current State' August data.

2.1.2 Identify patients

On the day of the data collection each month, run the query related to your module, available to download from http://www.safetyinpractice.co.nz in the Resources section.
Refer to "Finding your patients" document on website.

2.1.3 Randomise

From the list generated in step 2.1.1 it is essential to **RANDOMLY SELECT** your sample of 10 patients to audit. An online random number generator can be used. Note Safety in Practice does not endorse advertising associated with such tools.

2.1.4 Audit

Review each of your 10 selected records against the following criteria. You can use the Paper Form provided on the resources section of our website to keep track or simply enter records directly onto the audit spread sheet.

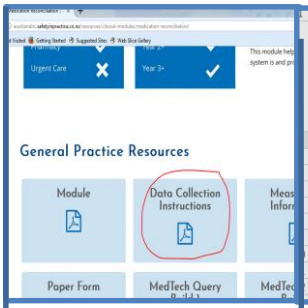
2.1.4.1 Measures & guidance

Measure 1: Prior to this current result, has the patient had their renal function checked within the last 7 months?
Guidance Not counting the result from the audit, if the patients had their renal function checked with creatinine and eGFR in the last 7 months then record YES. If not then record NO.
Measure 2 Has the patient had ACR measured within the last 7 months?
Guidance If the patient has had an ACR done in the last 7 months then record YES. If not then record NO.
Measure 3 Has the patient had their BP measured within the last 7 months?
Guidance If the patient has had their BP recorded in the last 7 months then record YES. If not then record NO.
Measure 4 Is their most recent clinic BP less than 140/90 (<150/90 if >75 yrs)
Guidance Record YES if the last BP is <140/90 (<150/90 if >75 yrs) Record NO if it is not. Record N/A if there is no BP recorded.
Measure 5 If the patient's ACR >30 and they have hypertensive disease OR if their ACR >70 even without hypertensive disease, is the patient on an ACEI/ARB?
Guidance If they are on an ACEI/ARB then record YES If they are not on this then record NO (The timeframe for a prescription verifying that the patient is on the medication might usually be considered having been prescribed in the last 4 months to provide some leeway for updating prescriptions. If it is apparent from the notes that despite this the patient is actually regularly on the medication then record YES) If they have not had an ACR done or if ACR 31-70 but BP<130/80 without medication or if ACEI/ARB are contra-indicated or not tolerated then record N/A
Measure 6 The patient has NOT been prescribed an NSAID within the past year?
Guidance If the patient has NOT had any NSAID prescribed in the last year then record YES. If the patient has been prescribed any NSAID in the last year then record NO.
Measure 7 Is it recorded that the patient has received written information in the last year about their renal disease, including how to take appropriate action if they become unwell?
Guidance Record YES if this is clearly documented. Record NO if this is not clearly recorded. See resources.

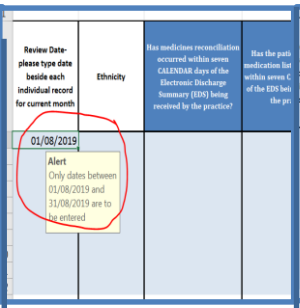
2.1.5 Complete the spreadsheet

Tip: Your first set of data (baseline data) is relating to the month of August so this is due on September 10th.

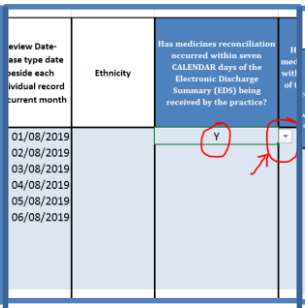
Please note: we expect low scores for the baseline August 2020 data, prior to the Safety in Practice programme beginning



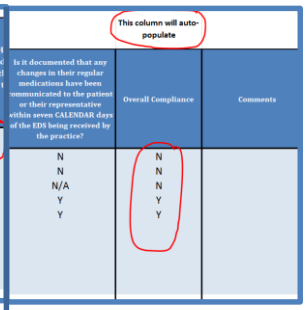
Download the spread sheet for your module in the Resources section of www.safetyinpractice.co.nz



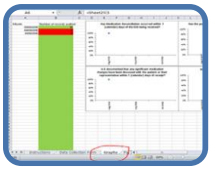
Record the month **the data relates** to in a DD/MM/YY format in the left column (Alert boxes in yellow will guide you). For your first data set collected in September this is 1/8/20



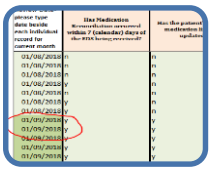
Mark Y, N or N/A by clicking on the dropdown menu, against for each measure and each patient according to your findings in the previous section.



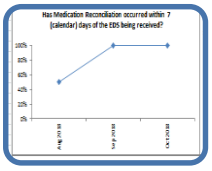
The final measure "Overall compliance" will auto-populate.



Graphs will be automatically generated in the next tab in the spread sheet.



Next month add your data to the same spread sheet.



This means you can track your progress over time.

2.1.6 Submit

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

2.1.7 Share data with your team

Safety in Practice works when all team members take part. Make the data available for everyone to see. Print the graphs and put them up in the tea room so the whole team can see the progress being made and have the opportunity to make suggestions on how to improve.

2.1.8 Work on improvements

As a team, look for opportunities for improvement and use PDSA cycles (Plan, Do, Study, Act). Refer to the Quality Improvement Workbook for other quality improvement tools

2.2 Early Detection and Management of potential Acute Kidney Injury (AKI)

Extension work in managing patients with potential AKI

In "Finding Your Patients – Protecting Kidneys" you can also identify patients in the previous month who had a change in their creatinine that may represent AKI.

This is a pilot area of work that started in 2019/20 so we will be working with you over the year to trial the measures that you can apply for auditing your management of these patients. We will work with you to provide the measures, spreadsheet and resources for this.

2.2 Change idea examples

The following ideas have been tested and implemented in previous SIP teams

General	• Have a doctor and nurse champion in the practice
Practice processes	• Ensure a robust recall systems so patients return to have their blood test taken • Trying various ways for ensuring patients have the regular blood tests e.g. letters, texting, emailing • Develop a policy and process for monitoring Protecting Kindeys for the practice so that new staff and locums can use the same process
Recording process in patient management system	• Creation of screening template for recording of review prior to prescription
Practice team roles and responsibilities	• Training health care assistants to ask about side effects of Protecting Kidney's risk factors • Discuss with specialists around the GP role in education and monitoring and how fits in with their responsibilities
Patient education	• Using patient information leaflets from SafeRx, Healthpoint or www.healthnavigator.org.nz • Recording the date that written education given in the screening template
Patient involvement	• Involving patients in the change process – provide good feedback on what they think works best from their perspective

2.3 Previous teams' experiences

Benefits	Challenges
•Interesting being involved with a developing module •Improved understanding of AKI and the facotrs that can precipitate •Greater awareness in whole clinical team	•Initially difficult to get resources for patient education •Initially had to learn how to use the 'cube' in Dr Info

3.1 Connections to other parts of Safety in Practice programme

The Protecting Kidneys module connects with the several other areas within Safety in Practice

General Practice

Prescribing Indicators – practices receive reports on prescribing situations that are high risk providing opportunity for clinicians to reflect on these specific areas

- Kidneys
    - Measure 1: Prescription of metformin in the last month to a patient with renal impairment where the eGFR < 30 ml/min
    - Measure 2: TRIPLE WHAMMY - Prescription of oral NSAID in the last month with an ACE /ARB Diuretic combination within the last 4 months
    - Measure 3: Prescription of an oral NSAID in the last month in a patient with CKD 3,4 or 5 (eGFR<60ml/min)
    - Measure 4: Patients prescribed metformin in the last month without a serum creatinine in the previous 15 months
    - 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
    - Measure 6: Patients aged ≥75 years prescribed a diuretic in the last month who have not had a creatinine and electrolytes in the previous 15 months

Pharmacy

NSAID Module

Pharmacies look at the following process measures for patients with prescriptions for NSAID which includes risks around renal harm.

- If the patient is prescribed a Triple Whammy, is there evidence the prescriber was notified?
- Is there evidence the patient was informed how to use their medicine?
- Is there evidence there was a discussion about possible side effects?
- Is there evidence there was a discussion about possible side effects?
- Is there evidence the patient was informed of the risks of a dehydrating illness and to keep hydrated?
- Has the patient been offered written information about the medicine?

Further outcome measures are also looked at patient understanding of how to take their medicines, possible side effects, and where to go if they need help.

If you work with a pharmacy in your area that might be interested, feel free to direct them to the website or to contact us at info@safetyinpractice.co.nz

3.2 Additional Resources

Health Navigator

- "Kidney Protection – How to protect your kidneys"
  https://www.healthnavigator.org.nz/health-a-z/k/kidney-protection/
- "Acute Kidney Injury"
  https://www.healthnavigator.org.nz/health-a-z/k/kidney-acute-kidney-injury/

Health point

- "Protecting your kidneys – Information for patients at risk of Acute Kidney Injury"
- "Information for patients with Acute Kidney Injury"
  Both available under Waitemata DHB Nephrology Services download documents, including in Chinese
  https://www.healthpoint.co.nz/public/nephrology/waitemata-dhb-renal-services/

BPAC Articles

- Non-steroidal Anti-inflammatory Drugs NSAID – Making safer treatment choices. 2013
  https://bpac.org.nz/BPJ/2013/October/docs/BPJ55-pages8-19.pdf
- Acute-on-chronic kidney disease: Prevention, diagnosis, management and referral in primary care. 2012 Best Practice Journal Issue 46
  https://**bpac**.org.nz/BPJ/2012/September/ckd.aspx
- BPAC 2015 "The detection and management of patients with chronic kidney disease in primary care" Best Practice Journal 66
  https://bpac.org.nz/BPJ/2015/February/docs/BPJ66-ckd.pdf

3.3 Glossary

ACE-inhibitor	Angiotensin converting enzyme inhibitor such as lisinopril. An anti-hypertensive medication.
ACR	Albumin: Creatinine Ratio – a measure of early kidney dysfunction as protein leaks into the urine
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'.
	Disease modifying anti-rheumatic drugs. These medications are used in auto-immune diseases such as rheumatoid arthritis.
eGFR	Estimated glomerular filtration rate, renal function test
FBC	Full blood count
IHI	Institute of Health Improvement
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
PMS	Patient management system e.g. MedTech, My Practice, ToniQ
PHO	Primary health Organisation e.g. Auckland PHO, 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

3.4 [1]References

[1] Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guidelines for Acute Kidney Injury. Kidney Int Suppl 2012 https://kdigo.org/guidelines/acute-kidney-injury/

[2] Wang HE et al. Acute Kidney Injury and Mortality in Hospitalised patients. Am J Nephrolol 2012;35:349-355

[3] Selby NM et al. Use of electronic results reporting to diagnose and monitor AKI in hospitalised patients. cJASN 2012 Apr;7(4):533-40

[4] Leither MD, Murphy DP, Bicknese L et al The impact of outpatient acute kidney injury on mortality and chronic kidney disease: a retrospective cohort study. Nephrology Dialysis Transplantation 22 March 2018 https://doi.org/10.1093/ndt/gfy036

[5] Hsu CY, Ordonez JD, Chertow GM, et al. The risk of acute renal failure in patients with chronic kidney disease. Kidney Int 2008;74(1):101–7.

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[7] Bellomo R, Kellum JA, Ronco C. Acute kidney injury. Lancet2012;380(9843):756-66.

[8] Waitemata and Auckland DHB 2017/18 Annual Plan

[9] BPAC 2015 "The detection and management of patients with chronic kidney disease in primary care" Best Practice Journal 66 https://bpac.org.nz/BPJ/2015/February/docs/BPJ66-ckd.pdf

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