safety IN PRACTICE

General Practice Warfarin 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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comprehensive care

National Hauora Coalition

ProCare

Contents

1.1 Background

A key aim of the Safety in Practice programme 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.

In a 2017 study into medication related patient harm in NZ hospitals, warfarin was noted to be in the top 10 medicines causing harm, predominantly due to bleeding. Warfarin accounted for 1.8% of harm and, when combined with other anticoagulants, was implicated in the most serious harms, along with opioids.[1]

General Practice teams need consistent, systematic practice-wide approaches to warfarin management to provide safe and effective care for patients taking warfarin. This module helps practices to assess and improve their processes.

1.2 Aim

All patients prescribed warfarin will be managed within safe margins around the therapeutic target and practices will have consistent processes around INR testing 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 Waitematā DHBs.[2]
Māori and Pacific people have and still do, experience a greater burden of morbidity and mortality relating to valve-related heart problems mostly resulting from rheumatic fever when younger.[3] Mechanical heart valve replacement is a common reason for patients to be using warfarin because other oral anticoagulants are contraindicated. Patients with atrial fibrillation may not be able to use novel anticoagulants if they have reduced renal function, and both of these conditions are more common in Māori.
Research into the social disparities in patient safety in the primary care setting has been very limited. A systematic literature published in the International Journal for Equity in Health in 2018 supports "that vulnerable social groups are likely to experience adverse safety events in primary care and that enhancing family doctors' awareness of these inequities is a necessary first step to tackle them and improve patient safety for all groups"[4]. Ethnic minorities were found to have higher odds of experiencing harm due to errors in the testing process (ordering, implementing, and performing the test, reporting results to the clinician, notifying the patients and following up) than white patients.[5]

While Safety in Practice is not a programme specifically focused on equity issues, working on processes that 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 their work to look at specific higher risk groups using an equity lens. Some

examples might be:

- Selecting from particular groups based on ethnicity or high-needs, and then selecting the sample of 10 patients randomly from these. 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 experience of the practice's Warfarin Management systems, and how they might be improved from the patient's point of view. For example:
    - Does the way that the practice contacts individuals to provide them with their results meet the needs of Māori and Pacific peoples?
    - Are the resources used engageing and culturally appropriate for Māori and Pacific peoples?
- Specifically seeking input from patients from these groups on the education provided within the practice's Warfarin Management approach, and how this might be improved from the patient's point of view.

1.4 Measures & rationale

Measure 1 Is there evidence that the last advice on warfarin dosing given to the patient followed current local guidelines?
Rationale • The use of a dosing algorithm can significantly improve anticoagulant control. • Computerised dosing has been shown to increase the overall percentage time for which patients are in their target INR range and reduce the frequency of testing of patients. Furthermore, it has been shown to significantly reduce the risk of bleeding and thromboembolic events and overall is a more cost-effective option to manual dosing. Regionally agreed Nursing Standing Orders for warfarin monitoring have been agreed and can be found on Auckland Regional Health Pathways https://aucklandregion.healthpathways.org.nz/Resources/StandingOrderWarfarinINRDoseAdjustment.pdf
Sources [6]Effect of a simple two step warfarin dosing algorithm on anticoagulant control as measured by time in therapeutic range: a pilot study. Kim, Y.K., Nieuwlaat, R., Connolly, S.J., Schulman, S., Meijer, K., Raju, N., Kaatz, S. & Eikelboom, J.W. Journal of Thrombosis and Haemostasis, 2010 8, 101–106. [7]Clark .EG et al Effectiveness of a computerized decision support system for anticoagulation management in hemodialysis patients: a before-after study *Hemocialysis International 2016* 20:530–536 [8]Woller et al Computerised clinical decicion support inproves warfarin management and decreases recurrent venous thromboembolism. *Clinical and Applied Thrombosis/Hemostasis2015* Vol 21(3) 197-203 https://www.researchgate.net/publication/265733287_Computerized_Clinical_Decision_Support_Improves_Warfarin_Management_and_Decreases_Recurrent_Venous_Thromboembolism
Measure 2 Is there evidence that the last advice on the interval for blood testing given to the patient followed current local guidelines?
Rationale – as above
Measure 3 Since the last blood test, has the patient been taking the correct dose as ordered by the treating GP?
Rationale • Assuming that the patient has been taking the dose that was previously ordered can lead error. Recognising and understanding if there is a discrepancy in intended dose versus actual dose taken is important for reducing risk, and is helpful for improving patient understanding. • To ensure compliance the practice has to ensure that the patient is informed of and understands the correct dose. • While not required by the audit, it is best practice to explore reasons for non-adherence to advice.
Measure 4 Has the INR been taken within 7 days of planned repeat INR?
Rationale Patients' regular attendance for blood testing is associated with better anticoagulation control
Source [9] Prompt repeat testing after out-of-range INR values: a quality indicator for anticoagulation care. Rose AJ, Hylek EM,

Berlowitz DR, Ash AS, Reisman JI, Ozonoff A. Circ Cardiovasc Qual Outcomes. 2011 May 1; 4(3):276-82. Epub 2011 Apr 19.

Measure 5 Is it recorded that patient has received education about warfarin in the last 12 months?

Rationale Improved patient knowledge and understanding of the use of warfarin improves anticoagulation control.

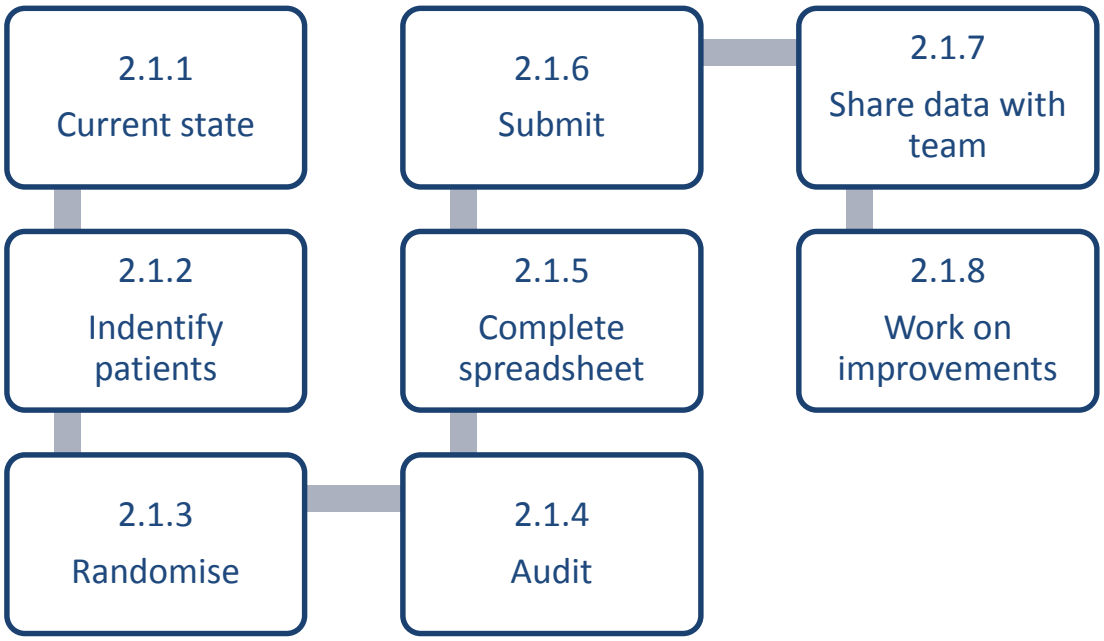
Sources

[10] Relationship between patients' warfarin knowledge and anticoagulation control. Tang EO, Lai CS, Lee KK, Wong RS, Cheng G, Chan TY. Ann Pharmacother. 2003 Jan; 37(1):34-9.

[11] Effect of a warfarin adherence aid on anticoagulation control in an inner-city anticoagulation clinic population. Nochowitz B, Shapiro NL, Nutescu EA, Cavallari LH. Ann Pharmacother. 2009 Jul; 43(7):1165-72. Epub 2009 Jun 23.

[12] A structured teaching and self-management program for patients receiving oral anticoagulation: a randomized controlled trial. Working Group for the Study of Patient Self-Management of Oral Anticoagulation. Sawicki PT. JAMA. 1999 Jan 13;281(2):145-50.

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.

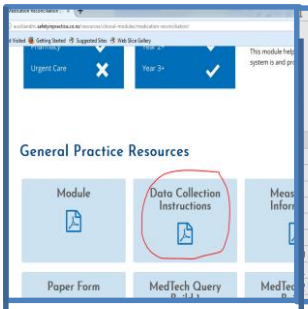
2.1.4.1 Measures & guidance

Measure 1 Is there evidence that the last advice on warfarin dosing given to patient followed current local guidelines?
Guidance Practices should refer to the guidance on the Auckland Regional Health Pathways site for warfarin monitoring and check whether the last dosing advice fitted with this. Warfarin - Starting and Monitoring Warfarin Over-anticoagulation Record YES if advice followed guidelines. Record no if the advice did not fit with current local guidelines.
Measure 2 Is there evidence that the last advice on the interval for blood testing given to the patient followed current local guidelines?
Guidance As for measure 1. Record YES if advice on testing interval followed guidelines. Record no if the advice on testing interval did not fit with current local guidelines.
Measure 3 Since the last blood test, has it been checked that the patient has been taking the correct dose as ordered by the treating GP?
Guidance Practices do need to actually check with the patient or their representative the actual dose they have been taking and compare it to the previous instructions. Record YES if there is recorded evidence that this has been checked. Record NO if there is no recorded evidence of this having been checked.
Measure 4 Has the INR been taken within 7 days of planned repeat INR?
Guidance Record YES if date of test is within 7 days. Record NO if the result is greater than 7 days from when the test was planned.
Measure 5 Is it recorded that patient has received education about warfarin in the last 12 months?
Guidance Record YES if there is documentation of patient education having been given. Record NO if there is not.

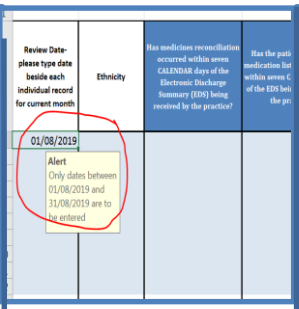
2.1.5 Complete the spreadsheet

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

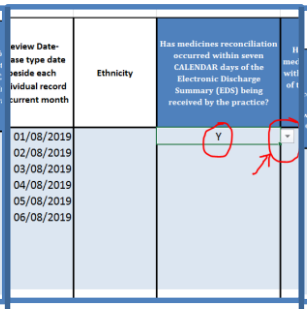
Please note: we expect low scores for the baseline August 2020 data, prior to the Safety in Practice programme beginning



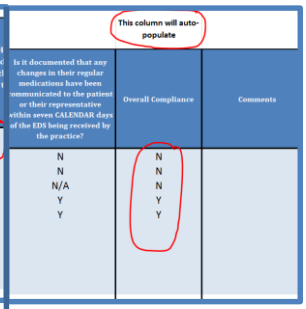
Download the spread sheet for your module in the Resources section of www.safetyinpractice.co.nz



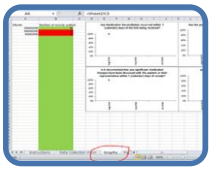
Record the month **the data relates** to in a DD/MM/YY format in the left column (Alert boxes in yellow will guide you). For your first data set collected in September this is 1/8/20



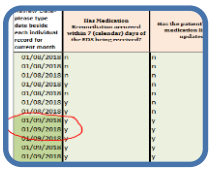
Mark Y, N or N/A by clicking on the dropdown menu, against for each measure and each patient according to your findings in the previous section.



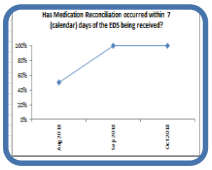
The final measure "Overall compliance" will auto-populate.



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 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 – this has previously given practices more confidence in dealing with results and testing frequency. • Check whether the patient should still be on warfarin or whether oral novel anti-coagulation medicine would be more appropriate. • Identify patients with stable INRs, as they may be appropriate for point of care testing through CPAMS (Community Pharmacy Anticoagulant Monitoring Service). • Implement practice wide usage of 1mg tablets only.
Practice processes	• Front desk to maintain up to date contact details of patients • All clinical staff to use standardised guidelines. • Have a system for handling faxed INRs and ensure that these are acted on that day before the clinic closes. • Implementation of a recall system to follow-up on INRs within the agreed time frames. • Have an INR management IT tool and create a new protocol using practice-wide feedback, experience and knowledge. • Streamline the process – simplify instructions, implement recalls working with practice SIP team first. • Allow time for changes you have made to be checked, and adjusted further if required, before rolling out to all staff to embed as usual practice. • Set up policies around testing intervals. • Development of a manual process to ensure the practice has the ability to monitor and remind INR patients, especially the ones currently testing spasmodically.
Recording process in patient management system	• Rather than using duplicate electronic and manual process, recommend single entry using INR screening template. • Include a dropdown option within the screening template to show whether Nurse or Doctor can manage patient. • Use a refined screening term to identify patients on warfarin. • Have a process in place for each test recording: INR result, warfarin dose, when next test is due, GP signature, nurse signature when patient advised any patient specific notes relevant to warfarin monitoring
Practice team roles and responsibilities	• Have an open discussion of the most appropriate clinican to manage specific groups of patients on warfarin • Transition to nurse dosage adjustments under standing orders. (See Auckland Regional Health Pathways for recommended standing order template for warfarin) • Up skilling opportunities for nurses
Patient education	• Organise patients education updates.

	• Have an education checklist prepared and embedded into form. • Develop a cycle of education leading to better patient involvement and compliance. • Collate recommended resources available for patient education e.g. flip chart, red book etc. • Send out Patient Education document to all warfarin patients and adding wording of "if you would like further information please contact the clinic". • Change the wording on the INR screening term withiin Medtech from "Patient Info Given" as a tickbox to "Patient Education Given" as a date field.
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
•Patient demogrpahic info up to date. •Clear communication between all staff groups. •Simpler, quicker process. •Up-skilling nurses & pharmacists. •Increased confidence in process. •Reduced GP prescribing times. •Patients are happier. •Patients are better educated. •Increased concordance. •All staff groups engaged in improving the system. •More stable INR results. •Less blood tests.	•Time taken to apply changes. •Multiple electronic systems, processes & guidelines available. •Resistance to change, especially changing roles & responsibilities within the team. •Co-ordinating implementaiton across many staff groups.

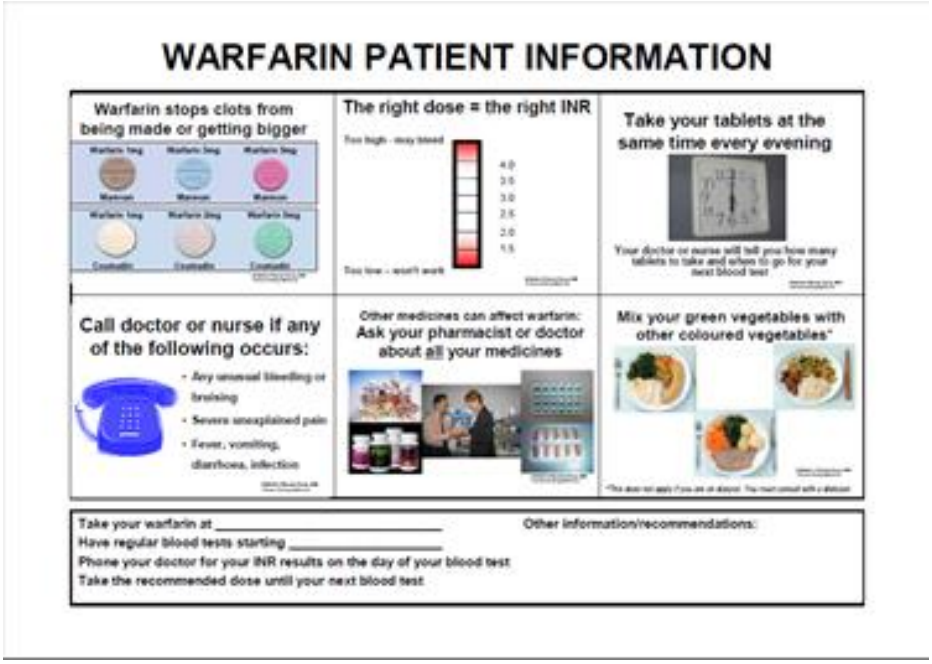
3.1 Additional Resources

Resources – general

- Health Pathways information about Atrial Fibrillation (includes patient information) https://aucklandregion.healthpathways.org.nz/index.htm?18972.htm
- BPAC article: An update on antithrombotic medicines www.bpac.org.nz/BPJ/2015/April/antithrombotic.aspx
- BPAC article: The safe and effective use of dabigatran and warfarin in primary care www.bpac.org.nz/2017/anticoagulants.aspx

Resources – warfarin

- Health Pathways information regarding warfarin https://aucklandregion.healthpathways.org.nz/index.htm?18972.htm
- Waitematā DHB – Warfarin Counselling Checklist and List of Interactions (included in pack) https://aucklandregion.healthpathways.org.nz/Resources/PWarfarin-CounsellingChecklistListofInteractionsMay13.pdf
- BPAC Guidelines: INR for Monitoring Warfarin Treatment www.bpac.org.nz/BT/2010/November/inr.aspx
- New Zealand Formulary: Warfarin www.nzf.org.nz/nzf_1493
- SafeRx® leaflets. "Warfarin: What you need to know" leaflets are available at www.saferx.co.nz in English, Chinese, Korean, Niuean, Samoan, and Tongan
- Anticoagulant Treatment Booklet "Red Book" – available free from Medidata on 09 488 4271 or email gmouldey@medidata.co.nz with the name of your pharmacy, your delivery address and the number of '*Red Books*' you require.
- Health Navigator https://www.healthnavigator.org.nz/medicines/w/warfarin/
- Patient information sheet card https://www.countiesmanukau.health.nz/assets/Community-health/Pharmacy/Warfarin-patient-information-card.pdf



3.2 Connections to other parts of Safety in Practice programme

Pharmacy

Anticoagulants Module

Pharmacies also have a specific module that looks at anticoagulants. – particularly around patient education and understanding.

Aim: All patients prescribed warfarin, dabigatran or rivaroxaban will receive education at time of medicine collection by June 2020.

Process measures:

Is there evidence the patient was informed how to use their medicine?
Is there evidence the patient was informed what to do if they miss a dose?
Is there evidence the patient was informed about possible side effects?
If yes, is there evidence they were informed what to do if they get a side effect?
Is there evidence the patient was informed about interactions with other medicines (prescription, OTC and complementary), supplements, and/or food and alcohol?
Is there evidence the patient was offered written information about their medicine?

Outcome measures – with next GP script

1. **Was the patient able to correctly describe (dose/frequency) how to take their medicine?**
2. **Was the patient able to describe what to do if they missed a dose?**
3. **Was the patient able to identify a possible side effect of their medicine?**
4. **Was the patient able to identify who to ask for help with their medicines?**

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

3.3 MOPS & Cornerstone

The Warfarin Management Audit is endorsed by the RNZCGP for Maintenance of Professional Standards (see website).

The audits and PDSA cycles can be used for Cornerstone / Foundation standards as a Quality Improvement activity.

3.4 Glossary

ADE	Adverse Drug Event
ADHB	Auckland District Health Board
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
CPAMS	Community Pharmacy Anticoagulation Monitoring Service
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
GI	Gastro-intestinal
IHI	Institute of Health Improvement
INR	International Normalised Ratio. This is a marker of coagulability in the blood used to guide warfarin dosage.
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'.
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
WDHB	Waitematā District Health Board
SIP	Safety in Practice

3.5 References

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