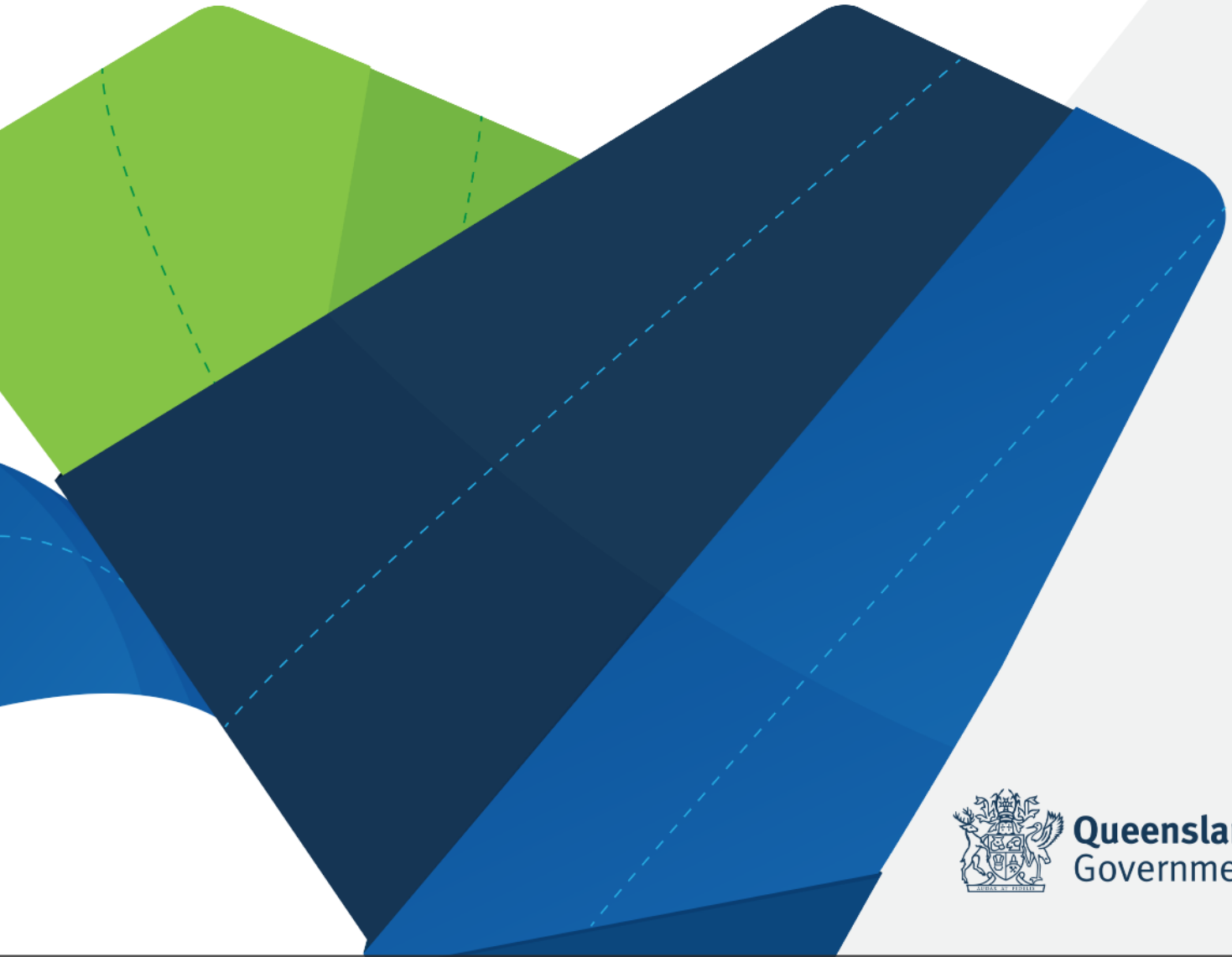
Queensland Health

Royal Flying Doctor Service
QUEENSLAND SECTION

Guideline for Warfarin Management in the Community

February 2024



Queensland Government

Guideline for Warfarin Management in the Community - February 2024

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An electronic version of this document is available at https://www.health.qld.gov.au/__data/assets/pdf_file/0025/443806/warfarin-guidelines.pdf

Contents

Purpose

This guideline provides recommendations regarding best practice for the initiation and ongoing management of warfarin for patients in community settings including primary and community health care centers, as well as Home-Based Acute Care Service (HBACS) and Hospital in the Home (HITH). It applies to all patients who are prescribed warfarin in the community under the care of Queensland Health, particularly where there is no available warfarin work unit procedure.

Scope

This guideline provides information for all Queensland Health employees (permanent, temporary, and casual), as well as all organisations and individuals acting as its agents. It includes the Royal Flying Doctor Service and other partners, visiting medical officers, contractors, and consultants.

Related documents

Guidelines

- Queensland Health Anticoagulant Guideline for Hospitalised Adult Patients (health.qld.gov.au) including:
    - Appendix 2 - Warfarin drug interactions (health.qld.gov.au)
- Chronic Condition Manual: Prevention and Management of Chronic Conditions in Rural and Remote Australia

Forms

- Queensland Health Non-inpatient rural and remote warfarin record (SW032) (health.qld.gov.au) - WINC code: 1NY31834.

Background

Warfarin is a vitamin K antagonist that inhibits the synthesis of vitamin K-dependent coagulation factors (II, VII, IX, X). There has been a reduction in the use of warfarin in the last few decades, due to the increasing popularity of the direct oral anticoagulants (DOACs)—apixaban, rivaroxaban and dabigatran—which do not require routine therapeutic monitoring. However, warfarin remains the treatment of choice for some patients (e.g. those with kidney impairment, heart valve replacements, left ventricular thrombus or antiphospholipid syndrome, valvular atrial fibrillation and a high risk of stroke or systemic embolism). As such, there is an ongoing need for guidance on its safe use.

Indications for prescribing

Table 1: Warfarin indications, target range and duration of therapy

Indication	Recommended target INR range	Recommended duration
Deep vein thrombosis (DVT) or Pulmonary embolism (PE)	2 to 3	Dependent on specific clinical factors (e.g. 3 months for provoked event with transient major risk factor; long term for unprovoked event or antiphospholipid syndrome)
Non-valvular AF with CHA_2DS_2VA score greater than 1	2 to 3	Indefinite
Elective cardioversion	2 to 3	3 weeks before scheduled cardioversion and 4 weeks after successful cardioversion
After stent placement and CHA_2DS_2VA score greater than 1	2 to 3	Indefinite Anti-platelet agent combination therapy is short-term—contact cardiac surgeon or cardiologist
Mitral stenosis	2 to 3	Indefinite
Mechanical prosthetic heart valves	2 to 3 for aortic 2.5 to 3.5 for mitral	Indefinite
Bioprosthetic (tissue) valves	Seek advice from cardiac surgeon	1 to 6 months post implant—contact implanting surgeon or cardiologist

Source: Adapted from (Tideman, Tirimacco, St John, & Roberts, 2015)

For further detail regarding duration of anticoagulant therapy for specific indications refer to Anticoagulant Guideline for Hospitalised Adult Patients (health.qld.gov.au).

Risk assessments

Safety and efficacy of warfarin is dependent on maintaining the INR within the recommended therapeutic range. (Tideman, Tirimacco, St John, & Roberts, 2015) Warfarin is contraindicated when the risk of haemorrhage outweighs the benefits of anticoagulation.

It is recommended that a prophylactic dose of a proton pump inhibitor (e.g. pantoprazole) and screening for H. Pylori is considered for patients at greater risk for bleeding (i.e. antiplatelet therapy whilst taking an anticoagulant).

Review all concomitant medicines for potential interactions (refer to Warfarin drug interactions (health.qld.gov.au) and product information resources).

Pregnancy and breastfeeding

Pregnancy is a period of increased thrombosis risk due to hypercoagulability, venous stasis, and vascular damage. When indicated careful anticoagulation may be required. In general, warfarin should not be used as it is classed as category D pregnancy risk (i.e. Drugs which have caused, are suspected to have caused or may be expected to cause, an increased incidence of human fetal malformations or irreversible damage). These drugs may also have adverse pharmacological effects. Accompanying texts should be consulted for further details. The highest risk of fetal malformation is during the first 12 weeks of gestation. Later in pregnancy warfarin use may be associated with fetal bleeding complications. (Gibson & Powrie, 2009) However, it may be used in high thrombosis risk patients after the first trimester of pregnancy under the expert guidance of a haematologist.

Warfarin may be used during breast feeding. It has not been detected in breast milk at doses up to 12 mg per day. (Hale, 2022)

Bleeding risk

Assessment of bleeding risk may identify reversible or potentially modifiable risks that can be managed prior to initiation of oral anticoagulant therapy (e.g. hypertension, concomitant medicines, excess alcohol intake, and anaemia). Further detail may be found in the Anticoagulant Guideline for Hospitalised Adult Patients (health.qld.gov.au) section 1.2.4.

Risk factors for increased sensitivity to warfarin

If the patient has not previously been prescribed warfarin, a baseline INR should be obtained prior to initiating therapy to evaluate for any underlying coagulopathies that might justify a lower starting dose. (Stevens, Woller, & Fontaine, 2022) Also consider if there are other risk factors for increased warfarin sensitivity. Examples include:

- age older than 75 years
- past medical history of bleeding
- baseline INR greater than 1.4
- concomitant drugs affecting warfarin metabolism (see Warfarin drug interactions)
- co-morbidities (i.e. hypertension, cerebrovascular disease, ischaemic stroke, heart disease, renal insufficiency, hepatic impairment or low platelets, malignancy)
- major surgery less than 10 to 14 days prior
- patients who are nil by mouth or malnourished.

Initiating therapy

Suggested dose regimens are outlined in Tables 2 and 3. Deviation from the nomograms (i.e. lower starting doses 2 mg to 4 mg) may be required for patients who have risk factors for increased warfarin sensitivity (see above).

If warfarin is to be re-started after an interruption to therapy (e.g. post-operative), re-start at the dose that was previously effective for the patient.

Recommended dose adjustments assume the patient has taken daily doses as instructed. Adherence to therapy should be checked prior to adjusting doses in response to an INR result. Refer to Appendix 1 for patient education and counsel patients accordingly.

Patients with low thromboembolism risk (e.g. stroke prevention with atrial fibrillation, low CHA_2DS_2-VA score)

As the time taken to reach a therapeutic INR is not critical for patients with low thrombosis risk, bridging therapy[1] with a short-acting parenteral anticoagulant is not required. The nomogram shown below suggests a starting dose of 3 mg and checking INR again on day 3. If baseline INR is above 1.4 consider a lower starting dose.

[1] Bridging therapy involves use of a short-acting anticoagulant (e.g. UFH, LMWH) during a period in which warfarin is interrupted for surgery and post-operatively while waiting for the INR to reach therapeutic levels. Bridging therapy may also be used as additional anticoagulant cover when initiating warfarin in patients with high thrombotic risk indications.

Table 2: Warfarin dosing regimen for patients with low thromboembolism risk

Day to take INR test (Day 1 = start day)	INR* (Target = 2 to 3)	Warfarin dose until next INR test
1	Check baseline	3 mg daily
3	Less than 1.3	4 mg daily
	1.3	3 mg daily
	1.4	2.5 mg daily
	1.5	2.5 mg daily
	1.6	2 mg daily
	1.7	2 mg daily
	1.8	1.5 mg daily
	1.9	1.5 mg daily
	2	1.5 mg daily
	2.1	1 mg daily
	2.2	1 mg daily
	2.3	0.5 mg daily
	2.4	0.5 mg daily
	2.5	0.5 mg daily
	Greater than 2.5	**Cease warfarin** Check causes and indication; repeat INR in 3 to 5 days. If warfarin remains indicated, restart at lower dose.
6 and onwards	Target INR = 2 to 3	Based on clinical judgement Refer to Maintenance therapy section for ongoing management

Source: Adapted from (University of Wisconsin Hospitals and Clinics Authority, 2022)

*** If INR is abnormally high (i.e. greater than 4.5), refer to 'Management of bleeding or warfarin overdose'.**

For patients at low risk of thrombosis whose INR result continues to be less than 1.4, review adherence to therapy prior to considering higher doses. If adherence to therapy is not an issue and there are no underlying reasons for a low INR, the dose may be increased.

Patients with high thromboembolism risk (e.g. venous thromboembolism)

For patients with high risk of thrombotic events (e.g. deep vein thrombosis or pulmonary embolism), **bridging therapy[2] with a short-acting parenteral anticoagulant is required during the first few days**. Start warfarin on the same day as therapeutic heparin or LMWH and overlap for a minimum of five days. Consider overlapping for at least two consecutive days after target INR reached or as clinically indicated according to assessment of patient bleeding risks. Exercise caution in patients with impaired renal function (calculated creatinine clearance is (i.e. less than 30 mL/min) where LMWH can accumulate and contribute to bleeding. Consensus guidelines recommend starting doses of 5 mg only; evidence for 10 mg starting doses is limited (Tran, Chunilal, Tran, Wood, & Gallus, 2013). High dose warfarin loading doses are associated with paradoxical hypercoagulable state and associated risk of thromboembolism. (Guyatt, Akl, Crowther, Gutterman, & Schuunemann, 2012)

[2] Bridging therapy involves use of a short-acting anticoagulant (e.g. UFH, LMWH) during a period in which warfarin is interrupted for surgery and post-operatively while waiting for the INR to reach therapeutic levels. Bridging therapy may also be used as additional anticoagulant cover when initiating warfarin in patients with high thrombotic risk indications.

Table 3: Warfarin dosing regimen for patients with high thromboembolism risk

Day to take INR test (Day 1 = start day)	INR* (Target = 2 to 3)	Warfarin dose until next INR test
1	Less than 1.4	5 mg
2	Less than 1.8	5 mg
	1.8 to 2	1 mg
	Greater than 2	Nil
3	Less than 2	5 mg
	2 to 2.5	4 mg
	2.6 to 2.9	3 mg
	3 to 3.2	2 mg
	3.3 to 3.5	1 mg
	Greater than 3.5	Nil
4	Less than 1.4	10 mg
	1.4 to 1.5	7 mg
	1.6 to 1.7	6 mg
	1.8 to 1.9	5 mg
	2 to 2.3	4 mg
	2.4 to 3	3 mg
	3.1 to 3.2	2 mg
	3.3 to 3.5	1 mg
	Greater than 3.5	Nil
5 and onwards	Target INR = 2 to 3	Dose based on clinical judgement. Minimum duration is usually 3 months.

Source: Adapted from (Gedge, Orme, Hampton, Channer, & Hendra, 2000). Note: Day 1 starting dose of 5 mg as recommended by (Tran, Chunilal, Tran, Wood, & Gallus, 2013).

*** If INR is abnormally high (i.e. greater than 4.5), refer to 'Management of bleeding or warfarin overdose'.**

Note: Dose modification is required for patients with a higher target INR range (i.e. 2.5 to 3.5).

After Day 4 clinicians should continue INR monitoring daily until stabilised (refer to Maintenance therapy). Ongoing frequency of monitoring will depend on stability of INR and changes in clinical condition or changes to other medicines (Stevens, Woller, & Chang, 2018); (Moulds, et al., 2018).

Note that a change in the INR of 0.5 over three days or 1 over seven days is considered unstable. Dose adjustments during this period will need to be based on clinical judgement—if unsure seek advice. Due to the half-life of clotting factors, a dose of warfarin may not have an impact upon the INR until 48 to 72 hours after administration.

After INR results have been stabilised, refer to Maintenance therapy section.

Frequency of INR monitoring

The following tables outline the recommended frequency of INR monitoring dependent on thrombosis risk. However, if the INR falls out of range due to illness or introduction of an interacting medicine, then it may be necessary to conduct daily monitoring.

Table 4: Recommended INR monitoring frequency

INR	Recommended monitoring frequency	
	Low risk of thrombosis	High risk of thrombosis
Less than 2	Weekly until INR in target range for at least **two consecutive** test results	Daily until INR in target range for at least **two consecutive** test results
2 to 3	If **two consecutive** INR test results in target range, then switch to fortnightly until INR in target range for a further **two to three consecutive** test results. Then **every 4 to 6 weeks** provided INR remains in range. If INR remains very stable, it is reasonable to extend monitoring frequency to 8 weeks.	If **two consecutive** INR test results in target range, then switch to every 3 to 5 days until INR in target range for a further **two consecutive** test results. Then weekly until INR in target range for a further **two to three consecutive** test results. Then fortnightly until INR in target range for a further **two to three consecutive** test results. Then every 4 to 6 weeks provided INR remains in range. If INR remains very stable, it is reasonable to extend monitoring frequency to 8 weeks.
Greater than 3	Every 2 to 3 days until INR in target range for at least **two consecutive** test results	Daily until INR in target range for at least **two consecutive** test results

Source: Based on expert opinion.

* Note: Modify for patients requiring a higher target INR range (e.g. 2.5 to 3.5).

Maintenance therapy

After stabilisation (or following on from the initiation regimens), clinicians should reflect on whether the patient has had INR variations in the past to guide future adjustments in maintenance doses. Changes are recommended based on confirmation that regular daily doses have been taken as prescribed and the patient has had a consistent diet. Clinicians should consider available tablet strengths and the patient's ability to break scored tablets when prescribing future doses.

The dose adjustments below are based on the total weekly dose of warfarin. The weekly dose can be prescribed using a range of dosing regimens spread out reasonably evenly over the seven-day period as practical (e.g. alternate day dosing or dose regimens with different doses for weekdays compared to the weekend). Dose modifications based on the total weekly dose also account for low dose regimens where a change may not be practical if calculations were based on the daily dose (see Appendix 2 for examples). Following a dose modification, recheck INR according to recommended INR monitoring frequency (Table 4).

Table 5: Suggested dose adjustments for warfarin maintenance therapy

INR* (Target = 2 to 3)	Warfarin dose adjustment until next INR test
Less than 1.5	Increase total weekly dose by 20% averaged out over the week.
1.5 to 1.9	Increase total weekly dose by 10% averaged out over the week.
2 to 3	Target INR range—No change required
3.1 to 3.4	Decrease total weekly dose by 10% averaged out over the week **OR** no change depending on clinical judgement of previous INR results.
3.5 to 3.9	Consider omitting one dose **AND** decrease total weekly dose by 20% averaged out over the week.
4 to 4.5	Decrease total weekly dose by 20% averaged out over the week **OR** withhold next dose based on risk factors for increased sensitivity to warfarin. Resume lower dose once INR approaches target range (i.e. decrease weekly dose by 20% averaged out over the week)
Greater than 4.5	Refer to Management of bleeding or warfarin overdose (Table 6).

Source: Adapted from (Tideman, Tirimacco, St John, & Roberts, 2015)

* Note: Modify for patients requiring a higher target INR range (e.g. 2.5 to 3.5).

The transition of care information provided in Appendix 3 may also be used as a guide to inform practice when transitioning between different care settings. See also the Chronic Conditions Manual.

Management of bleeding or overdose

There is a significantly increased risk of bleeding with an INR 4.5 or greater. The table below provides recommendations for high INR results or signs of bleeding. Consider the need for admission to hospital for access to specialised treatment (e.g. blood products) and monitoring for patients with a high INR result.

Table 6: Management of bleeding or warfarin overdose

Clinical setting	Recommendations
Life-threatening or critical organ bleeding and INR 1.5 or greater	**SEEK SENIOR ADVICE.** Cease warfarin. Give phytomenadione (vitamin K#) 5 to 10 mg IV, and PCC 50 units/kg IV (refer to Anticoagulant Guideline for Hospitalised Adult Patients, Table 53). If PCC is unavailable, give FFP 15 mL/kg. Assess INR frequently until clinically stable.
Clinically significant bleeding (i.e. not life-threatening or associated with a critical organ) and INR 1.5 or greater	**SEEK SENIOR ADVICE.** Cease warfarin. Give phytomenadione (vitamin K#) 5 to 10 mg IV and PCC (refer to Anticoagulant Guideline for Hospitalised Adult Patients, Table 53). If PCC is unavailable, give FFP 15 mL/kg. Assess INR frequently until clinically stable.
Minor bleeding with any INR	Omit warfarin. Repeat INR the following day and adjust warfarin dose to maintain INR in target therapeutic range (see Table 5). If bleeding risk is high$^{\Phi}$ or INR greater than 4.5, consider phytomenadione (vitamin K#) 1 to 2 mg orally or 0.5 to 1 mg IV.
No Bleeding and INR greater than 10	**SEEK SENIOR ADVICE.** Cease warfarin. Give phytomenadione (vitamin K#) 2 to 5 mg orally (noting the higher dose may lead to delayed achievement of therapeutic INR results when recommencing warfarin) or 0.5 to 1 mg IV. If bleeding risk is high$^{\Phi}$, consider PCC (refer to Anticoagulant Guideline for Hospitalised Adult Patients, Table 53). Check INR in 12 to 24 hours if only vitamin K administered. Check INR in 30 to 60 minutes if PCC has also been administered, and again in 12 to 24 hours. Continue monitoring every 1 to 2 days over the following week. Resume lower dose of warfarin once INR approaches therapeutic range.
No Bleeding and INR 4.5 to 10	Cease warfarin. Consider reasons for elevated INR and patient specific factors. Phytomenadione (vitamin K#) is usually not required. If bleeding risk high$^{\Phi}$, give phytomenadione (vitamin K#) 1 to 2 mg orally or 0.5 to 1 mg IV. Check INR within 12 to 24 hours. Resume lower dose of warfarin once INR approaches therapeutic range.
No Bleeding and INR greater than therapeutic range but less than 4.5	Reduce or withhold next dose of warfarin as per suggested dose adjustments for warfarin maintenance therapy (see Table 5) and consider any risk factors for increased sensitivity to warfarin. Resume lower dose of warfarin once INR approaches therapeutic range. If INR is only minimally above therapeutic range (i.e. within 10%) dose reduction is generally not necessary.

Source: Adapted from (Tran, Chunilal, Tran, Wood, & Gallus, 2013)
FFP = fresh frozen plasma; INR = international normalised ratio; IV = intravenous; PCC = prothrombin complex concentrate
# Note: Konakion MM®, the intravenous preparation of phytomenadione (vitamin K), may be given orally. It is NOT for intramuscular injection.
Φ Major bleed in previous 4 weeks, major surgery in previous 2 weeks, thrombocytopenia with platelets less than 50 x 10^9/L, known liver disease or concurrent antiplatelet therapy.

Appendix 1: Patient education

When initiating warfarin, it is important to involve the patient and ensure an understanding of benefits and potential side effects as well as monitoring requirements. Obtain patient consent for starting an anticoagulant and document in the clinical notes. Patient counselling points include:

- The different brands of warfarin available in Australia (Marevan® and Coumadin®) are not interchangeable. However, there may be instances where brand substitution is required (e.g. stock shortages). Unless advised by a health professional, remain on the same brand once started on warfarin therapy. Swapping brands may affect INR control. Queensland Health facilities generally use the Marevan® brand.
- Carefully check the label to ensure the medicine is warfarin and the correct strength. Note that all strengths are in similarly packaged blue bottles as per other medicines from the same manufacturer.
- Take warfarin tablets at approximately the same time every day.
- Use a warfarin patient education booklet to record INR results and recommended doses. Mark off the date in the booklet or on a calendar immediately after taking a dose so that any missed doses can easily be identified.
- Eat a well-balanced diet without dramatic changes. This will help to maintain a stable intake of vitamin K which is found in certain foods (e.g. green leafy vegetables) and can reduce the anticoagulant effect of warfarin.
- Avoid excessive alcohol consumption (generally one or two standard drinks per day is considered safe).
- Avoid drinking large volumes of cranberry juice as it may increase the effects of warfarin.
- Inform all your health professionals including dentists that you are taking warfarin.
- Keep track of appointments for blood tests. Blood tests are required to monitor the anticoagulant effect of warfarin and check if the dose needs adjusting. Ensure a health professional makes contact to advise the test result and the dose to take until the next monitoring appointment.
- Always ask a health professional before starting or stopping other medicines (including vitamin supplements, herbal products, or over-the-counter medicines). Many medicines interact with warfarin. Blood tests may be required more frequently to monitor for any impact on warfarin therapy.
- Contact a health professional if feeling unwell for any reason including:
    - Unexplained bruising
    - Bleeding
    - Pink, red, or dark brown urine
    - Red or black faeces
    - Bleeding from the gums or nose
    - Dizziness
    - Trouble breathing or chest pain
    - Severe headache
    - Unusual pain or weakness
    - Dark purplish or mottled fingers/toes
    - Vomiting or coughing up blood
    - Excessive menstrual bleeding

Appendix 2: Example dose adjustments

1. Current dose regimen = 1 mg daily (i.e. 7 mg weekly). If INR result is 1.6, then the recommended adjustment to the weekly dose is an increase of 7 mg x 10% = 0.7 mg (round up to 1 mg). The new total weekly dose would be 7 mg + 1 mg = 8 mg. The table below shows two suggested options to achieve the new total weekly dose.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total weekly dose
Current dose	1 mg	1 mg	1 mg	1 mg	1 mg	1 mg	1 mg	7 mg
New regimen Option 1	1 mg	1 mg	1 mg	1 mg	1 mg	1 mg	2 mg	8 mg
New regimen Option 2	1 mg	1 mg	1.5 mg	1 mg	1 mg	1.5 mg	1 mg	8 mg

2. Current dose regimen = 4 mg three days a week and 3 mg every other day (i.e. 24 mg weekly). If the INR result is 4.2, then the recommended dose adjustment is a dose omission then a reduction ranging from 2.4 to 4.8 mg (24 mg x 10% to 24 mg x 20%) over the week. Following a single dose omission, a suggested new dose regimen could be to change the dose to 3 mg daily (i.e. a reduction of 3 mg over the week).

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total weekly dose
Current dose	4 mg	3 mg	4 mg	3 mg	4 mg	3 mg	3 mg	24 mg
New regimen Option	3 mg	3 mg	3 mg	3 mg	3 mg	3 mg	3 mg	21 mg

3. Current dose regimen = 5 mg daily (i.e. 35 mg weekly). If the INR result is 4.8, then the recommended dose adjustment is a dose omission then a reduction ranging from 3.5 to 7 mg (35 mg x 10% to 35 mg x 20%) over the week. Following a single dose omission, a suggested new dose regimen could be to change the dose to 4 mg daily (i.e. a reduction of 7 mg over the week).

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total weekly dose
Current dose	5 mg	5 mg	5 mg	5 mg	5 mg	5 mg	5 mg	35 mg
New regimen Option	4 mg	4 mg	4 mg	4 mg	4 mg	4 mg	4 mg	28 mg

Appendix 3: Transition of care

Checklist for ongoing warfarin management

The discharging medical officer is responsible for liaising with a general practitioner (GP) to develop a plan for ongoing management of warfarin and INR monitoring. Patients who do not have a regular GP will need to nominate one. Many GPs use private pathology warfarin care programs. In some cases, the GP may manage warfarin care themselves or a hospital in the home service may be required as an interim measure. Private pathology services have specific criteria and requirements for accepting discharge referrals from public hospitals—see Appendix 3 for details. Refer to the checklist below for tasks that should be completed for optimal warfarin management.

For all patients taking WARFARIN on admission

☐ Identify clinician or service responsible for INR monitoring (i.e. general practitioner or private pathology) and document in the progress notes or ieMR, or on the Medication Action Plan (MAP) [SW016]. If private pathology, record the laboratory reference number. Where possible, include most recent INR result and current dosing regimen.

For all patients taking WARFARIN during admission

☐ Ensure patient/carer receives appropriately tailored warfarin specific education including:

- Specific brand name (note warfarin brands are not interchangeable)
- Indication and target INR
- Planned duration of treatment
- Monitoring requirements
- Importance of compliance and need for regular blood tests
- Potential adverse drug reactions (including risk of bleeding)
- Medicine and dietary interactions
- Source of further warfarin supply post hospital discharge
- Importance of advising doctors/dentists of warfarin therapy if having surgery

Note Queensland Health WARFARIN education is available at: https://youtu.be/quFZEyBYmjI. A link can be added in an eLMS medication discharge list by typing “warfed” in special instructions.

For patients who have had warfarin ceased during admission

☐ Notify general practitioner, and private pathology service if relevant, the reason for warfarin cessation and advise if an alternative anticoagulant has been started or is required.

For patients taking warfarin on admission who die during an episode of care

☐ Notify general practitioner, and private pathology service if relevant, that the patient is deceased.

For all patients prescribed WARFARIN on discharge

☐ Refer patient to a general practitioner in a timely manner to ensure ongoing medical care and, if a review is required within 5 days ensure an appointment is possible.

☐ Provide a verbal clinical handover to ongoing warfarin care provider (refer to Table 8)

☐ Inform patient/carer/pharmacist of discharge warfarin management plan providing supporting written information including:

- Clinician or service responsible for INR monitoring and warfarin dosing
- Relevant warfarin care program costs (refer to private pathology reference sheet)
- Pathology request form (if required) including consultant provider number and general practitioner details. Ensure the bulk bill check box is ticked.
- Recent warfarin doses and INR results
- Medication discharge list
- Written patient warfarin education information (accessible from hospital pharmacist)
- **Dose of warfarin to be taken until the next INR test**
- Date and location of the next INR test

☐ Complete discharge summary as per local policy within 48 hours of discharge and document all actions in the progress notes or ieMR. A discharge summary can be printed or sent electronically. However, it does not replace the need for an essential verbal handover to the general practitioner.

Table 8: Recommended clinical handover details for WARFARIN

Patient details	Warfarin therapy
Identification: name, address, date of birth	Specific brand
Admission and discharge date	Indication and target INR
Reason for admission	Planned duration of treatment
Relevant medical history	Date of commencement
Treatment plan and medication discharge list	Recent warfarin doses and INR results (preferably last 6 results)
Allergies and adverse drug reactions	Planned doses and date next INR due
Nominated general practitioner details	Clinician or service responsible for INR monitoring
Pharmacy and carer details if unable to manage own medicines	Potential interactions with warfarin (e.g. short course antibiotics, new medicines). Include generic medicine name and potential effect on INR.

Note: A discharge summary can be printed or sent electronically. However, it does not replace the need for an essential verbal handover to the general practitioner.

Checklist for ongoing parenteral anticoagulant management

For patients who are prescribed warfarin who require bridging therapy with a parenteral anticoagulant, refer to the checklist below for tasks that should be completed for optimal management of parenteral anticoagulants.

For all patients prescribed a parenteral anticoagulant (e.g. enoxaparin/dalteparin) on discharge

☐ Ensure patient/carer receives appropriate parenteral anticoagulant education including:

- Specific anticoagulant generic and brand name
- Indication
- Dosing details
- Planned duration of treatment
- Monitoring requirements (e.g. kidney function, platelets, anti-Xa levels)
- Importance of compliance
- Potential adverse drug reactions (including risk of bleeding)
- Medicine and dietary interactions
- Source of further parenteral anticoagulant supply post hospital discharge—need to confirm community pharmacy has stock

☐ Provide support for safe administration of parenteral anticoagulant including:

- Services to assist if required (e.g. Hospital in the Home)
- Adequate medicine supply, noting there may be occasions where this is not practical. If supplying a prescription to the patient/carer, liaise directly with a community pharmacy to ensure timely supply is possible.
- If patient is self-administering parenteral anticoagulants, ensure education has been provided regarding correct injection technique and safe disposal of needles and syringes.
- Supply patient with written administration instructions/brochure and sharps container. Contact clinical pharmacist or Pharmacy Department as community pharmacies do not routinely supply sharps containers free of charge.

☐ Provide a clinical handover regarding parenteral anticoagulant details to ongoing care provider (refer to Table 9)

Table 9: Recommended clinical handover details for PARENTERAL ANTICOAGULANTS

Patient details	Parenteral anticoagulant therapy
Identification: name, address, date of birth	Specific brand
Admission and discharge date	Indication
Reason for admission	Planned duration of treatment
Relevant medical history	Date of commencement
Treatment plan and medication discharge list	Planned doses and proposed monitoring
Allergies and adverse drug reactions	Date of next review
Nominated general practitioner details	Clinician or service responsible for review
Pharmacy and carer details if unable to manage own medicines	Potential interactions with anticoagulant (e.g. short course antibiotics, new medicines). Include generic medicine name and potential effect.

Note: A discharge summary can be printed or sent electronically. However, it does not replace the need for an essential verbal handover to the general practitioner.

☐ Inform patient/carer of discharge parenteral anticoagulant management plan providing supporting written information including:

- Clinician or service responsible for assisting administration of parenteral anticoagulant
- Pathology request form (if required) including general practitioner details
- Medication discharge list
- Clinician or service responsible for review of treatment.

☐ Complete discharge summary as per local policy within 48 hours of discharge and document all actions in the progress notes or ieMR. A discharge summary can be printed or sent electronically. However, it does not replace the need for an essential verbal handover to the general practitioner. There is currently no template for input of parenteral anticoagulant information in the Enterprise Discharge Summary (EDS). The following details should be included in the 'Recommendations to GP' field:

- Specific parenteral anticoagulant commenced
- Indication
- Dosing information
- Planned duration of treatment
- Clinician or service responsible for review of treatment
- Proposed monitoring requirements (e.g. kidney function, anti-Xa levels)

Guideline custodian

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Version Control

Version	Amendments	Author/s	Approved
Version 1_0	Original guidance	Peter Modlmayr (RFDS) Sarah Mathers	Sept 2012
Version 2_0	Update aligning with new consensus guidelines	Sarah Mathers	April 2016
Version 3_0	Reviewed against current evidence and practice	Sarah Mathers	February 2024
Version 3_1	Amendment to accommodate transition of available prothrombin complex concentrate products	Sarah Mathers	June 2024

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