Guide for using INR to manage warfarin

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A low dose protocol for warfarin initiation (Janes, 2004)			
	INR	Warfarin Daily Dose	Notes
Day 1	Obtain Baseline INR	3 mg	
Day 2 - 7		3 mg	
Day 8	< 1.4	6 mg *	* follow blue guide for 2nd week
	1.4 - 1.5	5 mg	
	1.6 - 1.8	4 mg	
	1.9 - 2.1	3 mg	
	2.2 - 2.5	2.5 mg	
	2.6 - 2.7	2 mg	
	2.8 - 3.0	Omit 1-2 days, reduce to 1 mg	
	> 3.0	**Stop Warfarin**. Check causes, high INR protocol and need for warfarin. Repeat INR in 3-5 days. Restart at 1 mg if indicated.	
Day 15	Most patients will have received stable doses on day 8 and others will only need minor dose adjustments		When INR is stable extend dosing interval and transfer to maintenance guide.

Guide for patients on 6 mg on days 8 to 14			
Day 15	< 1.4		Unusual, check adherence medication etc. Increase to 10mg
	1.4 - 1.6	8 mg	
	1.7 - 1.8	7 mg	
	1.9 - 2.4	6 mg	
	2.5 - 2.9	5 mg	
	3.0 - 4.0	4 mg	Consider omitting 1-2 days
	4.1 - 5.0	reduce dose by 1-2 mg	Omit 2 days, check doses taken
	> 5.0		Check high INR protocol. Check doses taken. Omit 3 days and check INR

Guideline for Over Anticoagulation

INR 5 - 8 without bleeding

1. Stop warfarin
2. Test INR daily until stable
3. Restart in reduced dose when INR < 5
4. Give vitamin K 0.5 - 1 mg oral/sc if INR fails to fall, or if there is high risk of serious bleeding

INR > 8 with minor bleeding

5. Stop warfarin
6. Consider admission if clinically appropriate
7. Test INR daily until stable
8. Restart in reduced dose when INR < 5
9. Give Vitamin K 1-2 mg oral/sc

High INR and major bleeding

10. Stop warfarin
11. Give Vitamin K 10 mg sc
12. Admit stat

The guide is only valid if the patient has taken seven days of warfarin before the day 8 INR. If doses have been omitted or the INR is performed early the dose may be seriously overestimated. Due to the high number of biological and other variables inherent in warfarin therapy its use should be augmented by sound clinical judgement.

Dosage Adjustments for Patients on Warfarin Maintenance Therapy, Target 2.0 - 3.0	
INR	Dosage Adjustment
< 1.5	Increase weekly dose by 20% and give one time top-up additional amount equal to 20% of weekly dose
1.5 - 1.9	Increase weekly dose by 10%
2.0 - 3.0	No change
3.1 - 3.9	No change - recheck in one week. If persistent, decrease weekly dose by 10-20%
4.0 - 5.0	Omit 1 dose; decrease weekly dose by 10-20% and recheck in 2-5 days
> 5.0	See guide for Treatment of Patients Overanticoagulated with Warfarin (see section 3d)

Treatment Guide for managing Warfarin

INR testing frequency

- The INR is generally considered stable when two or more consecutive tests, performed at least 24 hours apart are within the target range
- Some fluctuation of the INR within the target range is to be expected and adjustment of the dose is not required but wide variations within the range over a few days may be more significant.

For patients initiated with low-dose protocol (warfarin initial dose 2 -3 mg):		
Initially	**When INR < 4:** Weekly **When INR > 4:** Every 2-3 days	Until stable for 2 consecutive tests
Then:	Fortnightly	Until stable for 2 consecutive tests
Maintenance:	Most patients can be extended to 4-6 weekly testing however a minority may require more frequent testing	

For patients initiated with higher doses:		
Initially	Daily for at least five days	Until stable for 2 consecutive tests
Then:	every 3 - 5 days	Until stable for 2 consecutive tests
Then:	weekly	Until stable for 2 - 3 consecutive tests
Then:	fortnightly	Until stable for 2 - 3 consecutive tests
Maintenance:	Most patients can be extended to 4-6 weekly testing however a minority may require more frequent testing	

Patient education needs to cover at least the following key points:

- ✓ Need for patient to regularly remind their doctor, pharmacist, dentist or other health professional they are receiving warfarin
- ✓ Requirement for regular blood tests
- ✓ Adherence to dosage changes following blood test results
- ✓ Importance of avoiding other medications (including herbal medicines and supplements) except following discussion with clinician, pharmacist or other healthcare provider
- ✓ Significance of illness, such as diarrhoea, infection or fever on warfarin use
- ✓ Ability to recognise the signs of possible bleeding

Specimen Collection:

- Blood specimens should be collected into a light blue top tube
- The tube must be filled completely
- View the patient handbook
- Ask questions specific to warfarin control, for example:
  - Adherence to the dosing regimen
  - Any changes in diet
  - Any medications the patients may have stopped or started
  - Signs of bleeding

Bleeding is the most serious potential side effect of warfarin.
If patients experience any of the following symptoms, they must call their doctor immediately:

Red or dark brown urine	Excessive menstrual bleeding	Unusual pain, swelling or bruising
Red or black stool	Prolonged bleeding from gums or nose	Dark, purplish or mottled fingers or toes
Unusual weakness, Severe headache	Dizziness, trouble breathing or chest pain	Vomiting or coughing up blood

Appendix 3 Drugs which potentiate the action of warfarin

Drugs which potentiate the action of warfarin					
Antibiotics	**Anti-inflammatory**	**Cardiac**	**Gastrointestinal**	**Psychiatric**	**Other**
Cotrimoxazole	NSAIDs	Amiodarone	Omeprazole	Paroxetine	Tramadol
Erythromycin	COX II inhibitors	Propranolol	Cimetidine	Fluoxetine	Phenytoin
Norfloxacin	Sulfinpyrazone	Clofibrate		Citalopram	Tamoxifen
Roxsithromycin	Salicylates				
Cephalosporin	Paracetamol				
Ciprofloxacin					
Azithromycin					
Fluconazole					
Miconazole (including gel)					
Metronidazole					
Isoniazid					

Appendix 4. Adding an alert for patients on warfarin

An alert which appears whenever the clinical records of a patient on warfarin are accessed. For use with MedTech.

To set up an alert to use for patients on warfarin

1. From the menu select: Setup > Patient Register > Alert
2. Put a code, perhaps “warf”, in the appropriate box and put “On Warfarin” in the description box.
3. Click OK, your alert is now set up for use.

To use the warfarin alert for a particular patient

1. When the patient’s clinical records are open
2. From the menu select: Module > Alerts
3. Click on the box in the window that opens to assign a new alert to the patient
4. In the code box enter “warf” or whatever code you used.
5. In the text box underneath put details of:
    - Condition for which patient is on warfarin
    - Date therapy started
    - Planned duration of treatment
    - Target INR

Note: you cannot use the enter key when you are in this text box.

6. Tick the box labelled Auto Prompt Alert
7. Click OK, your alert should now open whenever the patient’s clinical records are accessed.