NHS
Durham Dales, Easington and Sedgefield
Clinical Commissioning Group

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Guidelines for prescribing in primary care: Atrial Fibrillation

Review date: March 2017

This guideline has been adapted in part from the Gateshead CCG and Secondary Care Trust AF guideline, and the CDDFT Stroke Risk Stratification and Thromboprophylaxis guideline.

Approved by County Durham & Darlington Drug & Therapeutics Clinical Advisory Group – April 2014.

This guideline is not exhaustive and does not override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer

Full details of contra-indications and cautions for individual drugs are available in the BNF or in the Summary of Product Characteristics (available in the Electronic Medicines Compendium) www.emc.medicines.org.uk

Introduction

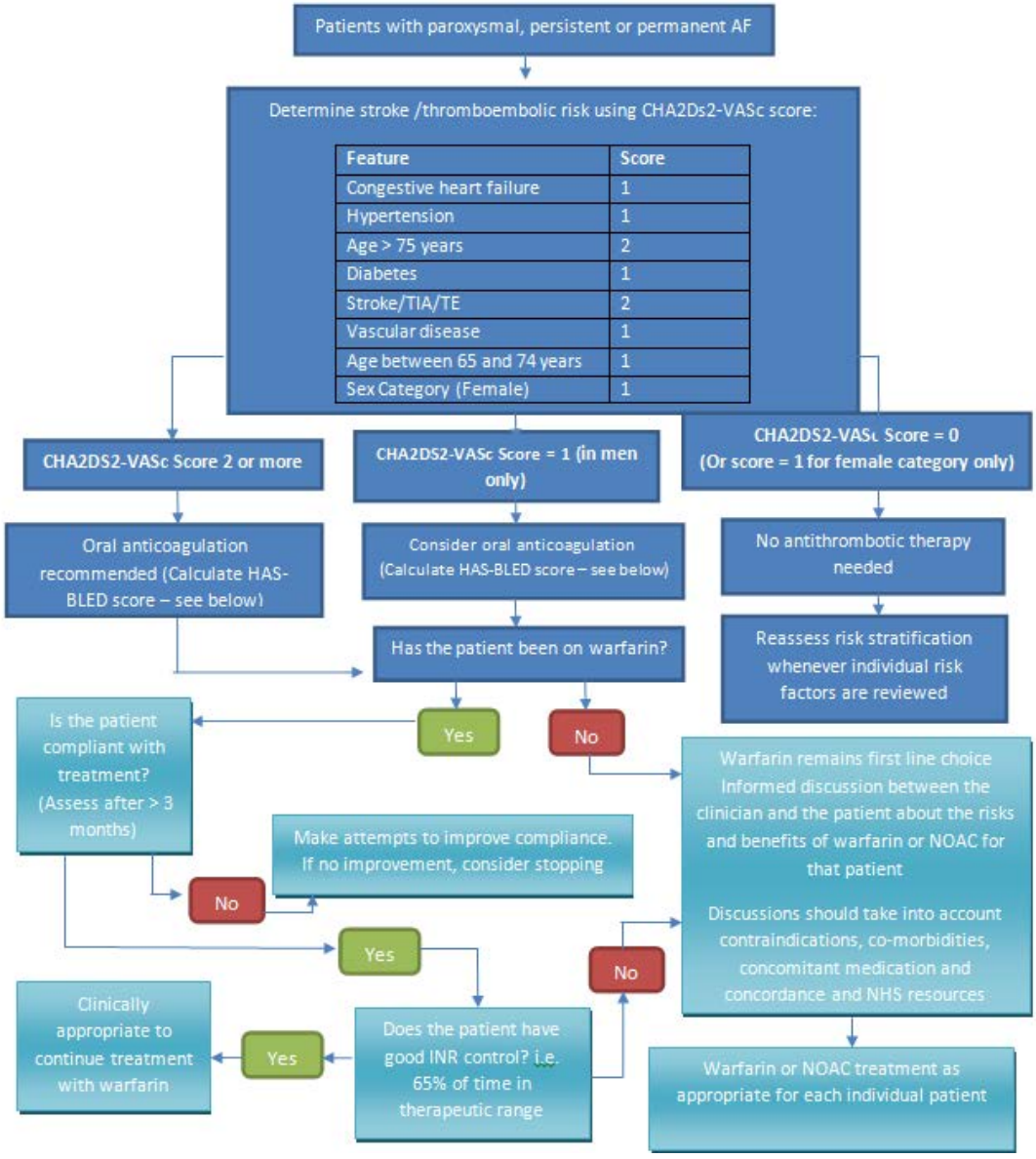
Estimates suggest the prevalence of atrial fibrillation is increasing and left untreated atrial fibrillation is a significant risk factor for stroke and other morbidities.

AF – Stroke risk assessment:

NICE CG180 – Atrial Fibrillation: the management of atrial fibrillation was published in June 2014 and made some significant changes to the diagnosis and treatment of AF.

The overall stroke risk in patients with AF is around 5%. This, however, can vary substantially between patients ranging from a 15-year risk of around 1.3% in younger patients with lone AF up to an annual figure of almost 20% or higher if the individual suffers from valve disease.

NICE now recommends risk is assessed using the CHA2DS2-Vasc and HAS-BLED tools.



HAS-BLED	
Risk Factor	**Score**
Hypertension	1
Abnormal Renal / Hepatic Function[1]- (1 each)	1 or 2
Stroke	1
Bleeding	1
Labile INRs[2]	1
Elderly (>65yrs)	1
Drugs (e.g. NSAIDs) and/or Alcohol (≥8 drinks per week) - (1 each)	1 or 2
Maximum Score	**9**

1. Renal Disease - Dialysis, transplant, Cr >2.6 mg/dL or >200 µmol/L, Liver Disease - Cirrhosis, Bilirubin >2x Normal, AST/ALT/AP >3x Normal
2. Unstable/high INRs, Time in Therapeutic Range < 60%

HAS-BLED score		
2 or <2	3	4 or >4
Proceed with anticoagulation	Proceed with anticoagulation with caution	Consider anticoagulation on an individual patient basis. Consult secondary care for further advice.

Stroke risk:
These figures are the approximate number per 1000 patients each year whom have AF and who are predicted to still get a stroke.

Score	No medication	Warfarin	NOAC
CHA_2DS_2-Vasc =0			
CHA_2DS_2-Vasc =1	13	5	4
CHA_2DS_2-Vasc =2	22	8	6
CHA_2DS_2-Vasc =3	32	12	9
CHA_2DS_2-Vasc =4	40	14	10
CHA_2DS_2-Vasc =5	67	24	18
CHA_2DS_2-Vasc =6	98	35	25

HAS-BLED Score:
These figures are the approximate number per 1000 patients each year who are predicted to have major bleeds (GI or intra-cranial) whilst on anticoagulation.

Score	Per 1000 pt per year
0	10
1	20
2	30
3	40
4	88

Antiplatelets

Do not offer antiplatelets as sole treatment for the prevention of stroke in people with atrial fibrillation. Where anticoagulation is not indicated antiplatelets should be stopped.

In cases where an individual has a stent or is post ACS and would normally be treated with dual antiplatelet therapy please discuss on-going treatment of these patients on an individual basis with their consultant cardiologist.

Choice of anticoagulant

Key groups in whom newer oral anticoagulation drugs (NOACs) should especially be considered includes:

- Those who cannot take vitamin K antagonists or have declined to take warfarin
- Those who cannot be stabilised on vitamin K antagonists with poor time in therapeutic range (e.g. less than 65% despite adequate adherence). TTR should be calculated over a maintenance time of at least 6 months, excluding measurements taken within the first 6 weeks of treatment
- Those taking aspirin for stroke prevention where an assessment has been made and warfarin may not be suitable due to reasons that would not specifically exclude them from using anticoagulation
- While CDDFT do not yet have a firm policy in place, clinicians are increasingly using NOACs pre-cardioversion

There are currently four available anticoagulants, warfarin, apixaban, dabigatran and rivaroxaban. The newer oral anticoagulants should be targeted to patients who are likely to derive greatest benefit.

Primary care rebate schemes exist for dabigatran and rivaroxaban.

The Newer Oral Anticoagulants should only be used for non-valvular AF within product license and in line with the relevant NICE technology appraisals:

- NICE TA275 - Apixaban for preventing stroke and systemic embolism in people with nonvalvular atrial fibrillation
- NICE TA249 - Dabigatran etexilate for the prevention of stroke and systemic embolism in atrial fibrillation
- NICE TA256 - Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation

The decision regarding which treatment is to be used should be made after an informed discussion between the clinician and the patient about the risks and benefits of each of the treatments compared with each other and against no treatment at all.

Use of serum creatinine and eGFR estimated with the MDRD equation may result in a misrepresentation of renal function. This is of particular relevance in elderly patients with low body weight (and conversely younger patients with high muscle mass). Therefore, any patients considered for a newer anticoagulant with reduced renal function should have their creatinine clearance more accurately estimated using the Cockcroft-Gault equation.

	Dosages in Renal Impairment		
Creatinine Clearance	**Rivaroxaban**	**Dabigatran**	**Apixaban**
>50ml/min	20mg od	150mg bd	5mg bd (or 2.5mg bd if 2 or more of the following are present - >80yrs old, <60kg or serum Cr > 133mmmol/L)
30 – 49 ml/min	15mg od	110mg bd	
15 – 29 ml/min	15mg od (with caution)	Avoid	2.5mg bd
<15ml/min	**Avoid**		

Individuals stable on warfarin should not routinely be considered for changing to a newer oral anticoagulant. Care should be taken to ensure a safe transition between preparations and advice sought from the patient's anticoagulation service where appropriate. Further information is also available on the SPC for each of the newer anticoagulants.

For patients using antiplatelets it is not necessary to have a break between stopping the antiplatelet and starting the NOAC and it is safe to start the new medication the day following the last antiplatelet dose.

NOACs and Compliance aids / swallowing difficulties

Dabigatran is not suitable for inclusion in compliance aids
Rivaroxaban and Apixaban – no stability data is available, and while there are no theoretical concerns with their use in compliance aids, this would be an unlicensed use.
Rivaroxaban is able to be crushed and administered via feeding tube as per the SPC.

NOACs and Food

To ensure appropriate bioavailability rivaroxaban must be given with food. The bioavailability of apixaban and dabigatran are not affected by food.

NOAC Antidotes

Although there are currently no specific antidotes for the NOACs the following points should be taken into consideration when prescribing these drugs:

- The half-life of NOACs in patients with normal renal function is between 9-14 hours.
- It takes 4-6 hours to effectively lower INR using vitamin K in patients taking warfarin. Prothrombin complex concentrate (PCC) will reverse warfarin effect immediately.
- Aspirin has no antidote and a similar /higher bleeding risk to a NOAC and a duration of effect of 5-7 days.
- Work to develop specific antidotes for NOACs is in progress.

Switching between anticoagulants

Warfarin to NOAC:

- Stop warfarin and start NOAC once the INR is <2.0

NOAC to warfarin:

- Start warfarin.
- After 2 days if co-administration of warfarin and NOAC obtain INR.
- Discontinue NOAC when the INR is >2.0

Contraindications

Many patients do not receive anticoagulation due to perceived contraindications. However, absolute contraindications are relatively rare and in studies were only found to make up about 7% and the remainder of patients had relative contraindications which do not specifically exclude them from using anticoagulants and many may be able to be treated.

A risk of falls is not a contraindication to initiating an oral anticoagulant. For example; a patient with an annual stroke risk of 5% would need to fall almost 300 times for the risk of falling to outweigh the stroke reduction benefit of an oral anticoagulant.

Absolute contraindications[3]	Relative contraindications[3]
History of inter-cranial haemorrhage	History of gastro-intestinal haemorrhage
Existing or recent peptic ulcer disease	Unexplained anaemia
Oesophageal varices	Bleeding diasthesis
Previous hypersensitivity / adverse reaction to warfarin	Alcohol abuse
Advanced malignancy / terminal illness	Renal impairment (Creatinine clearance <15ml/min/1.73 is considered an absolute contraindication for all NOACs)
BP >180/110 - (reconsider once BP controlled)	Hepatic impairment (Child-Pugh rating C could be considered absolute contraindication for all NOACs)
Endocarditis	Adverse drug interaction
Pregnancy	Non-compliance
Platelet count below 50 x 10^9/L	Platelet count between 50-150 x 10^9/L

[3] – These lists are non-exhaustive and for up to date information the latest SPC should be checked – available via http://www.medicines.org.uk

Child-Pugh Score

The Child- Pugh classification is a means of assessing the severity of liver cirrhosis.

Score	1	2	3
bilirubin (micromol/l)	<34	34-50	>50
albumin (g/l)	>35	28-35	<28
INR	<1.7	1.7-2.3	>2.3
encephalopathy	none	mild	marked
ascites	none	mild	marked

If there is primary biliary cirrhosis or sclerosing cholangitis then bilirubin is classified as <68=1; 68-170=2; >170=3.

The individual scores are summed and then grouped as:

- <7 = A
- 7-9 = B
- >9 = C

Patient information and support

A variety of patient information leaflets are available to help individuals make a decision whether or not to start an anticoagulant. The Atrial Fibrillation Association has several booklets which are available to download – www.atrialfibrillation.org.uk

A patient alert card can be downloaded from www.NOACforAF.eu

NICE patient decision Aid can be found at http://guidance.nice.org.uk/CG180/PatientDecisionAid/pdf/English

Appendix 1

	First Line	Second line – rivaroxaban is considered second line on the basis of cost - clinical evidence shows no other compelling differences		
	Warfarin	**Rivaroxaban**	**Dabigatran**	**Apixaban**
Licensed indications	Prophylaxis of systemic embolism in patients with rheumatic heart disease and atrial fibrillation.	Prevention of stroke and systemic embolism in adult patients with non-valvular atrial fibrillation with one or more risk factors, such as: • congestive heart failure • hypertension • age ≥ 75 years • diabetes mellitus • prior stroke or transient ischaemic attack	Prevention of stroke and systemic embolism in adult patients with non-valvular atrial fibrillation with one or more of the following risk factors: • Previous stroke, transient ischemic attack, or systemic embolism (SEE) • Left ventricular ejection fraction < 40 % • Symptomatic heart failure, ≥ New York Heart Association (NYHA) Class 2 • Age ≥ 75 years • Age ≥ 65 years associated with one of the following: diabetes mellitus, coronary artery disease, or hypertension	Prevention of stroke and systemic embolism in adult patients with non-valvular atrial fibrillation (NVAF), with one or more risk factors, such as: • prior stroke or transient ischaemic attack (TIA) • age ≥ 75 years • hypertension • diabetes mellitus • symptomatic heart failure (NYHA Class ≥ II)
NICE status	N/A	TA 256 May 2012 Recommended as an option for the prevention of stroke and systemic embolism within its licensed indication (as above) The decision about whether to start treatment with rivaroxaban should be made after an informed discussion between the clinician and the person about the risks and benefits of rivaroxaban compared with warfarin. For people who are taking warfarin, the potential risks and benefits of switching to rivaroxaban should be considered in light of their level of international normalised ratio (INR) control.	TA 249 March 2012 Recommended as an option for the prevention of stroke and systemic embolism within its licensed indication (as above) The decision about whether to start treatment with dabigatran etexilate should be made after an informed discussion between the clinician and the person about the risks and benefits of dabigatran etexilate compared with warfarin. For people who are taking warfarin, the potential risks and benefits of switching to dabigatran etexilate should be considered in light of their level of international normalised ratio (INR) control.	TA 275 February 2013 Recommended as an option for preventing stroke and systemic embolism within its marketing authorisation (as above) The decision about whether to start treatment with apixaban should be made after an informed discussion between the clinician and the person about the risks and benefits of apixaban compared with warfarin, dabigatran etexilate and rivaroxaban. For people who are taking warfarin, the potential risks and benefits of switching to apixaban should be considered in light of their level of international normalised ratio (INR) control.
Approx. Costs (Feb 2015)	NICE indicate the cost of warfarin is £43.80 days with INR monitoring £248 per year – total £291.80	£767 per year	£802 per year	£802 per year
		Note: list prices are indicated above, but primary care rebate may be available for these products.		

	First Line	Second line – rivaroxaban is considered second line on the basis of cost - clinical evidence shows no other compelling differences		
	Warfarin	**Rivaroxaban**	**Dabigatran**	**Apixaban**
How does it work?	Warfarin has an effect on several steps of the clotting cascade using compounds made with vitamin K by the liver.	Acts as a selective direct factor Xa inhibitor. Inhibition of Factor Xa interrupts the intrinsic and extrinsic pathway of the blood coagulation cascade, inhibiting both thrombin formation and development of thrombi.	Acts as a direct thrombin (factor IIa) inhibitor. It is formulated as dabigatran etexilate, a pro-drug converted to dabigatran after administration.	Inhibits free and clot-bound factor Xa, and prothrombinase activity. Prevents thrombin generation and thrombus development. No direct effects on platelet aggregation, but indirectly inhibits aggregation induced by thrombin.
Dose and Administration	Variable dose taken once daily dependent on INR	• 20 mg once daily • 15mg once daily if CrCL 15-49 mL/min. Use with caution if CrCL is 15-49 mL/min due to an increased bleeding risk.	• Patients under 80 years: 150 mg twice daily • Patients >80 years: 110 mg twice daily (due to the increased risk of bleeding in this population) • Reduce to 110 mg twice daily in patients who are taking verapamil • Consider 110 mg twice daily when the thromboembolic risk is low and the bleeding risk is high (e.g. CrCL 30-50 mL/min) or patients weigh <50kg.	• 5 mg twice daily • Reduce to 2.5 mg twice daily in patients with two or more of the following characteristics: o Age ≥80 years o Body weight ≤60kg o Serum creatinine ≥1.5mg/dL (133 micromoles/L) • 2.5 mg twice daily in patients with CrCL 15-29 mL/min
Monitoring	Needs to be adjusted to the individual needs of the patient and therefore requires regular monitoring using blood tests.	Available in two strengths which have predictable effects, meaning that the drug does not need the same level of monitoring as warfarin. Renal function should be assessed (calculate CrCL): • in all patients before starting rivaroxaban **and** • at least once a year	Available in two strengths which have predictable effects, meaning that the drug does not need the same level of monitoring as warfarin. Renal function should be assessed (calculate CrCL): • in all patients before starting dabigatran **and** • at least once a year A number of cases of serious and fatal haemorrhage have been reported in elderly patients with renal impairment who were receiving dabigatran.	Available in two strengths which have predictable effects, meaning that the drug does not need the same level of monitoring as warfarin. Renal function should be assessed (calculate CrCL): • in all patients before starting apixaban **and** • at least once a year

	First Line	Second line – rivaroxaban is considered second line on the basis of cost - clinical evidence shows no other compelling differences		
	Warfarin	**Rivaroxaban**	**Dabigatran**	**Apixaban**
Safety	Long-term safety based on 50 years use in clinical practice.	No information available on long-term safety. Dose reduction recommended where CrCL 15-49 mL/min. **Not recommended** if CrCL <15mL/min.	No information available on long-term safety. **Contraindicated** if CrCL <30mL/min	No information available on long-term safety. **Not recommended** if CrCL <15mL/min.
Bleeding	See respective agent for comparison	*Major bleeding*: No difference between rivaroxaban and warfarin. *GI bleeding*: More common with rivaroxaban than warfarin (p<0.001) *Intracranial bleeding*: less common with rivaroxaban than warfarin (p=0.02)	*Major bleeding*: No difference between dabigatran 150 mg BD and warfarin. Less common with dabigatran 110 mg BD than warfarin *GI bleeding*: More common with dabigatran 150 mg BD than warfarin (p=0.0008). No difference between dabigatran 110 mg BD and warfarin. *Intracranial bleeding*: Less common with both doses of dabigatran than with warfarin (p<0.001). Bleeding risk high in the frail and elderly, particularly with renal impairment and low body weight.	*Major bleeding*: Less common with apixaban than warfarin (p<0.001) *GI bleeding*: No difference between apixaban and warfarin *Intracranial bleeding*: Less common with apixaban than warfarin (p<0.001) Under additional monitoring via MHRA Black Triangle scheme at September 2013
Side effects	Other side effects can include hair loss	There were no significant differences in the incidence of any adverse event other than bleeding in the pivotal rivaroxaban trial.[11] The rate of MI was numerically, but not statistically significantly, lower in the rivaroxaban arm compared with warfarin.	Dyspepsia more frequent with both doses of dabigatran than warfarin. GI adverse events frequently led to drug discontinuation (7%, 6.5% and 3.9% in the dabigatran 150 mg, 110 mg and warfarin groups respectively) The rate of myocardial infarction (MI) was numerically, but not statistically significantly, higher with dabigatran in the pivotal trial (0.82% for 110 mg and 0.81% for 150 mg vs. 0.64% p=0.12). A meta-analysis combining 7 studies showed dabigatran was associated with a significantly higher risk of MI or ACS. The control group varied and included enoxaparin, warfarin and placebo.	There were no significant differences between warfarin and apixaban in the incidence of any adverse events in the pivotal apixaban trial.

	First Line	Second line – rivaroxaban is considered second line on the basis of cost - clinical evidence shows no other compelling differences		
	Warfarin	**Rivaroxaban**	**Dabigatran**	**Apixaban**
Reversibility	Effective and well known antidote, should a severe bleed occur whilst being treated	No antidote currently known although prothrombin complex concentrate has been successful in showing normalisation of laboratory clotting parameters (prothrombin time and endogenous thrombin potential) in a small preliminary trial.	No antidote currently known. Patients with bleeding risk factors excluded from pivotal trial. Clearance can be increased with haemodialysis. Consequences of the lack of an effective reversal agent should not be underestimated. Prolonged bleeding has increased morbidity and possibly contributed to deaths	No antidote currently known.
Interactions	**Drug-food interactions** Cranberry juice and alcohol interact with warfarin. Some foods interact with warfarin (e.g. foods containing high amounts of Vitamin K). **Drug-drug interactions** Many interactions requiring additional INR monitoring.	**Drug-food interactions** There are no known food interactions. **Drug-drug interactions** **Not recommended** with concomitant systemic administration of strong inhibitors of both CYP3A4 and P-gp, such as ketoconazole, itraconazole, voriconazole, posaconazole or HIV protease inhibitors. Strong inducers of both CYP3A4 and P-gp (such as rifampicin, phenytoin, carbamazepine, phenobarbital or St John's Wort) should be co-administered with **caution**. Concomitant administration with any other anticoagulants **contraindicated**. Consult the SPC for full details of interactions.	**Drug-food interactions** There are no known food interactions. **Drug-drug interactions** **Contraindicated** with the strong P-gp inhibitors ketoconazole, cyclosporine, itraconazole, tacrolimus and dronedarone. Use with **caution** if co-administered with mild to moderate P-gp inhibitors such as amiodarone, quinidine, verapamil, & ticagrelor. Co-administration with P-gp inducers such as rifampicin, St John's Wort, carbamazepine or phenytoin) should be avoided. SSRIs and SNRIs increased the risk of bleeding in RE-LY in all treatment groups. Concomitant administration with any other anticoagulants **contraindicated**. Consult the SPC for full details of interactions.	**Drug-food interactions** There are no known food interactions. **Drug-drug interactions** **Not recommended** with concomitant systemic administration of strong inhibitors of both CYP3A4 and P-gp, such as ketoconazole, itraconazole, voriconazole, posaconazole or ritonavir. Strong inducers of both CYP3A4 and P-gp (such as rifampicin, phenytoin, carbamazepine, phenobarbital or St John's Wort) should be co-administered with **caution**. Concomitant administration with any other anticoagulants **contraindicated**. Consult the SPC for full details of interactions

	First Line	Second line – rivaroxaban is considered second line on the basis of cost - clinical evidence shows no other compelling differences		
	Warfarin	**Rivaroxaban**	**Dabigatran**	**Apixaban**
Contraindications	• Known hypersensitivity to warfarin or any excipients • Haemorrhagic stroke • Clinically significant bleeding • Within 72 hours of major surgery with risk of severe bleeding • Within 48 hours postpartum • Pregnancy (first and third trimesters) • Drugs where interactions may lead to a significantly increased risk of bleeding	• Hypersensitivity to the active substance or any excipients. • Active clinically significant bleeding. • Concomitant treatment with any other anticoagulant • Hepatic disease associated with coagulopathy and clinically relevant bleeding risk including cirrhotic patients with Child Pugh B and C • Pregnancy and breast feeding.	• Hypersensitivity to the active substance or any excipients. • Severe renal impairment (CrCL < 30 mL/min). • Active clinically significant bleeding. • Any lesion or condition considered a significant risk factor for bleeding. • Concomitant treatment with any other anticoagulant • Hepatic impairment or liver disease expected to have any impact on survival. • Concomitant treatment with systemic ketoconazole, cyclosporine, itraconazole, tacrolimus, dronedarone. • Prosthetic heart valves requiring anticoagulant treatment.	• Hypersensitivity to the active substance or any excipients. • Active clinically significant bleeding. • Hepatic disease associated with coagulopathy and clinically relevant bleeding risk. • Any lesion or condition considered a significant risk factor for bleeding. • Concomitant treatment with any other anticoagulant
When should it be avoided?	Intolerance to warfarin including allergy, rash, side effects likely to result in discontinuation of therapy (other than bleeding complications) e.g. severe alopecia (although acenocoumarol may be a suitable alternative in these patients). Demonstrated unmanageable warfarin control e.g. due to long term interacting drug therapy (INR persistently and significantly above or below range that does not respond to dose titration) Demonstrated impossibility of monitoring arrangements	**AVOID** in patients with a history of poor medication adherence. Rivaroxaban is **not** a suitable alternative to warfarin in patients with bleeding complications associated with warfarin treatment, contraindications to warfarin therapy due to a high bleeding risk, alcohol abuse, drug overdose or trivial side effects related to warfarin.	**AVOID** in patients with a history of poor medication adherence. Dabigatran is **not** stable in compliance aids such as blister packs. Dabigatran is **not** a suitable alternative to warfarin in patients with bleeding complications associated with warfarin treatment, contraindications to warfarin therapy due to a high bleeding risk, alcohol abuse, drug overdose or trivial side effects related to warfarin.	**AVOID** in patients with a history of poor medication adherence. Apixaban is **not** a suitable alternative to warfarin in patients with bleeding complications associated with warfarin treatment, contraindications to warfarin therapy due to a high bleeding risk, alcohol abuse, drug overdose or trivial side effects related to warfarin.

Appendix 2

Starting Warfarin in AF

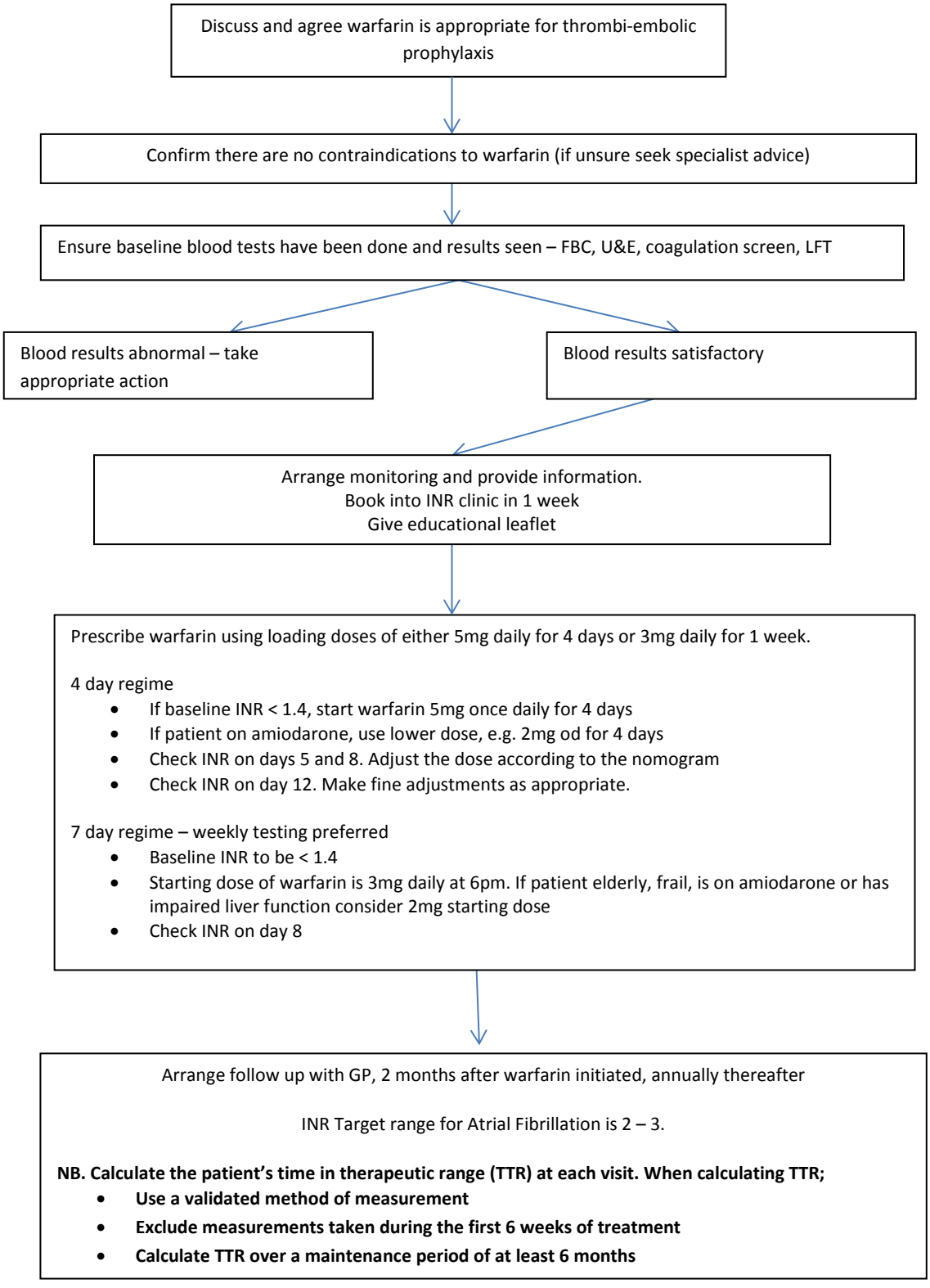


Chart 1. Nomogram for 5mg warfarin induction

NB. If a lower loading dose is used then this nomogram is no longer valid. Doses predicted by the nomogram will need to be reduced accordingly (i.e. for 2mg regime, reduce predicted dose by 60%)

Day 5 INR	Dose (day 5 – 7)	Day 8 INR	Dose (from day 8)
< 1.7	5mg	**<1.7**	6mg
		1.8 – 2.4	5mg
		2.5 – 3.0	4mg
		> 3.0	3mg for 4 days
1.8 – 2.2	4mg	**<1.7**	5mg
		1.8 – 2.4	4mg
		2.5 – 3.0	3.5mg
		3.1 – 3.5	3mg for 4 days
		> 3.5	2.5mg for 4 days
2.3 – 2.7	3mg	**<1.7**	4mg
		1.8 – 2.4	3.5mg
		2.5 – 3.0	3mg
		3.1 – 3.5	2.5mg for 4 days
		>3.5	2mg for 4 days
2.8 – 3.2	2mg	**<1.7**	3mg
		1.8 – 2.4	2.5mg
		2.5 – 3.0	2mg
		3.1 – 3.5	1.5mg for 4 days
		>3.5	1mg for 4 days
3.3 – 3.7	1mg	**<1.7**	2mg
		1.8 – 2.4	1.5mg
		2.5 – 3.0	1mg
		3.1 – 3.5	0.5mg for 4 days
		>3.5	Omit for 4 days
>3.7	0mg	**<2**	1.5mg for 4 days
		2.0 – 2.9	1mg for 4 days
		3.0 – 3.5	0.5mg for 4 days
		>3.5	Omit for 4 days

Chart 2. Nomogram for 7 day regime

Day	INR	Starting dose 3mg of warfarin	
1 - 7		3mg	
8 -14	< 1.4	**6mg – see below**	
	1.4 – 1.5	5mg	
	1.6 – 1.8	4mg	
	1.9 – 2.1	3mg	
	2.2 – 2.5	2.5mg	
	2.6 – 2.7	2mg	
	2.8 – 3.0	Omit 1 – 2 days: reduce to 1mg	
	>3.0	stop	Recheck in 3 – 5 days: restart at 1mg if settled and warfarin definitely indicated
15		**For patients requiring 6mg on days 8 – 14 follow table below for 3rd week** If INR is within range (2 – 3) continue same dose If INR is <2 or >3, then follow standard dosing regime.	

Chart 3. Guide for patients requiring 6mg on days 8 to 14

Day 15	<1.4	10mg	Unusual, check adherance, medication, etc
	1.4 – 1.6	8mg	
	1.7 – 1.8	7mg	
	1.9 – 2.4	6mg	
	2.5 – 2.9	5mg	
	3 – 4	4mg	Consider omitting 1 – 2 days
	4.1 – 5	Omit 2 days, Reduce dose by 1 – 2mg	Check doses taken
	>5		Manage as per high INR

The protocol is only valid if the patient has taken 7 days warfarin before the day 8 INR. One should be aware of early tests e.g. day 5 or day 6 as the dose may be seriously overestimated.

Appendix 3

Initiation of NOACS in AF