

**MANAGEMENT OF ANTICOAGULATION IN PATIENTS REQUIRING  
GYNAECOLOGY SURGERY**

**THIS IS A CONTROLLED DOCUMENT**

The only Valid Version is stored in the Policies, Procedures and Guidelines  
Intranet Site

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<b>Grade of Change</b>	Minor Revision
<b>Summary of Changes</b>	

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<b>Coverage</b>	

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<b>Responsible Committee</b>	Anaesthetic Clinical meeting

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## 1. Contacts

Advice for elective patients: Haematology secretary in RLUH.  
Emergency or urgent advice, Haematology SPR in RLUH.  
Community anticoagulation service for patients under community care. For Liverpool, contact Liverpool Anticoagulant Service 0151 247 6066

## 2. Principles

Perioperative management of anticoagulant medication involves balancing the risk of bleeding against the risk of thrombosis. This will differ between patients. Bleeding risk is related to the planned surgical procedure. Most operations performed in this Trust carry a significant risk of bleeding. This includes hysteroscopy as this might proceed to a biopsy or a polypectomy. In order to assess thrombotic risk, the indication for anticoagulation should be ascertained. Complex patients may require discussion between anaesthetist, surgeon, haematologist

## 3. Antiplatelet agents

Aspirin / Clopidogrel: Stop 7-9 days before surgery  
Dipyridamole: Stop 24hrs before surgery

NB: Patients with coronary stents / previous acute coronary syndrome / previous PCI / stroke or TIA with carotid disease are at high risk of stopping antiplatelet drugs and these should be discussed with an anaesthetist and / or cardiologist.

## 4. Management of patients on warfarin requiring planned surgery: Who needs bridging anticoagulation?

### a) Prosthetic heart valves

High risk	<ul style="list-style-type: none"><li>• Recent stroke or TIA (within 6 months)</li><li>• All mitral valves</li><li>• Caged-ball (Starr-Edwards) or single-leaflet tilting disc (Bjork-Shiley, Medtronic-Hall/Omnicarbon valve) aortic valve</li></ul>	Bridging strongly recommended
Moderate risk	<ul style="list-style-type: none"><li>• Bileaflet tilting disc aortic valve (St Jude/Carbomedics valve)</li><li>• AND <math>\geq 1</math> stroke risk factors *</li></ul>	Bridging should be considered
Low risk	<ul style="list-style-type: none"><li>• Bileaflet tilting disc aortic valve without atrial fibrillation and no other risk factors for stroke*</li></ul>	Bridging is optional

\*Stroke risk factors : atrial fibrillation, previous stroke/TIA, congestive heart failure, age >75, hypertension, diabetes mellitus

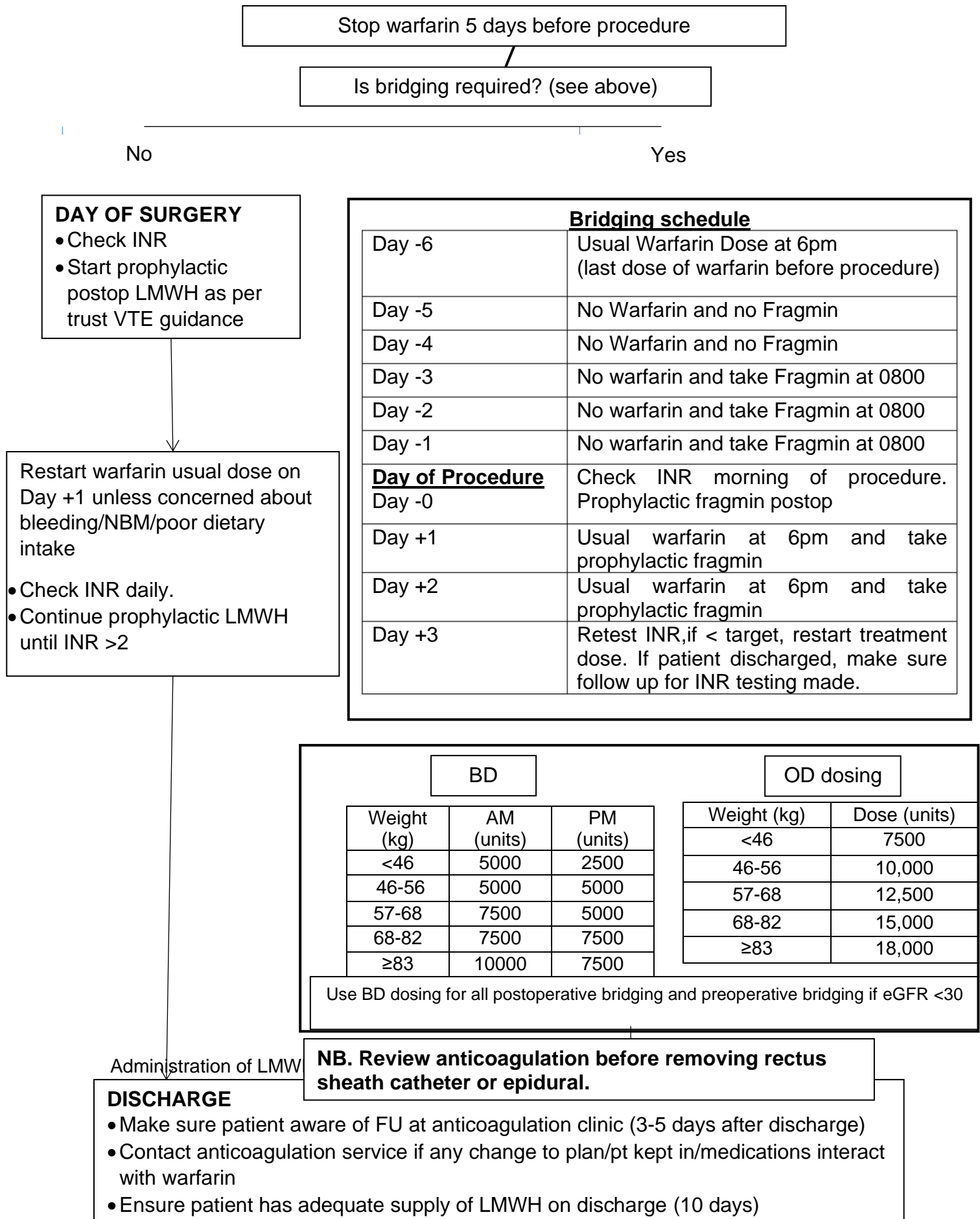
### b) Atrial fibrillation

High risk	<ul style="list-style-type: none"> <li>Recent stroke or TIA (within 3 months)</li> <li>Rheumatic heart disease</li> </ul>	Bridging strongly recommended
Moderate risk	<ul style="list-style-type: none"> <li>CHADS<sub>2</sub> score 5 or 6**</li> <li>Previous stroke or TIA &gt;3 months ago</li> </ul>	Bridging should be considered
Low risk	<ul style="list-style-type: none"> <li>CHADS<sub>2</sub> score less than 5**</li> </ul>	Bridging rarely necessary
**CHADS <sub>2</sub> : Congestive heart failure/left ventricular dysfunction (1 point), Hypertension (1 point), Age >75 (1 point), Diabetes mellitus (1 point), previous Stroke/TIA (2 points)		

### c) History of venous thromboembolism(VTE)

High risk	<ul style="list-style-type: none"> <li>Recent (within 3 months) episode of VTE</li> <li>Severe thrombophilia***</li> </ul>	Bridging strongly recommended
Moderate risk	<ul style="list-style-type: none"> <li>VTE within past 3 to 12 months</li> <li>Heterozygous factor V Leiden mutation, prothrombin gene mutation</li> <li>Recurrent VTE</li> <li>Active cancer (treated within 6 months or palliative)</li> </ul>	Bridging should be considered
Low risk	<ul style="list-style-type: none"> <li>Single VTE &gt;12 months ago AND no other risk factors</li> </ul>	Bridging rarely necessary
***Deficiency of protein C or S or antithrombin, antiphospholipid antibodies, multiple abnormalities		

## 5. Management of the patient on warfarin for Elective surgery



- Housebound patients : refer to district nurses
- Sharps boxes should be prescribed for patients self-injecting

#### Monitoring

- Check baseline platelets after 5-10 days of starting LMWH & regularly thereafter
- Signs of HIT (30%↓ in platelet levels, thrombosis or skin allergy)
- Please see Appendix 2 for Prescribing pathway

## 6. Management of patients on DOACs for Elective Surgery

- As above, all patients should be treated as high risk
- No need for pre-operative bridging while effect of DOAC is wearing off

<b>Patients on DOAC</b>	
<b><u>DOAC</u></b> <b><u>schedule</u></b>	
Day -3	Last dose DOAC*
Day -2	No DOAC, no Fragmin
Day -1	No DOAC, no Fragmin
<b><u>Day _____ of</u></b> <b><u>Procedure</u></b> Day 0	No DOAC, Prophylactic Fragmin
Day +1	No DOAC, Prophylactic Fragmin**
Day +2	No DOAC, Prophylactic Fragmin
Day +3	Check U&E, restart DOAC at appropriate dose for new renal function and indication if low bleeding risk

\*If on DABIGATRAN and eGFR < 30, stop on day -4 before surgery

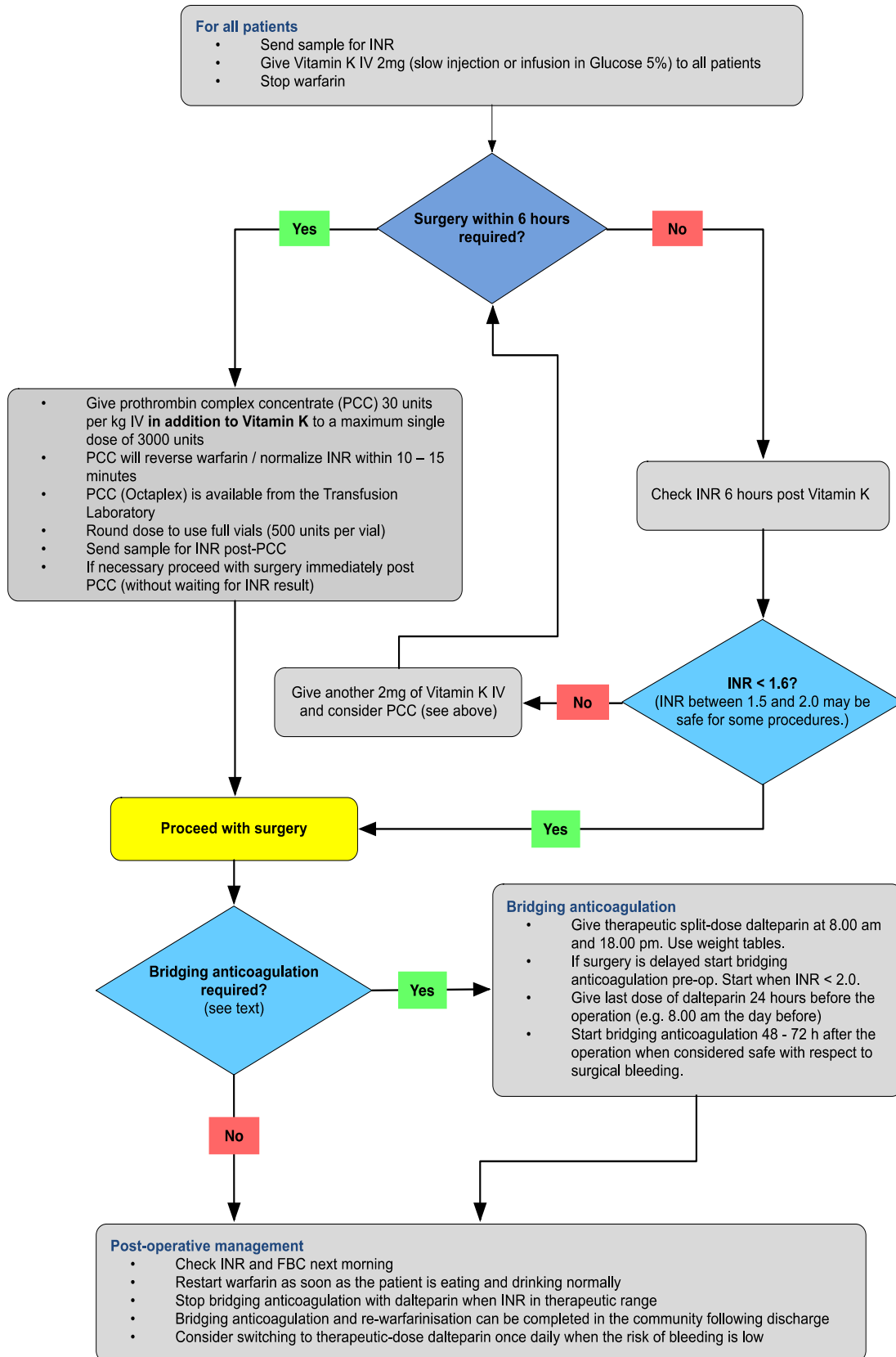
\*\* If very low risk (eg hysteroscopy without biopsy), consider restarting DOAC on day +1  
DO NOT COMBINE OR CROSS COVER LMWH and DOACs

If patient is NBM or there are concerns please discuss the anticoagulation treatment of the individual patient with anaesthetists/haematologist

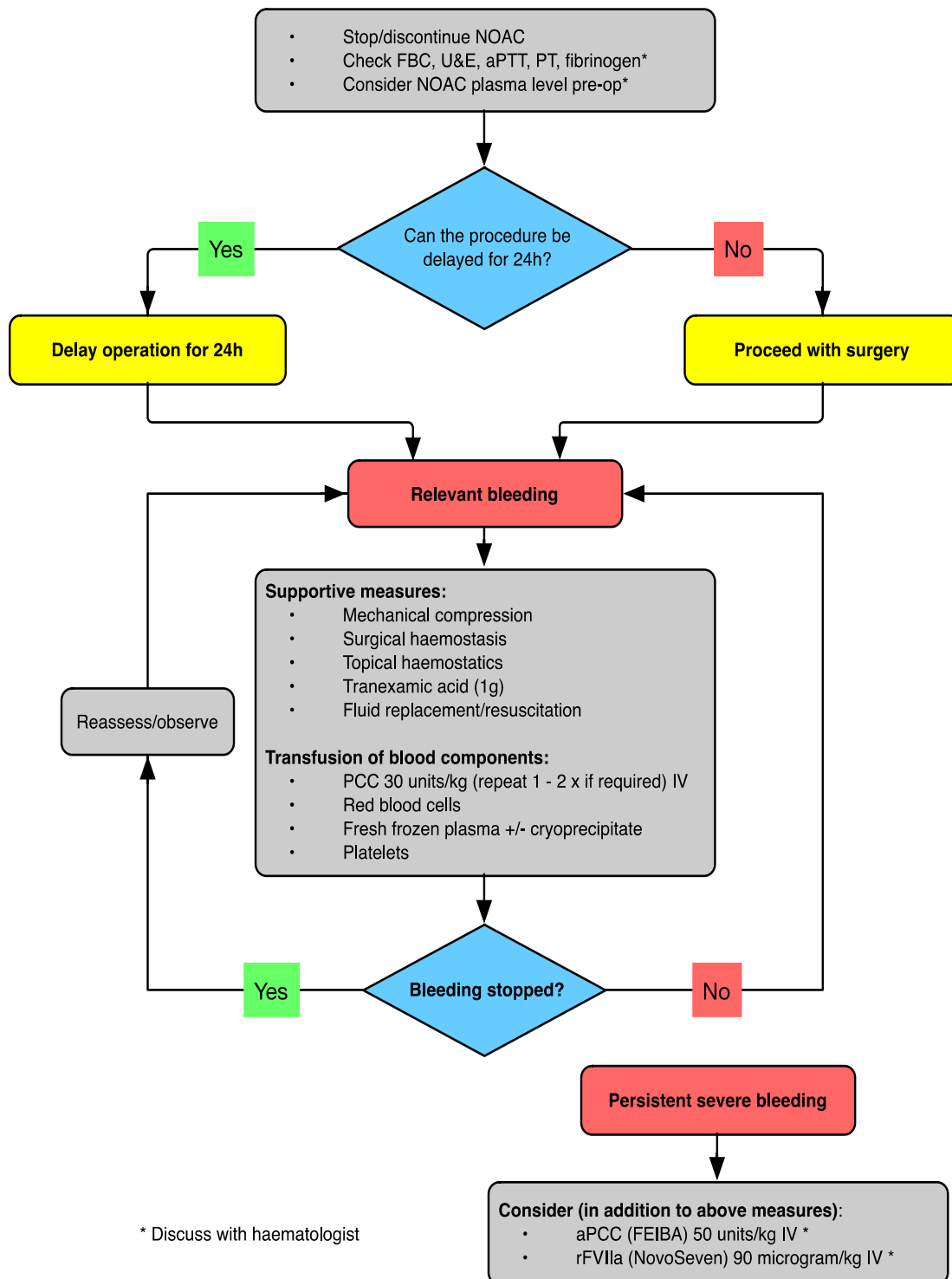
### Monitoring

- There is no need to check the anti-Xa activity or routine anticoagulation assays preoperatively

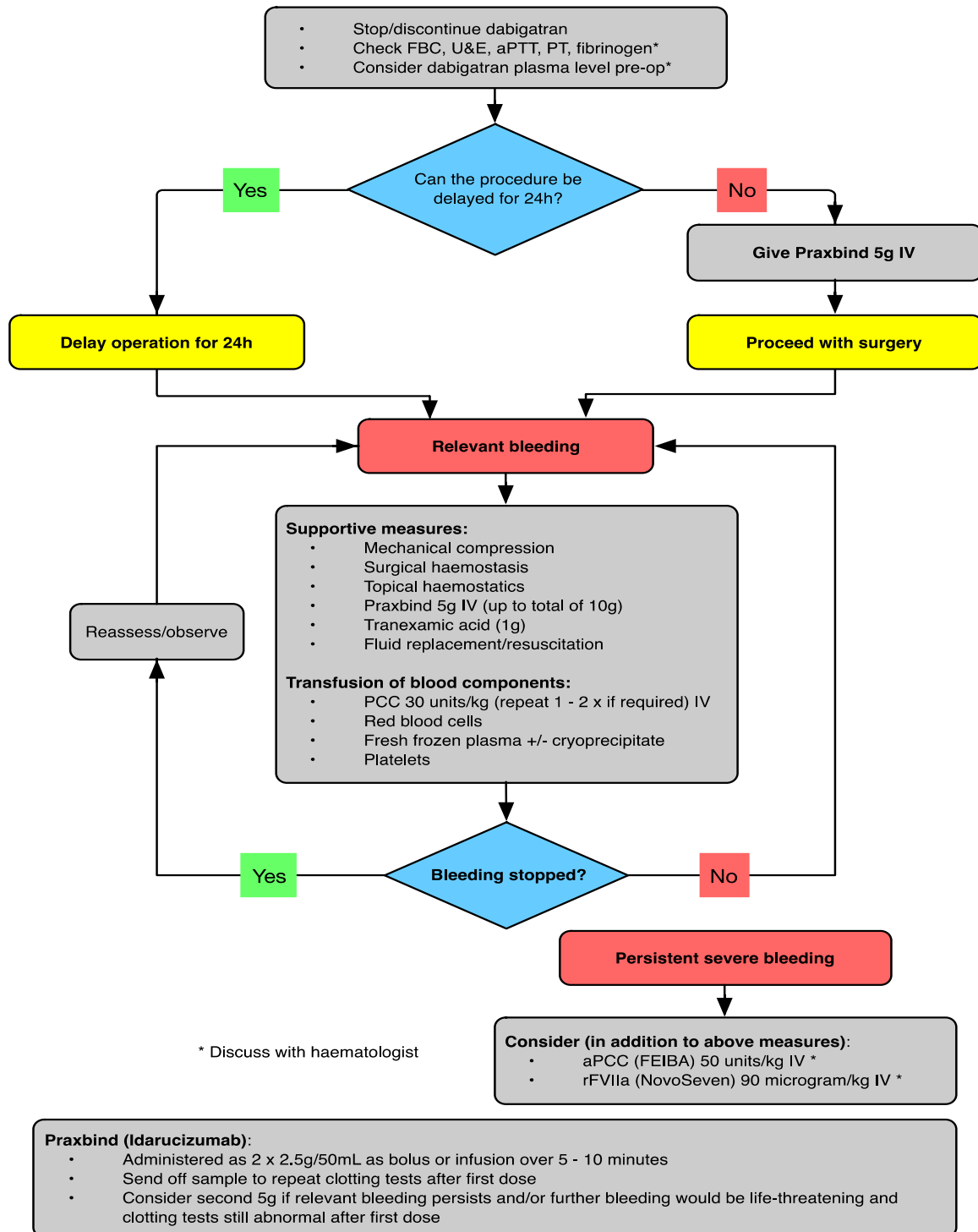
## 7. Management of patients on warfarin requiring urgent surgery (Discuss with haematologist)



## 8. Management of patients taking apixiban, rivaroxaban or edoxaban requiring urgent surgery (Discuss with haematologist)



## 9. Management of patients taking dabigatran requiring urgent surgery (Discuss with haematologist)



## Urgent Reversal of Anticoagulation: Principles

- Sections 7, 8 and 9 are included for information only and reversal agents may not be available on site at LWH.
- Early discussion with the haematologist at RLUH is required.
- DOAC have a relatively short half-life and duration of action. Delaying the procedure would therefore reduce the risk of bleeding.
- Clinicians need to balance the risk of bleeding against the risk of patient deterioration due to delayed surgery.

## 10. References

- 2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management. The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA) *European Heart Journal* (2014) 35, 2383–2431
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- Perioperative Bridging Anticoagulation in Patients with Atrial Fibrillation. James D. Douketis, M.D., Alex C. Spyropoulos, M.D., Scott Kaatz, D.O., Richard C. Becker, M.D., Joseph A. Caprini, M.D., Andrew S. Dunn, M.D., David A. Garcia, M.D., Alan Jacobson, M.D., Amir K. Jaffer, M.D., M.B.A., David F. Kong, M.D., Sam Schulman, M.D., Ph.D., Alexander G.G. Turpie, M.B., Vic Hasselblad, Ph.D., and Thomas L. Ortel, M.D., Ph.D. for the BRIDGE Investigators\* *N Engl J Med*. 2015 August 27; 373(9): 823–833. doi:10.1056/NEJMoa1501035

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## 11. Auditable Standards

- For patients on warfarin preoperatively, 100% of patients should have warfarin stopped at the correct time and bridging anticoagulation given if required.
- For patients taking DOACs preoperatively, 100% of patients should have the DOAC stopped at the correct time.
- For patients taking antiplatelet medication preoperatively, 100% of patients should have these stopped at the correct time.
- For 100% of patients who were taking anticoagulant medications preoperatively, these drugs should be re-started postoperatively at the correct time.

## 12. Consultation and Ratification Process

Guideline with be consulted and ratified within the Anaesthetic Clinical meeting

## 13. Intranet Classification

<b>Tags (separated by ;)</b>	Anticoagulation; perioperative; warfarin; DOACs; aspirin; apixiban; rivaroxaban; edoxaban;
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## 14. Version Control Sheet

Version	Date	Author	Status	Comment
5.0	Aug 2022	Tamilselvi Ramanathan Consultant Anaesthetist	Current	No changes required review date changed to 3 yearly
4.3	June 2019	Tamilselvi Ramanathan Consultant Anaesthetist	Archived	Bridge Therapy Pathway include as Appendix 2
4.2	Jan 2018	Tamilselvi Ramanathan Consultant Anaesthetist	Archived	

## Appendix 1: Procedure Bridging Plan (Patient Copy)

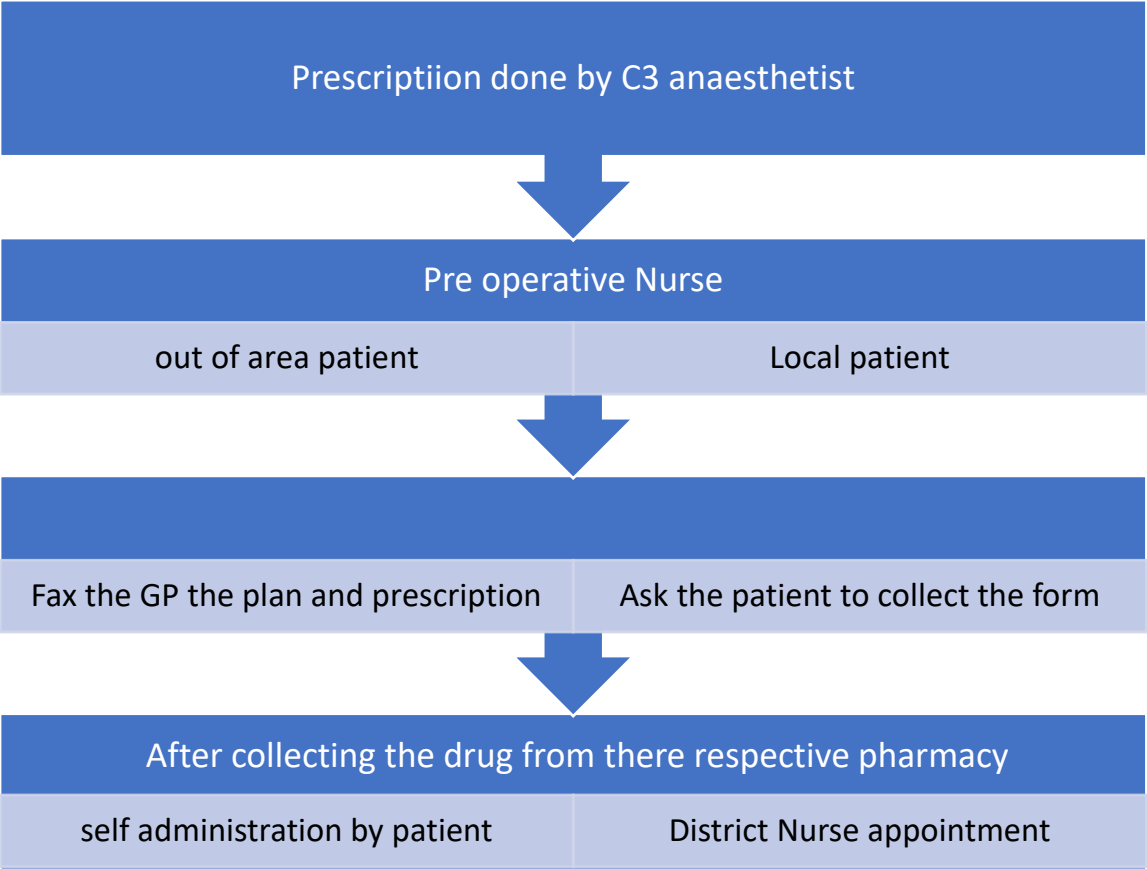
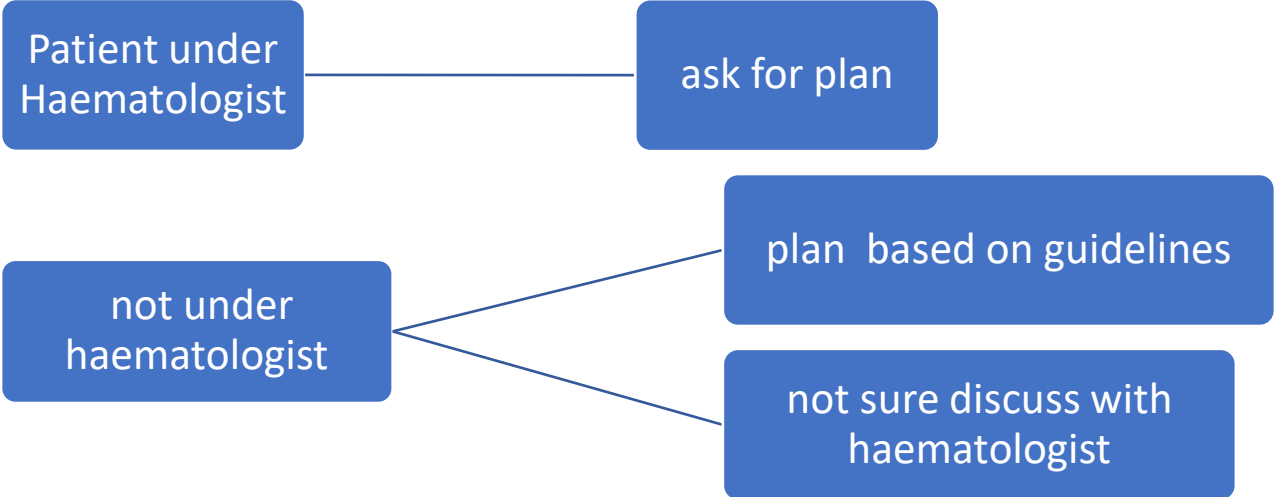
Name	
Address	
Date of Birth	
NHS Number/Unit number	
Diagnosis and target INR	
Weight and Fragmin dose dose/kg	

DATE	DAY BEFORE SURGERY		DOSE
	Day -6	Usual Warfarin Dose at 6pm (last dose of warfarin before procedure)	
	Day -5	No Warfarin and no Fragmin	
	Day -4	No Warfarin and no Fragmin	
	Day -3	No warfarin and take Fragmin at 0800	
	Day -2	No warfarin and take Fragmin at 0800	
	Day -1	No warfarin and take Fragmin at 0800	
	<b><u>Day _____ of Procedure</u></b> Day -0	Check INR morning of procedure. Prophylactic fragmin	
	Day +1	Usual warfarin at 6pm and take prophylactic fragmin	
	Day +2	Usual warfarin at 6pm and take prophylactic fragmin	
	Day +3	Retest INR, if < target, restart treatment dose. If patient discharged, make sure follow up for INR testing made.	

Please see appendix 2 for Prescribing Pathway

**BRIDGING THERAPY PATHWAY**

*PLAN & PRESCRIPTION*



## 15. Monitoring Compliance with the Guideline

Audit outcomes	Target	How will the audit outcomes be Monitored?	Responsible committee for monitoring audit outcomes and action plans	Frequency of guideline monitoring	Frequency of action plan monitoring	Lead
For patients on warfarin preoperatively, 100% of patients should have warfarin stopped at the correct time and bridging anticoagulation given if required.	100%	Departmental audit	Anaesthetic Clinical Meeting	After 1 year then 3 yearly	After each audit cycle	Anaesthesia Clinical Audit Lead
For patients taking DOACs preoperatively, 100% of patients should have the DOAC stopped at the correct time.	100%	Departmental audit	Anaesthetic Clinical Meeting	After 1 year then 3 yearly	After each audit cycle	Anaesthesia Clinical Audit Lead
For patients taking antiplatelet medication preoperatively, 100% of patients should have these stopped at the correct time.	100%	Departmental audit	Anaesthetic Clinical Meeting	After 1 year then 3 yearly	After each audit cycle	Anaesthesia Clinical Audit Lead
For 100% of patients who were taking anticoagulant medications preoperatively, these drugs should be re-started postoperatively at the correct time.	100%	Departmental audit	Anaesthetic Clinical Meeting	After 1 year then 3 yearly	After each audit cycle	Anaesthesia Clinical Audit Lead