Capsule summary adopted from the American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

1 Evaluate the thromboembolic risk and hemorrhagic risk of the individual patients

2 Consider temporary cessation of the drug in procedures that carry a significant risk of bleeding

3 Low thromboembolism and bleeding risk
   Warfarin may be continued with relatively low INR 1.5–1.8 for minor procedures

4 For high bleeding risk with low-thromboembolism-risk group
   Warfarin can be withheld for 5 days before surgery without any bridging anticoagulation with unfractionated or low molecular weight heparin

5 High-thromboembolism-risk patients
   Generally such patients should be considered for a more aggressive perioperative management strategy with bridging therapy

6 As compared with warfarin, patients on NOACs are less likely to require bridging therapy due to their short half-life

ANTIPATELET AGENTS

1 Use of DAPT following percutaneous coronary procedures and following acute coronary syndrome are common

2 Current recommendations for DAPT range from 4 weeks in patients undergoing elective stenting with bare metal stents to up to 12 months in patients with drug-eluting stents or patients undergoing coronary stenting for acute coronary syndrome

3 Low-dose aspirin alone does not substantially increase the risk of clinically important bleeding after invasive procedures and can usually be continued during surgery

4 If a patient is to undergo high-bleeding-risk surgery and an antiplatelet effect is not desired, clopidogrel, prasugrel and ticagrelor should be discontinued 5–7 days prior to the procedure

5 Early, effective communication between GPs and specialists is useful in managing high-risk patients on anticoagulant/antiplatelet agents during the perioperative periods
Figure 1. Peri-Operative Management of Warfarin-Treated Patients Before and After Surgery/Procedure

Is surgery an elective or emergency/urgent?

Elective

Is warfarin interruption needed in patients who are undergoing elective surgery?

No

Bleeding risk associated with procedure is very low or low

No need to stop warfarin before surgery or procedure

Yes

Bleeding risk associated with procedure is intermediate or high

Is bridging anticoagulation needed during warfarin interruption?

No

Patient at low risk for thromboembolism (suggest not bridging)

Day -5: stop warfarin (last dose on Day -6)
Day -4: INR testing (if INR >1.5, administer vitamin K 1.0 to 2.0 mg orally)
Day -3: start intravenous UFH or subcutaneous LMWH
Day -2: resume warfarin on evening after surgery if patient drinking fluids
Day +1 to +3: resume warfarin when patient drinking fluids

Yes

Patient at intermediate or high risk for thromboembolism (bridging suggested in high-risk, possibly in intermediate-risk)

Day -5: stop warfarin (last dose on Day -6)
Day -3: start intravenous UFH or subcutaneous LMWH
Day -1: INR testing (if INR >1.5, administer vitamin K 1.0 to 2.0 mg orally); stop LMWH on the morning before surgery (omit evening dose with BID dosing; reduce total daily dose by 50% with OD dosing)
Day 0: stop UFH 4 hours before surgery; assess post-operative surgical site hemostasis; resume warfarin on evening after surgery if patient drinking fluids
Day +1 to +3: resume UFH or LMWH when hemostasis secured and not earlier than 12 hours after surgery; resume warfarin when patient drinking fluids
Day +5 to +8: stop UFH or LMWH when INR therapeutic
Post-Operative Resumption of Bridging Anticoagulation

- **High-Risk Bleeding Procedure:**
  - Therapeutic-dose LMWH/UFH, starting 48-72 hours after surgery
  - *Alternate management:* low-dose LMWH, starting 12-24 hours after surgery (i.e. day after surgery) or resume warfarin alone with no post-operative LMWH/UFH

- **Moderate-Risk Bleeding Procedure:**
  - Therapeutic-dose LMWH/UFH, starting 24-48 hours after surgery

- **Low-Risk Bleeding Procedure:**
  - Therapeutic-dose LMWH/UFH, starting 12-24 hours after surgery (i.e. day after surgery).