

## Drugs to Omit or Continue in the Peri-Operative Period

- ☐ Patients may be labelled 'Nil by Mouth' for several reasons; unconsciousness, pre or post surgery, to rest the gut. They may also develop an intolerance of oral medicines at any time often because of nausea or vomiting.
- ☐ It is not appropriate to simply omit an oral medicine without first clarifying the instruction with the relevant team. It might be appropriate to give the oral medicine via another route or to change to an alternative product.
- ☐ When changing the route of administration of a drug care should be taken to ensure that the appropriate dose and frequency is prescribed, as these may not be the same as for the oral route.
- ☐ Patients are at risk of aspirating their stomach contents during general anaesthesia. They are therefore usually prevented from eating from 6 hours pre-surgery. However, clear fluids leave the stomach within 2 hours of ingestion and so free clear fluids that enable a patient to take routine medication, may be allowed up to 2 hours pre-surgery.
- ☐ There are a few significant interactions between drugs used during surgery and routine medications that require the drugs not to be administered concurrently. This is usually managed by the anaesthetist, by their choice of anaesthetic technique.

### **Significant interactions:**

Enflurane may precipitate seizure activity in patients taking tricyclic antidepressants  
Pethidine may precipitate fatal 'excitatory' reactions in patients taking MAOI and may cause serotonin syndrome in patients taking SSRI's.  
Suxemethonium effects may be prolonged by neostigmine

### **Adjustment to routine medication during the peri-operative period**

Routine medicines should wherever possible, be reviewed prior to surgery for:

1. Medicines that should be continued throughout the peri-operative period to prevent relapse of the treated condition or to avoid the effects of drug withdrawal.
2. Medicines that should be withheld before surgery to reduce the risks that they may impose upon the procedure.

<b>ACE Inhibitors</b> E.g. captopril, enalapril, fosinopril, lisinopril, ramipril, trandolapril	Evidence for continuing or withholding ACE Inhibitors in the peri-operative period is limited. Hypertensive patients on ACE Inhibitors may have a higher risk of hypotension on induction of anaesthesia. These patients may have an increased requirement for sympathomimetics post surgery <sup>1, 8</sup> . If it is decided to omit ACE inhibitors in a patient with CCF, fluid intake should be restricted and the patient should be monitored for development of CCF <sup>8, 12</sup> . If omitted, the long acting drugs (enalapril, lisinopril, ramipril, trandolapril, perindopril) should be omitted for 24 hours prior to surgery <sup>2</sup> .
<b>Alpha-blockers</b> E.g doxazosin	Continue in the peri-operative period to prevent the development of hypertension <sup>1</sup> .
<b>Analgesics</b>	Chronic analgesic therapy is usually continued in the perioperative period <sup>6</sup> . Post-operative analgesic requirements are additional to the patient's chronic pain. Ensure the anaesthetist and the Acute Pain Team are aware of the patient's chronic analgesia, including transdermal opioids (buprenorphine and fentanyl) that may be in situ prior to admission to the ward.
<b>Angiotension II receptor blockers</b> E.g valsartan, irbesartan, losartan, candesartan	Limited information, if Angiotension II receptor blockers are continued, this should be done with care and discussed with the anaesthetist <sup>2</sup> . If it is decided to stop, suspend for at least one dosage interval before surgery.
<b>Anti-Anginal</b> E.g. nicorandil, isosorbide mononitrate, isosorbide dinitrate	Continue therapy in the peri-operative period <sup>1, 6</sup> . Monitor for hypotension in the peri-operative period.
<b>Anti-Arrhythmics</b> E.g. amiodarone, digoxin, disopyramide, flecainide, verapamil	Anti-arrhythmic drugs should be continued so as to prevent a relapse of the arrhythmia <sup>1, 6</sup> . Digoxin, amiodarone and verapamil can be given by injection if the patient is 'nil by mouth' for a prolonged period of time (consult the pharmacy for dosing information). Amiodarone can be safely omitted for a few days, as it has a very long half-life. If a patient is experiencing nausea and vomiting post-operatively and he/she takes digoxin, check his/her digoxin levels as he/she may have digoxin toxicity rather than post-op. nausea & vomiting.

<p><b>Anticoagulants</b> E.g. warfarin, phenindione, acenocoumarol (nicoumalone)</p> <p><b>SEE APPENDIX 1 FOR INDIVIDUAL CONSULTANT PREFERENCES</b></p>	<p>Patients on warfarin are at increased risk of peri-operative thromboembolism if warfarin is stopped and at increased risk of bleeding if it is continued. Oral anticoagulants increase the risk of bleeding complications and should, ideally, be stopped 3-4 days before surgery to allow the INR to fall below 1.5<sup>1</sup>. Continue anticoagulation with LMWH or heparin, as appropriate. Either a prophylactic dose for thromboembolism or a full treatment dose may be given, depending on the indication for anticoagulation.</p> <p>Speak to Haematology if in doubt whether a therapeutic dose or prophylactic dose of heparin/ LMWH is appropriate for the patient. If it is not possible to stop oral anticoagulation, the effects can be reversed with low dose Vitamin K or FFP.</p>
<p><b><u>New oral anticoagulants</u></b> Dabigatran Rivaroxaban Apixaban</p>	<p>Discontinuing NOACs places the patient at an increased risk of thrombosis and continuing therapy increases the risk of bleeding.</p> <p>Dabigatran – renal function dependant: stop 48 hours pre-op if eGFR &gt; 50mls/min, stop 96 hours pre-op if eGFR &lt; 50mls/min<sup>31</sup></p> <p>Rivaroxaban stop at least 24 hours pre-op<sup>32</sup></p> <p>Apixaban stop at least 48 hours pre-op<sup>33</sup></p> <p>Restart as soon as possible provided the clinical situation allows and adequate haemostasis has been established.</p>
<p><b>Anti-Epileptics</b> E.g. phenytoin, carbamazepine, sodium valproate, gabapentin, lamotrigine.</p>	<p>Anti-epileptics should be continued, since abrupt withdrawal may precipitate fitting<sup>1,6</sup>. Epileptic patients may have reduced requirements for general anaesthesia<sup>12</sup>. Alternative routes of administration are available if the patient is nil by mouth for a prolonged period of time (check dosing information with pharmacy as the dose may vary depending on route of administration).</p>
<p><b>Anti-Parkinsonian Drugs</b> E.g. cabergoline, madopar, sinemet, selegiline</p>	<p>There is a small risk of arrhythmias or hypertension during anaesthesia in these patients <sup>1</sup>. However, the drugs should not be withheld as these arrhythmias are treatable with IV <math>\beta</math>-blockers. Withdrawal of these medications will be accompanied by the return of the symptomatology of Parkinsonism and has been associated with a neuroleptic malignant syndrome<sup>12</sup>. These drugs should therefore be continued wherever possible. The anaesthetist should be informed if the patient takes <b>selegiline</b> (MAO-B inhibitor), as this interacts with pethidine and tramadol. If selegiline is continued, a “MAOI safe anaesthetic” technique is essential.</p>

	<p>Procyclidine can be given by injection to relieve rigidity and tremor if the patient is unable to take oral medication after surgery. The anti-emetics of choice in Parkinson's disease are ondansetron and domperidone, as they avoid antagonism with the patient's Parkinson's medicines.</p> <p>Avoid metoclopramide and prochlorperazine<sup>1</sup>.</p>
<p><b>Anti-Platelet Drugs</b> E.g. low dose aspirin, dipyridamole, clopidogrel</p> <p><b>SEE APPENDIX 1 FOR INDIVIDUAL CONSULTANT PREFERENCES</b></p>	<p>Clopidogrel should be stopped 7 days before surgery<sup>27</sup></p> <p>In general, aspirin should be stopped when the risks of postoperative bleeding are high or where the consequences of even minor bleeding are significant (e.g. retinal surgery, TURP, and intracranial surgery). This must be balanced against the risk of precipitating thromboembolic complications such as a coronary event, TIA or stroke if these agents are stopped<sup>8</sup>. If aspirin is to be stopped, this is generally done 5-7 days before surgery to allow recovery of adequate platelet function<sup>2</sup>. It is not usually necessary to stop dipyridamole prior to surgery, but if complete absence of anti-platelet effect is desired, then it should be stopped 24 hours before surgery<sup>8</sup>. In patients having a TURP, anti-platelet agents are recommenced 1 week post-op<sup>8</sup>. In all other patients, anti-platelets should restart once the patient is tolerating a normal diet and the risk of bleeding has decreased<sup>8</sup>.</p>
<p><b>Anti-Psychotics and Anxiolytics</b> E.g. diazepam, chlorpromazine, clozapine, sulpiride.</p>	<p>These agents are continued to avoid a relapse of their condition<sup>6</sup>. Antipsychotics may reduce anaesthetic requirements and potentiate arrhythmias<sup>1</sup>. The exception is <b>Clozapine</b> which should be stopped 12 hours before surgery. If a patient is unable to take their Clozapine for more than 2 days, the drug must be gradually re-titrated up from the starting dose (12.5mg 1-2 times a day), rather than restarting at their normal dose<sup>9</sup>. Contact Pharmacy for advice</p>
<p><b>Anti-Thyroid drugs</b> E.g. carbimazole.</p>	<p>Continue in the peri-operative period<sup>6</sup></p>
<p><b>Anti –TNF Drugs</b> E.g. infliximab, etanercept, adalimumab</p>	<p>Treatment with infliximab, etanercept and adalimumab should be withheld for 4 weeks prior to major surgical procedures. Treatment may be restarted post-operatively if there is no evidence of infection and once the wound has healed satisfactorily<sup>11</sup>.</p>
<p><b>Asthmatic/ COPD (tablets)</b> E.g theophylline, aminophylline</p>	<p>Continue therapy in the peri-operative period to avoid worsening of the patient's respiratory function<sup>1, 6</sup>. If the patient is NBM for a long period of time, their oral aminophylline or theophylline could be substituted for IV aminophylline. Consult Pharmacy for dosing information.</p>

<b>Beta-Blockers</b> E.g. atenolol, bisoprolol, metoprolol, sotalol.	β- blockers should be continued in the peri-operative period. In patients with hypertension, anaesthesia and surgery may provoke tachycardia and increase blood pressure. β-blockers may help to suppress these effects and are therefore continued perioperatively <sup>1</sup> . β-blockers decrease morbidity, peri-operative complications (hypertension, AF, TIA and stroke) and mortality <sup>8</sup> .Abrupt withdrawal is a problem with β-blockers and withdrawal symptoms (tachycardia, nervousness, exacerbation of myocardial ischaemia, arrhythmia and sudden death) may occur after 12 – 72 hours after being stopped <sup>2</sup> . 8,12*
<b>Calcium channel blocker</b> E.g amlodipine, nifedipine. diltiazem	These agents should be continued in the peri-operative period <sup>12</sup> . Caution should be taken if the patient has left ventricular dysfunction (ejection fraction<40%) <sup>2</sup> .
<b>Contraception Oral</b> <div data-bbox="328 842 624 1503"> <div data-bbox="328 842 624 1503"> <b>Combined (COC)</b> </div> <div data-bbox="328 1503 624 1615"> <b>Progesterone only</b> </div> </div>	<b>Combined oral contraception (COC)</b> has been reported to increase the risk of venous thromboembolism. Manufacturers and the BNF recommend stopping the COC 4- 6 weeks prior to major surgery, surgery to the legs and prolonged immobilization. They recommend that COC should be restarted at first menses occurring at least 2 weeks after ambulation. NICE recommends that COC should be stopped 4 weeks before elective surgery <sup>30</sup> . The risk however of an unplanned pregnancy and that pregnancy carries a higher risk of DVT needs to borne in mind. Discuss the risk versus the benefits with the patient, and if COC is continued, ensure thromboprophylaxis and compression stockings are prescribed <sup>1,4</sup> . Document the outcome of the discussion with the patient in the notes. If the COC is continued, inform patients of possible “pill” failure if they experience vomiting or if they are given antibiotics which induce liver enzymes. The <b>progesterone only pill</b> is not associated with an increase in the risk of DVT and can be continued peri-operatively <sup>1,4</sup>
<b>Corticosteroids</b> E.g. prednisolone	There is a risk of hypothalamic-pituitary-adrenal (HPA) axis suppression if a patient has been on steroids within the last 3 – 6 months <sup>1,12</sup> . Adrenal suppression has not been reported with doses below 5mg of prednisolone daily or equivalent <sup>1</sup> . HPA suppression is unlikely if the duration of glucocorticoid use is less than 3 weeks <sup>17</sup> . HPA axis suppression may also occur in patients on high dose steroid inhalers i.e.beclomethasone >1.5mg/day, fluticasone propionate >0.8mg or equivalent <sup>1,17</sup> . Stress due to the surgery is associated with an increased



		<p>cortisol production. Adults secrete 100 – 150mg of cortisol per day for 2 - 3 days in response to major surgery and 50mg- 75mg per day for 1 -2 days for moderate stress surgery<sup>17</sup>. Patients should receive their normal dose of corticosteroid on the day of surgery and may need further glucocorticoid supplementation with IV/IM hydrocortisone in order to cover for the stress of the surgery.</p> <p>The amount and dose of glucocorticoid supplementation depends on:</p> <ul style="list-style-type: none"> <li>- The preoperative dose of corticosteroid;</li> <li>- The preoperative duration of corticosteroid administration;</li> <li>- The nature of surgery being undertaken<sup>14</sup>.</li> </ul>
<b>Diuretics</b> E.g. bendroflumethazide, furosemide, coamilofruse., spironolactone		<p>Omit K-sparing diuretics (e.g. amiloride, co-amilofruse, coamilozide and spironolactone) on the morning of surgery. Reduced kidney perfusion in the immediate post-operative period may predispose to hyperkalaemia<sup>1</sup>.</p> <p>Thiazides (bendroflumethazide, indapamide) and loop diuretics (bumetanide, furosemide) need not be omitted. They may however be omitted on the day of surgery for patient convenience and to prevent volume depletion<sup>1,8</sup>.</p> <p>Any electrolyte imbalances should be corrected before surgery.</p>
<b>Drugs of dependence</b> (methadone)		<p>Methadone should be given to prevent symptoms of withdrawal developing. These patients may require higher anaesthetic doses<sup>1</sup>. The patient's usual dose is continued after surgery and his/her pain should be managed separately.</p> <p>Naloxone may cause opioid withdrawal symptoms if given to reverse opioids<sup>1</sup>.</p>
<b>Glaucoma eye drops</b> E.g timolol, betaxolol, latanoprost, dorzolamide		Continue these during the peri-operative period to avoid increases in intraocular pressure <sup>6</sup> .
<b>Herbal Medicines &amp; supplements</b>		<p><b>The DTC does not support the use of herbal medicines.</b></p> <p><b>The American Society of Anaesthesiology recommends that all herbal medicines should be discontinued 2-3 weeks before elective surgery.</b><sup>10</sup></p>
	<b>Bilberry</b>	Inhibits platelet aggregation, thus there is an increased risk of bleeding <sup>21,26</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>Dandelion root</b>	Inhibits platelet aggregation, thus there is an increased risk of bleeding <sup>21,26</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>Devils claw</b>	Inhibits platelet aggregation, thus there is an increased risk of bleeding <sup>21</sup> . Due to lack of specific

		information consider stopping 2 weeks prior to surgery.
	<b>Echinacea</b>	Discontinue as far in advance as possible before surgery. Possible increased risk of infection and poor wound healing <sup>3</sup> .
	<b>Ephedra</b>	Risk of MI and stroke from tachycardia and hypertension in patients anaesthetized with halothane. Long term use depletes endogenous catecholamines and may cause haemodynamic instability. Potential to interact with MAOI's. Discontinue at least 24 hours before surgery <sup>3</sup>
	<b>Evening primrose oil</b>	Inhibits platelet aggregation and increases bleeding time <sup>20</sup> . Due to lack of specific information consider stopping 2 weeks before surgery.
	<b>Feverfew</b>	May inhibit platelet aggregation and increase the risk of bleeding <sup>10,26</sup> . As a precaution discontinue 2 – 3 weeks before the operation
	<b>Garlic</b>	Possible increased risk of bleeding especially in combination with other anti-platelet drugs and heparin <sup>10,26</sup> . May cause lowering of blood pressure. Discontinue at least 7 days before surgery <sup>3</sup> .
	<b>Ginger</b>	Possibly increases the risk of bleeding <sup>10,26</sup> .As a precaution discontinue 2 – 3 weeks before the operation
	<b>Ginkgo</b>	Possible increased risk of bleeding especially in combination with other anti-platelet drugs and heparin <sup>10,26</sup> . Ginkgo may lower fibrinogen levels and inhibit platelet aggregation <sup>21</sup> . Discontinue at least 36 hours before surgery <sup>3</sup> .
	<b>Ginseng</b>	Possible increased risk of bleeding due to inhibiting platelet aggregation and inhibiting fibrin formation <sup>21,26</sup> . Ginseng may cause hypoglycaemia (consider checking BMs) and hypertension. Discontinue at least 7 days before surgery <sup>3</sup> .
	<b>Glucosamine &amp; chondroitin</b>	Glucosamine may affect insulin sensitivity or production leading to elevated blood glucose levels in diabetic patients. Chondroitin is a minor component (4%) of danaparoid and may have anticoagulant and antiplatelet effects. Due to lack of specific information discontinue 2 weeks prior to surgery <sup>18</sup> .
	<b>Hawthorn leaf and flower</b>	Inhibits platelet aggregation thus there is an increased risk of bleeding <sup>20</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>Horse chestnut</b>	Inhibits platelet aggregation, and contains coumarins thus there is an increased risk of bleeding <sup>20</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>Kava</b>	Possible increased sedation with anaesthetics Discontinue at least 24 hours before surgery <sup>3</sup> .
	<b>Licorice</b>	Inhibits platelet aggregation and contains coumarins

		thus there is an increased risk of bleeding <sup>20</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>Red clover</b>	Inhibits platelet aggregation and contains coumarins thus there is an increased risk of bleeding <sup>20</sup> . Due to lack of specific information consider stopping 2 weeks prior to surgery.
	<b>St John's Wort</b>	Interaction with a number of drugs including warfarin and steroids. Refer to BNF for other interactions. Discontinue at least 5 days before surgery <sup>3</sup> .
	<b>Valerian</b>	Possible increased sedation with anaesthetics. Reduce dose slowly over several weeks before surgery. If this is not possible, continue until the day of surgery. Withdrawal symptoms may develop during post-operative period and these may be treated with benzodiazepines <sup>3</sup> .
<b>Hormone-Replacement Therapy</b>		Manufacturers and the BNF state that HRT should be stopped 4 weeks prior to elective surgery. The Royal College of Obstetrics and Gynaecologists state: HRT does not require to be routinely stopped prior to surgery provided that thromboprophylaxis such as LMWH or heparin with or without TEDS is prescribed <sup>13</sup> . The CSM recommends that if a woman has other risk factors for DVT (i.e. obesity, trauma, long term immobility, varicose veins, personal or family history in 1 <sup>st</sup> degree relative of DVT when under 45 years) the risk of continuing therapy may exceed the benefits (recurrence of menopausal symptoms) and HRT should be discontinued 4 weeks prior to surgery <sup>8</sup> .
<b>Immunosuppressant drugs</b> E.g ciclosporin, tacrolimus, azathioprine, mycophenolate		For patients with transplanted organs, always seek advice from transplant specialist centres <sup>1</sup>
<b>Inhalers</b>		It is important that the patient is as stable as possible before surgery. The usual inhaled treatment is given before surgery <sup>1, 6</sup> and an extra dose of bronchodilator may be given with the premedication. Asthma may be made unstable with intubation thus nebulised therapy may be required in the post-op period <sup>14</sup> . See the <b>corticosteroid section</b> if the patient uses high dose corticosteroid inhalers.
<b>Insulin</b>		Check HbA1c levels in the pre-admission clinic. If HbA1c is elevated (HbA1c>8.0%) liaise with the diabetic team. Ensure anaesthetist is aware that patient is diabetic <sup>15</sup> Insulin treated patients should have their insulin dose modified before <b>minor surgery</b> <sup>17</sup> . Use the insulin clamp on the day of <b>major surgery</b> <sup>17</sup> . Monitor U+Es daily whilst on the insulin clamp. Continue the insulin clamp while the patient is NBM <sup>17</sup> .



	<p>If the patient is on a liquid diet (high in carbohydrates and sipped throughout the day), the insulin clamp should be continued<sup>7</sup>. Once the patient is eating with no nausea and vomiting, the patient's usual sc insulin can be given before the next meal and the insulin clamp stopped 2 hours later. This prevents a gap in insulin coverage that could lead to loss of metabolic control<sup>7</sup>.</p>
<b>Lithium</b>	<p>Lithium prolongs the action of depolarizing and non-depolarizing muscle relaxants; it may decrease anaesthetic requirements and can alter free water clearance<sup>4, 6, 12</sup>. Lithium concentrations may change rapidly with changes in fluid balance and serum sodium. Lithium toxicity is commonly seen in the postoperative period<sup>25</sup>. Ideally, stop lithium 24 hours before <b>major surgery</b>. Lithium can be continued for <b>minor surgery</b><sup>1, 4</sup>. If there is concern about the risk of withdrawal with the abrupt cessation of lithium, then contact the patient's psychiatrist<sup>4</sup>. If it is not possible to stop lithium inform the anaesthetist, then ensure adequate fluid intake during and after surgery. Monitor U+Es regularly (sodium and creatinine). Measure lithium blood levels if necessary. Restart lithium soon after surgery, once electrolytes and renal function are normal<sup>1, 4</sup>. Lithium levels may be rapidly increased by <b>NSAIDs</b>, diuretics, ACE Inhibitors<sup>25</sup>. Thus these agents should be avoided.</p>
<b>Methotrexate</b>	<p>Methotrexate is most commonly seen as a <b>once weekly</b> dose in rheumatoid arthritis, Crohn's disease and psoriasis. It is reasonable to continue weekly methotrexate dosing in the perioperative period. Ensure that the patient has had a recent blood test to check their bleeding time and coagulation as methotrexate may cause thrombocytopenia<sup>29</sup>. Monitor patient for hypovolaemia and decreased renal function in the post-operative period as this may lead to methotrexate accumulating<sup>4</sup>.</p>
<b>Monoamine Oxidase Inhibitors (MAOI)</b> E.g. phenelzine, tranylcypromine, isocarboxazid	<p>MAOIs may result in a hypertensive crisis with the concurrent use of interacting drugs (e.g. pethidine, pentazocine). MAOIs are usually withdrawn 2 weeks before surgery. However, the risk of psychiatric relapse must be considered. If necessary, they can be substituted with a short acting MAOI such as moclobemide 2 weeks before surgery. Moclobemide can then be withheld on the morning of surgery<sup>1</sup>. The third option is to use "MAOI safe anaesthesia" by avoid interacting drugs (i.e. pethidine, pentazocine, dextromethorphan, ephedrine, pseudoephedrine, phenylpropanolamine, metaraminol)<sup>1, 2, 28</sup></p> <p>Drugs such as morphine, fentanyl, isoprenaline, and</p>

	<p>phenylephrine may be used safely <sup>2, 12</sup> .</p> <p>Phentolamine can be used to lower the blood pressure in the event of a hypertensive crisis.</p>
<p><b>NSAIDs</b> E.g. ibuprofen, diclofenac, indomethacin, ketoprofen, ketorolac <b>except cox-2 inhibitors</b></p> <p><b>SEE APPENDIX 1 FOR INDIVIDUAL CONSULTANT PREFERENCES</b></p>	<p>NSAIDs affect platelet aggregation and increase the risk of bleeding. Short acting NSAIDs (ibuprofen, diclofenac, ketorolac, ketoprofen fenoprofen) should be stopped if possible at least one day before surgery and longer acting NSAIDs (naproxen, piroxicam) should be stopped 2 -3 days in advance, to allow platelet function to recover <sup>1, 2</sup> .</p>
<p><b>Oral Hypoglycaemics</b> E.g. gliclazide, , Metformin Glitazones(pioglitazone rosiglitazone) Acarbose</p>	<p>Check HbA1c levels in the pre-admission clinic. If HbA1c is high (HbA1c&gt;8.0%) liaise with the diabetic team. The patient may benefit from using insulin clamp in the peri-operative period to maintain glycaemic control <sup>7, 16, 17</sup> . Ensure the anaesthetist is aware that patient is diabetic.<sup>15</sup></p> <p><b>Glibenclamide:</b> switch to a sulphonylurea with a shorter half-life (i.e. gliclazide), or insulin 3 days before surgery<sup>1, 5</sup> . If it is not stopped in the pre-operative period, omit on the day of surgery and monitor closely for hypoglycaemia<sup>15</sup></p> <p><b>Gliclazide/Glipizide:</b> omit on the day of surgery</p> <p><b>Glitazones:</b> Omit on the day of surgery</p> <p><b>Metformin;</b> Withdraw 48-72 hours before surgery and restabilise on a short acting sulphonylurea until at least 48 hours post-op - (Continue in minor surgery)<sup>1, 5</sup> .</p> <p><b>Acarbose:</b> Omit on the day of surgery. This agent is ineffective in the fasting state. Restart when the patient is eating<sup>16</sup> . Patients can restart their usual oral hypoglycaemic medications when they are able to resume their usual diet <sup>16, 17</sup> .</p>
<p><b>Raloxifene</b></p>	<p>Raloxifene is associated with an increased risk for venous thrombo-embolic events that is similar to the reported risk associated with current use HRT. The risk-benefit balance should be considered in patients at risk of venous thrombo-embolic events of any aetiology. Raloxifene should be discontinued in the event of a prolonged period of immobilisation. Discontinuation should happen three days before the immobilisation occurs Therapy should not be restarted until the patient is fully mobile<sup>22</sup> .</p>

<b>SSRIs</b> e.g. fluoxetine, paroxetine, sertraline	Continue therapy in peri-operative period <sup>1,2</sup> . There is a risk of serotonin syndrome with the concurrent administration of pethidine, pentazocine or tramadol <sup>1</sup> . Patients may be at risk of developing hyponatraemia, or bleeding (SSRIs effects platelet aggregation) <sup>2</sup> .
<b>Statins</b> e.g Atorvastatin, pravastatin, simvastatin, rosuvastatin	Due to the risk of major surgery causing rhabdomyolysis and subsequent renal impairment, consider omitting statins a few days before elective surgery <sup>23, 24</sup> .
<b>Tamoxifen</b>	<p>There is an increased risk of thromboembolism in the perioperative period. If tamoxifen is being used for <b>breast cancer</b>, do not stop unless the risk of tamoxifen induced thrombosis outweighs the risks of interrupting therapy. This decision should take into account the possible duration of interrupting therapy, the grade and stage of the cancer, the patient's response to tamoxifen and the stage of therapy where the interruption is to occur. Ensure LMWH or heparin prophylaxis is prescribed and compression stockings are used. 40% of DVTs occur in the 3 months after the operation, so ensure the patient is aware of the symptoms of DVT/PE so prompt medical advice is sought.</p> <p>If tamoxifen is being used to treat <b>anovulatory infertility</b>, the manufacturer recommends it should be discontinued at least 6 weeks prior to surgery. Ensure appropriate thromboprophylaxis is prescribed whilst in hospital. Only restart the tamoxifen once the patient is fully mobile <sup>4,19</sup>.</p>
<b>Tricyclic Antidepressants</b> e.g. amitryptiline, dothiepin, lofepramine	Tricyclic antidepressants (TCA) may increase the risk of ventricular arrhythmias and hypertension during surgery. Ideally, withdraw slowly 2 weeks before planned surgery, but this may not be possible in severely depressed patients. If withdrawal is not possible, inform the anaesthetist so an appropriate anaesthetic technique is chosen to take into account continued TCA therapy <sup>2,12</sup> . If doses are missed in the peri-operative period monitor the patient for withdrawal symptoms.
<b>Ulcer healing drugs</b> E.g. lansoprazole, omeprazole, ranitidine	Continue therapy in peri-operative period to prevent risk of rebound acid secretion.

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Section on NOACs added, Appendix 1 added and references updated.



## APPENDIX 1

### ASPIRIN, CLOPIDOGREL/OTHER PREFERENCES

<u>CONSULTANT</u>	<u>ASPIRIN</u>	<u>CLOPIDOGREL</u>	<u>COMMENTS/VARIATIONS</u>
Mr Ali	Continue	5 days	Dipyridamole – stop 5 days
Miss Bateman	7 days	7 days	
Mr Bahmaie	7 days	7 days	
Mr Banerjee	7 days	7 days	
Mr Elias	7 days	7 days	
Mr Gelman	14 days	14 days	Nsaids 2 weeks
Miss Newbold	7 days	7 days	
Mr Tailor	7 days	7 days	
Mr Zakaria	7 days	7 days	
Miss Rajeswari			
Mr Thomas	14	14	Nsaids 2 weeks
Mr Bearn Mr Nisar Mr Scott Mr Trickett Mr Trivedi Mr Dixit	7 days <b>NB:</b> if patient has stent check with cardiologists	7 days (Confirm with Cardiologist)	Nsaids 1 week Warfarin 5 days (may need Clexane cover)
Mr Browning	7 days (ex Vasc)	14 days, (PTCA - 10 days, Carotid Endarterectomy – 21 days, Carotid stenting – do not stop Aspirin or Clopi	
Mr Chisholm	7 days	7 days	
Mr Dawson	Do not stop	7 days	Dipyridamole continue
Mr Johnson	7 days	7 days	
Mr Menezes	4 days	7 days	
Miss Shrotria	5 days	5 days	
Mr Irukulla	7 days	14 days	
Mr Cole	10 days	10 days	
Mr Gaur	5 days	7 days	
Mr Dunsmuir	14 days	14 days	Dipyridamole
Mr Kulkarni	7 days	7 days	
Mr Agrewal	10 days	10 days	
Mr Humadi	10 days	14 days	Dipyridamole 10 days
Orthopaedics	5 days	7 days	Stop NSAIDs & Aspirin

**\* All patients with a Cardiac Stent placed in the last year must be referred to Cardiology for guidance.**