This list contains medications that are deemed high risk medications and which are used at King Edward Memorial Hospital (KEMH).

The purpose of this list is to improve patient safety by raising awareness amongst all clinical staff that prescribe, dispense or administer high-risk medications at KEMH health service. Clinical staff must be aware of medicines on this list and of the need to take extra care in their safe storage, handling, prescribing and administration.

Errors with high risk medications are not necessarily more common; however the consequences of such errors are more devastating.

All drugs listed have a corresponding KEMH clinical guideline, which can be located on the Intranet via the Clinical Guidelines link.

Additional information is also available from:
- WA High Risk Medication Policy
- ACSQHC
- WATAG

<table>
<thead>
<tr>
<th>Medication</th>
<th>Clinical Guidelines</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anti-Infectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aminoglycosides (Gentamicin, Tobramycin, Amikacin)</td>
<td>O&amp;G Clinical Guidelines Section P- Amikacin Section P - Gentamicin Dosing and Monitoring Section P - Tobramycin Neonatal Protocols Amikacin Gentamicin Tobramycin Other Documents KEMH Antimicrobial Restriction Category</td>
<td>Dose errors with respect to Ideal Body Weight, age, and renal function may result in significant ototoxicity and nephrotoxicity. Under dosing may result in treatment failure. Monitoring of serum levels recommended.</td>
</tr>
<tr>
<td>Glycopeptides (Vancomycin)</td>
<td>O&amp;G Clinical Guidelines Section P- Vancomycin Neonatal Protocols Vancomycin Other Documents KEMH Antimicrobial Restriction Category</td>
<td>Incorrect dosing with respect to weight may rarely cause nephrotoxicity and ototoxicity. Under dosing may result in treatment failures. Monitoring of serum levels is recommended. Infusion rate must be less than the specified</td>
</tr>
</tbody>
</table>
| **Amphotericin** | **O&G Clinical Guidelines**  
Section P - Amphotericin Liposomal  
**Neonatal Protocols**  
Amphotericin Liposomal (Ambisome®)  
Amphotericin Deoxycholate (Fungizone®)  
**Other Documents**  
KEMH Antimicrobial Restriction Category  
WA Medication Safety Group Alert – Confusion between non-lipid and lipid formulations of injectable amphotericin | Confusion between the formulations may result in errors, both of prescribing and administration.  
Three formulations for IV use are available in Australia:  
• amphotericin B deoxycholate (Fungizone®)  
• liposomal amphotericin (Ambisome®)  
• phospholipid complex amphotericin (Abelcet®)  
Awareness of these multiple formulations and differing dosage recommendations will help reduce the risk of under- or overdosing. |
| **Electrolytes** | **Potassium**  
(available as chloride, phosphate, and acetate) | Fatal Errors can occur due to:  
• too rapid administration  
• selection of the wrong ampoule  
• cognitive error (e.g. using a potassium chloride ampoule instead of frusemide)  
• preparation errors  
• excessive dosage.  
• use of an excessively strong solution |

Disclaimer: This list is generated to aid in the identification and management of medications deemed as high risk medications. This is not a complete guideline and the appropriate clinical guidelines will need to be sought for more extensive information.
<table>
<thead>
<tr>
<th>Hypertonic saline</th>
<th>To be used under the supervision of the Department of Anaesthesia and Pain Medicine</th>
<th>May require caution if correcting hyponatraemic states with hypertonic saline due to the risk of osmotic demyelination.</th>
</tr>
</thead>
</table>
| Sodium Bicarbonate | Adult Resuscitation Drug Protocols  
Sodium Bicarbonate  
Neonatal Protocols  
Sodium Bicarbonate | Indications include the treatment of hyperkalaemia.  
Incompatible with many drugs e.g. adrenaline, calcium salts, magnesium sulphate, isoprenaline, midazolam. |
| Calcium (Gluconate, Chloride) | Adult Resuscitation Drug Protocols  
Calcium CHLORIDE  
Calcium GLUCONATE  
O&G Clinical Guidelines  
Section P- Calcium Gluconate | Caution if prescribed with digoxin, as there may be an increased risk of digoxin toxicity. |
| Magnesium (Sulphate, Chloride) | O&G Clinical Guidelines  
Section P- Magnesium Sulphate INFUSION  
Section P – Magnesium Sulphate INJECTION  
Neonatal Protocols  
Magnesium Sulphate | FDA Drug Safety Communication: FDA Recommends Against Prolonged Use of Magnesium Sulfate to Stop Pre-term Labor Due to Bone Changes in Exposed Babies |
| Insulin | O&G Clinical Guidelines  
Management of Gestational Diabetes in the clinics  
Diabetes in Pregnancy Requiring Insulin or Oral Hypoglycaemic Agents  
Diabetes in Pregnancy Hypoglycaemia Management  
Insulin Pen Devices  
Insulin Infusion Pump Storage and Labelling Of Insulin  
Other Documents  
WATAG Safety Alert: Humulin R® U-500 Insulin (500 UNITS/mL)  
Patient Leaflet: Starting Insulin for the first time (Gestational/Type 2 Diabetes) | Insulin  
- Insulin should be ordered as “units”, not “U” (written in full)  
- Prescribe insulin by brand names, where possible, to reduce risk of selection error.  

**Insulin by Subcutaneous Injection**  
- Specify time of administration (i.e. immediately before meals or specific time to be given in respect to food)  
- Specify device (vial/cartridge/disposable pen)  

**Insulin by Intravenous Infusion**  
Double check the concentration and the infusion rate are consistent with the prescription to ensure the correct dose is administered to the patient. Problems may arise if pumps are programmed incorrectly. |
Narcotics/Opioids and Sedative Agents
(e.g. Fentanyl, Hydromorphone, Oxycodone, Morphine and Midazolam)

<table>
<thead>
<tr>
<th>Post Operative Pain Guideline</th>
<th>Incorrect dosing of opioids can lead to inadequate analgesia, excessive sedation and potentially lethal respiratory depression, dosing should follow ‘start low and go slow’ philosophy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O&amp;G Clinical Guidelines</td>
<td>Regularly review patient using an appropriate pain scoring tool to assess for analgesia. Monitor sedation levels. Prescribers can access information about these medications from the intranet or by contacting a consultant specialist in pain management where available. (e.g. Acute Pain Service or Anaesthetist)</td>
</tr>
<tr>
<td>Intramuscular Administration of Morphine</td>
<td></td>
</tr>
<tr>
<td>Section P</td>
<td></td>
</tr>
<tr>
<td>Other Documents</td>
<td></td>
</tr>
<tr>
<td>Midazolam Medication Safety Alert</td>
<td></td>
</tr>
<tr>
<td>Oxycodone and Morphine Medication Safety Alert</td>
<td></td>
</tr>
<tr>
<td>Fentanyl Analgesic Patches Safety Alert</td>
<td></td>
</tr>
<tr>
<td>Prescription and Management of Intravenous Patient Controlled Analgesia</td>
<td></td>
</tr>
</tbody>
</table>

Methotrexate

| O&G Clinical Guidelines | Australian cases with fatal consequences have been reported when oral methotrexate has been prescribed and administered more frequently than once weekly for autoimmune or inflammatory disorders. Ensure when prescribing, administering and dispensing weekly doses of methotrexate that it is clearly stated which dose and which day of the week the methotrexate is to be administered on the National Inpatient Medication Chart, and that the remainder of the relevant administration boxes have been crossed out to flag dose(s) not to be administered to reduces the risk of patients receiving unintended doses of methotrexate. |
| Section P- Methotrexate |                                                                                                                                                                                                 |
| Patient Information |                                                                                                                                                                                                 |
| WNHS KEMH Systemic Methotrexate |                                                                                                                                                                                              |

Heparin and Other Anticoagulants
(E.g. Warfarin, Heparin, Enoxaparin, Dalteparin)

| General | There is potential for excessive bleeding with warfarin, heparin and other anticoagulants. The incorrect dose or failure to monitor therapy can |
| **Proven Thrombophilia**  
**Prophylaxis For Women With A Prior Thrombotic Event in Whom No Thrombophilia Has Been Identified**  
**Women With Cardiac Conditions**  
**Risk Assessment and Recommended Venous Thromboembolic Prophylaxis in Patients Admitted for Gynaecological Conditions**  
**Other Documents**  
Revision of the Adult WA Anticoagulation Medication Chart (WAAMC)  
Implementation of the WA Anticoagulation Medication Chart (WAAMC) |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>contribute to this event. It is recommended that prescribers contact the Haematology team for advice on dosing if required.</td>
</tr>
</tbody>
</table>

| **Warfarin**  
Pre & Post Operative Management of Patients On Therapeutic Warfarin Anticoagulation  
Phytenadione (Vitamin K)  
Section P- Phytenadione (Vitamin K)  
Other Documents  
Living with Warfarin Information for Patients  
Warfarin Treatment Card (resource for patients) |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Warfarin has the potential to interact with many medications that can affect the International Normalised Ratio (INR). Be aware that changing concurrent medications (by ceasing or adding a medication) may result in changes to INR and the dose of warfarin may require adjustment.</td>
</tr>
</tbody>
</table>

| **Heparins**  
(Unfractionated Heparin, LMWH: Dalteparin, Enoxaparin, Danaparoid)  
O&G Clinical Guidelines  
Section P- Heparin Sodium  
Section P- Enoxaparin Sodium  
Other Documents  
Section B : Venous Thrombosis Occurring in the Present Pregnancy  
WAMSG heparin Working Group Recommendations on Unfractionated Heparin |
| --- |
| Unfractionated Heparin  
Ensure the word ‘UNITS’ is written in full to avoid confusion  
For intravenous infusion, double check the correct number of units have been added to the syringe for infusion and the infusion rate is consistent with the prescription to ensure the correct dose is administered to the patient. |

| **Fixed Dose New**  
Restricted Medicines List |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New fixed dose oral anticoagulants have NO</td>
</tr>
</tbody>
</table>
| Oral Anticoagulants (NOACs) (Dabigatran, Rivaroxaban, Apixaban) | Living with a New Oral Anticoagulant (NOAC) Information for Patients  
WATAG New Oral Anticoagulant Prescribing Guidelines | SPECIFIC REVERSAL AGENT. Care is required when selecting patients for newer anticoagulant treatment. |
### Positive Inotropes

<table>
<thead>
<tr>
<th>Medication</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noradrenaline</td>
<td></td>
</tr>
<tr>
<td>Adrenaline</td>
<td></td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
</tr>
<tr>
<td>Metaraminol</td>
<td></td>
</tr>
<tr>
<td><strong>Adult Resuscitation Drug Protocols (See Section 5.3)</strong></td>
<td>Vasoactive drugs are utilised in the critical care setting for the management of patients with cardiovascular and/or respiratory instability. Failure to manage these drugs appropriately can lead to haemodynamic instability and in extreme cases, death</td>
</tr>
</tbody>
</table>

### Psychotropic Agents

(e.g. Clozapine, Lithium, Droperidol, Benzodiazepines)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section P</strong></td>
<td>Psychotropic agents (including antipsychotics, antidepressants, benzodiazepines and stimulants) carry certain risks. Procedures and policies must be in place regarding the safe prescription, preparation, administration and monitoring of psychotropic agents.</td>
</tr>
</tbody>
</table>

### Other High Risk Medications

Please contact specialist area clinician and refer to relevant clinical guidelines.

**Anaesthetics** (e.g. Ketamine, Propofol, Nitrous Oxide)

**Administration of Nitrous Oxide**

**Anti-arrhythmics** (e.g. Amiodarone, Digoxin)

**Amiodarone Adult Resuscitation Drug Protocols**

**Digoxin Monograph**

**Antivirals** (e.g. Lamivudine, Zidovudine, Abacavir, Efavirenz, Nevirapine, Ritonavir, Tenofovir)

**Management of HIV Positive Mother and Her Neonate**

**Truvada (Tenofovir/Emtricitabine Monograph)**

**Zidovudine Monograph**

**Clotting Agents** (e.g. Tranexamic Acid, Aminocaproic Acid)

**Tranexamic Acid Monograph**

**Neuro-muscular Blockers** (e.g. Vecuronium, Suxamethonium, Botulinum Toxin)

**Suxamethonium Monograph**