# Neonatal Medication Guidelines: Upload to SA Health Website and Practice Guidelines Web-Based App

Date uploaded: 19/12/17

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|---|---|---|---|
| Atropine | Revised | • Indications are no longer relevant, with bradycardia and oral atropine use has stopped, therefore this dosing and administration has been removed<br>• Dosing added for prevention of muscarinic side effects of neostigmine (e.g. challenges for congenital myasthenia gravis)<br>• Eye drops are not used anymore (confirmed with ophthalmology), therefore the dosing and administration advice for eye drop use has been removed<br>• Addition of extra adverse effects (as per AMH, Neofax)<br>• Changes to practice points to reflect that atropine is no longer routinely used in intubations | Nil |
| Calcitriol | New | New guideline<br>• After stakeholder feedback from endocrine the dosing used is as per the AMH-C, treating for hypocalcaemia | Nil |
| Cefalexin | Revised | • Change to spelling to align with TGA name changes<br>• A number of UTI's are becoming resistant to trimethoprim, therefore prophylactic UTI dosing was added<br>• Reconstitution information removed as it is always supplied by pharmacy reconstituted (this information was vague anyway)<br>• Reviewed dosing frequency as NSW Neomed guideline is different to other references (e.g. NNF7, Neofax), decision is to continue with the current dosing and NOT match NSW | Nil |
| Cefazolin | Revised | • Change to dosing within the dosing table (supported by reference 1)<br>• Addition of IM dilution, however lignocaine was not considered a suitable diluent so only sodium chloride is indicated as a diluent for IM injections<br>• Infusion concentration added<br>• Addition of compatible fluids<br>• Change to spelling to align with TGA name changes | Nil |
| Clindamycin | Revised | Included a dosing range of 5-7.5mg/kg instead of flat 5mg/kg.<br>Current brand of IV clindamycin does not contain benzyl alcohol, practice points amended.<br>ID approval should be required for clindamycin use. | Nil |

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| Chloramphenicol | Revised | Change in eye drop frequency:<br>• The AMH-C and eTG recommend 2 hourly administration for the first 24 hours, 4 hourly was agreed on after ophthalmology consultation. Decrease frequency to 4 to 6 hourly after 24 hours.<br>Added practice points:<br>• Review therapy if symptoms do not improve within 48 hours of starting chloramphenicol.<br>• Chlamydial trachomatis conjunctivitis is treated systemically with azithromycin (see azithromycin guideline for detail).<br>• Treat both eyes if using chloramphenicol ointment to prevent amblyopia as per discussion with ophthalmology. | Nil |
| Cyclopentolate | New | • New monograph<br>• Full review undertaken with stakeholders<br>• Administration via the eye, this is a product currently in use in this manner | Nil |
| Diazoxide | Revised | Addition of WCH 10mg/mL formulation, this is the preferential product to be used in SA (cost) and removal of commercial product as it is no longer stocked in SA.<br>Some amendments to practice points requiring stakeholder consultation. | Nil |
| Dobutamine | Revised | • Change to the wording of indications for dobutamine<br>• Dose recommended to be titrated every 10-20 minutes (previously unspecified)<br>• Maximum concentration for infusion decreased to 4mg/mL<br>• Dobutamine is now available as a liquid injection and does not require reconstitution, dilution removed<br>• Consolidation of 25mL and 50mL dilution tables<br>• Revision of practice points and monitoring as per references | Nil |
| Dopamine | Revised | • Addition of indications for dopamine<br>• Dose titration time period specified (5-10 minutes)<br>• Consolidation of 25mL and 50mL dilution tables<br>• Revision of practice points and monitoring as per references | Nil |

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| Erythropoietin | New | • New monograph<br>• Full review undertaken with stakeholders<br>• Please note there are no directions for the dilution of erythropoietin as there was insufficient compatibility data, protein was clarified as critical to erythropoietin stability in parenteral nutrition<br>• Clarified in-line filter use, which was in reference to a clinical trial and therefore deleted | Nil |
| Fentanyl | | • Minor changes to include pre-filled syringes which will improve patient safety by minimising medication errors with endotracheal intubation | Nil |
| Glucagon | Revised | • Added the approximate microg/kg/hr for ALL weight/rate combinations in dilution tables<br>• No other changes | Nil |
| Glucose | Revised | • Addition of 30% glucose dilution in the dilution table<br>• Removal of central venous bolus of glucose 50%, recommended a max. concentration of glucose 30%<br>• Change to maximum peripheral glucose concentration to 12.5%<br>• Removal of glucose maximum rate (can go higher than this), addition of a practice point about hyperinsulinism instead<br>• Therapeutic BGL target is 3.5mmol/L (as per PPG for IV glucose)<br>• Deletion of practice point regarding 5% glucose being isotonic, a maximum peripheral concentration is recommended within the document already | Nil |

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| Gentamicin | Revised | Gentamicin has been reviewed and updated by the Neomed working group, with major changes including:<br>• Change to dosing table<br>• Change to monitoring for **ALL** sites<br>• Removal of eye drops, these are no longer on the SA formulary<br><br>**Re: Dosing changes**<br>The proposed dosing table has been simplified. The Neomed Working Group considered the evidence for the efficacy and toxicity of gentamicin in the literature. While doses in the existing guideline are considered to be safe, variation in doses may create unnecessary complexity. The Neomed Working Party acknowledges that this simplified dosing schedule will not allow for pharmacokinetic variability; however it will treat the majority of babies effectively and safely. Neomed reconsidered simplifying the dosing further after stakeholder consultation (to 6mg/kg for all age groups with varied frequency), however it was felt the evidence was not there for using this dose if babies >33weeks, when dosing every 24 hours.<br>The previous gentamicin Neomed guideline was based on 24 hour area-under-the-curve (AUC24) data, which was used as a surrogate marker for gentamicin efficacy. The evidence for gentamicin efficacy in neonates is predominantly in peak targets rather than AUC24. Higher doses are required in neonates to achieve desired AUC24 targets with a dosing interval of 48 hours. This may have contributed to the variation in drug doses among gestational age and postnatal age categories in the existing gentamicin guideline. Therefore the working group recommends dosing which is based on population data for peak targets, rather than AUC24 targets.<br><br>**Re: Monitoring changes**<br>The Neomed Working Party proposes that all SA Health sites implement trough monitoring for empiric therapy. Trough levels address toxicity concerns by ensuring adequate gentamicin clearance.<br>The table for interpretation of gentamicin trough levels has been adapted from Neofax recommendations, which are based on population clearance data. This table will decrease the number of blood tests for levels without affecting patient safety, and improve interpretation of gentamicin levels after hours (UK NICE Guidelines).<br>Another significant change to gentamicin monitoring is the earlier monitoring of 24 hourly dosing. The Neomed Working Party recommends that all infants on 24 hourly gentamicin dosing are monitored prior to the THIRD gentamicin dose. This ensures consistency with the 48 hourly dosing recommendations; any baby continuing gentamicin beyond 48 hours will receive monitoring to ensure adequate gentamicin clearance. | Sufficient education will need to be provided to staff of the change |

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| Gentamicin (continued) | | The use of gentamicin for treatment of a positive culture or treatment beyond 3 days should be undertaken in conjunction with Infectious Diseases (ID). This was amended after stakeholder feedback. The sensitivity results of the isolate are critical in determining effective dosing and AUC24 may be required. AUC24 monitoring will continue to be available at WCH at ID request for directed aminoglycoside therapy only, however this monitoring is not included in this guideline as targets will be patient specific.<br>The references within the gentamicin guideline have been updated to include the resources that were used by the Neomed Working Group, and are available on request. | |
| Immunoglobulin (Intragam 10) | Revised | • Dose for thrombocytopenia, haemochromotosis and haemolytic disease of the newborn reviewed- keep these indications. All of this should be guided by haematology<br>• Strength of product has changed so the rates of administration have been amended according to the product information<br>• WCH Haematology has been consulted | Nil. This matches the Bloodsafe guidelines dosing advice. |
| IV Medication Compatibility in Neonates | Revised | • Complete review of all Y-site compatibilities of products, fully referenced excel spreadsheet available on request | The Neomed group would like to highlight that this table is only applicable for concentrations used according to the neonatal medication guidelines. It is not applicable for adults. |
| Metronidazole | Revised | • Tall man lettering applied<br>• Dosing table simplified according to review paper (reference 1). After looking at the NSW Neomed guideline, it was agreed that we should match them there was only a small difference between their dosing guideline and the review paper recommendations. This review paper is available if requested.<br>• Change to oral suspension warning in regard to food (increased to 1 hour before food as per product information)<br>• Comment from stakeholders regarding potential carcinogenicity, Neomed Working party decided to restrict metronidazole use to Infectious Diseases (ID) recommendations only (top of indication section) | Nil |

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| Naloxone | Revised | • No major changes<br>• Neomed Working Party considered if acute opioid poisoning indication and dosing for an infusion regimen should be included. Committee agreed that this is not necessary. | Nil |
| Noradrenaline | Revised | • Noradrenaline was removed from the SA Health internet in October 2016 due to an error in the dilution tables. These tables have been amended and checked by the Neomed Working Party<br>• TGA name change applied to noradrenaline (norepinephrine)<br>• Ensured language for monitoring is consistent with dopamine/dobutamine and weight ranges are suggested for each dilution table. | Nil. High risk medication that is not currently available online. |
| Phenylephrine | New | • New monograph<br>• Full review undertaken with stakeholders<br>• Administration via the eye, this is a product currently in use in this manner | Nil |
| Potassium Chloride | Revised | • Use of a pre-mixed standard potassium containing solution is strongly recommended (the standard bag recommended in this guideline is listed on the SA Medicines Formulary)<br>• Directions for peripheral and central dilution and administration of potassium have been included<br>• Oral potassium supplementation has been recommended as the preferred route for the correction of potassium deficits | Potassium Chloride was reviewed as a matter of medication safety as it was identified that the maximum concentration that should be used via peripheral intravenous lines was not adequately highlighted |
| Rifampicin | Revised | Addition of congenital tuberculosis dosing guide. As per ASID and BNF-C. Practice point added about resistance potential and use in combination with other agents. Anthrax dose is not required in Australia.<br>Change to diluent volume (9.5mL) due to publication of powder displacement volume of 0.48mL (RCH PIG).<br>Monitoring section simplified into before and after observations. | Nil |

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| Suxamethonium | Revised | • Minor changes to include pre-filled syringes which will improve patient safety by minimising medication errors with endotracheal intubation | Nil |
| Trimethoprim-sulfamethoxazole | Revised | • PJP Prophylaxis dose changed to 20mg three times a week (flat dosing). Most babies will have a BSA <0.25m2 and it is difficult to justify multiple doses in this range, especially given the complexity of working out a BSA. This guideline would be superseded by oncology protocols.<br>• Practice points changed slightly, emphasis on use of trimethoprim alone if possible for urinary tract infections<br>• The Neomed Working Party discussed the two dilutions included in the guideline, and due to the precipitation risk it was decided that both dilutions were required.<br>  ○ Sodium chloride is specified as the diluent for the 1:25 dilution due to hyperglycaemia risk for glucose<br>  ○ Glucose is specified for the 1:10 dilution due to precipitation risk. | Nil |