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|------------------------------------------------|--------------------------------------------------------------------------|------------------|----------------|--------------|
| <b>AMH – Neonatal Unit</b>                     | <b>Extended Interval Gentamicin – Neonatal Parenteral Drug Monograph</b> |                  |                |              |
| <b>Department of Pharmacy<br/>NHS Grampian</b> | Written by:                                                              | R.Innes          | Date written:  | January 2019 |
|                                                | Approved by:                                                             | V.Kistareddy     | Date approved: | January 2019 |
|                                                | Version Number:                                                          | PHM-NNU-DM-14 V1 | Review Date:   | January 2021 |

#### **Actions and uses:**

An aminoglycoside antibiotic with a broad spectrum of activity against some Gram-positive bacteria, many Gram-negative bacteria and *Pseudomonas aeruginosa*.

#### **Dose:**

| AGE                  | DOSE   | FREQUENCY | COMMENTS                                                                                   |
|----------------------|--------|-----------|--------------------------------------------------------------------------------------------|
| < 7 days after birth | 5mg/kg | 36 hourly | <b>Initial starting dose.</b> Adjust according to Therapeutic Drug Monitoring - see below. |
| ≥7 days after birth  | 5mg/kg | 24 hourly |                                                                                            |

#### **Reconstitution Guidelines:**

Available already reconstituted **20mg/2ml** per vial/ampoule. No further dilution required.

#### **Compatibilities:**

Glucose 5% & 10%; Sodium Chloride 0.45% & 0.9%.

#### **Incompatibilities:**

In general, gentamicin injection should **not** be mixed with any other medicines. **Avoid** mixing with: Aciclovir; Amphotericin, Cephalosporins; Erythromycin; Furosemide; Heparin; Penicillins; Sodium Bicarbonate.

#### **Prescriptions:**

Please prescribe in the 'Regular Therapy' section of the Prescription and Administration Record (kardex) and ensure that the unused time slots are blocked out at the time of prescribing. Please speak to your ward pharmacist if you require clarification about this. See example on page 3.

#### **Administration:**

Give by slow IV injection over 3-5 minutes.

Ensure adequate flushing if patient is also prescribed a penicillin or cephalosporin.

**NOTE: The local gentamicin bundle must be used for each dose of gentamicin administered to a neonate within AMH.**

#### **Monitoring/Side Effects:**

(See SPC for full list of cautions, contra-indications, side-effects and drug interactions)

- Ototoxicity and nephrotoxicity may be compounded by other agents e.g. Amphotericin, Cephalosporins, Ciclosporin, Furosemide, Ibuprofen and Vancomycin -monitor renal function & fluid balance closely.
- Contra-indicated in patients with Myasthenia Gravis. May impair neuromuscular transmission, therefore use cautioned in patients with conditions characterised by muscular weakness.
- Enhances the effects of non-depolarising muscle relaxants e.g. Atracurium.
- Gentamicin has a low pH and may cause venous irritation and tissue damage in cases of extravasation. Monitor cannula site carefully if administering peripherally.

#### **Administer reconstituted solutions immediately.**

#### **All vials, ampoules and infusion bags are for single use only unless otherwise stated.**

Dose may vary depending on indication, age, renal function, hepatic function and concomitant medications.

The compatibility information is not exhaustive – please contact medical staff/pharmacy for further information on compatibility with any medicines not included.

This monograph is intended as a quick reference guide to aid the safe prescription and administration of medicines to neonates within the Neonatal Unit at AMH. It can be used for neonates within other settings across NHS Grampian as appropriate. Please use this monograph in conjunction with the package insert and the BNF for Children.

This document should not be altered/copied/amended/reproduced by staff outwith the RACH pharmacy department.

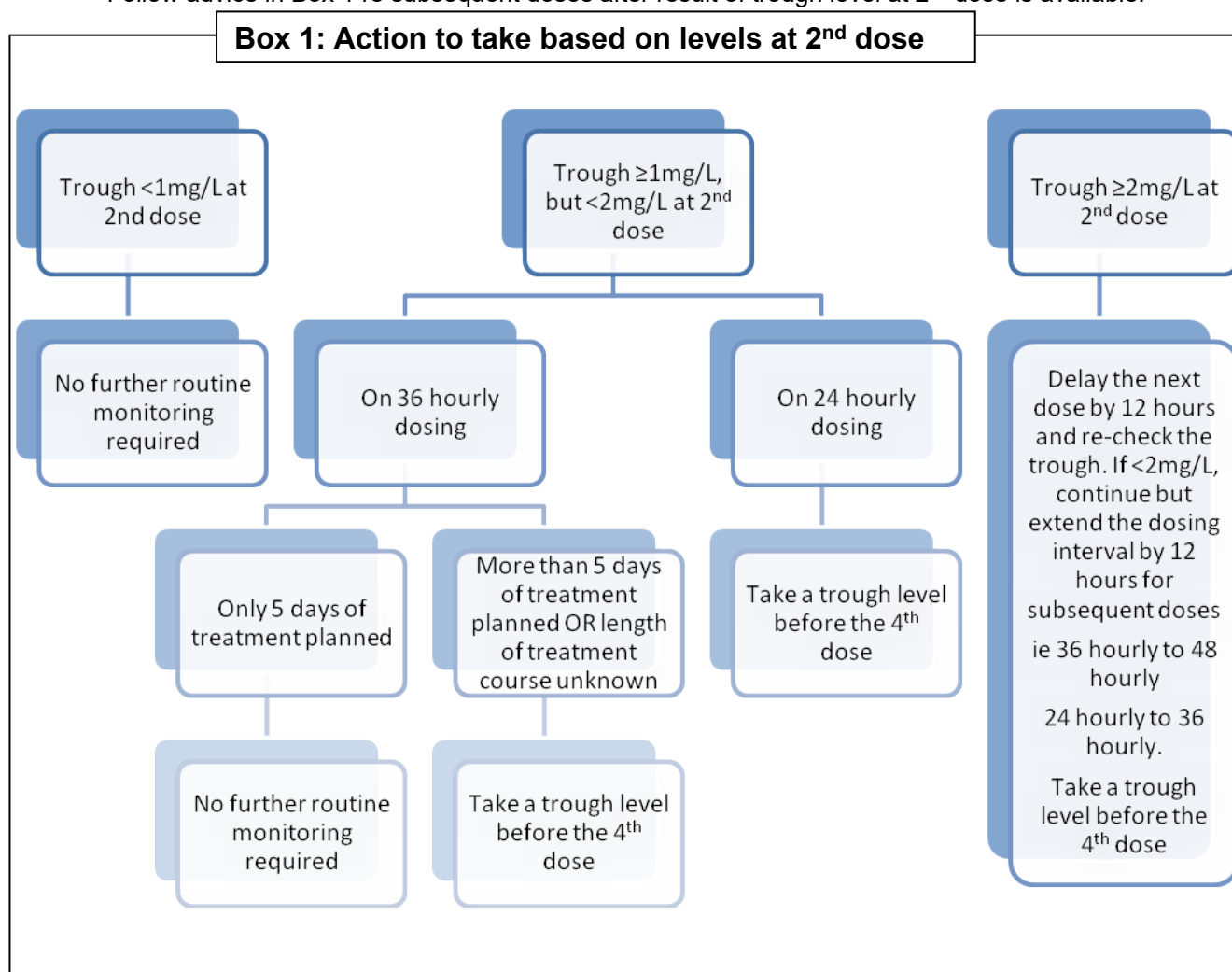
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### Therapeutic Drug Monitoring:

For all neonates: Monitor trough levels by taking blood for the trough immediately before the **2<sup>nd</sup> dose**.

- If NO concerns about renal function
  - Give second dose without waiting for the trough result.
- In renal impairment or if any concerns about renal function
  - **WAIT** for the trough result before giving the second dose or discuss antibiotic choice with the Neonatal Consultant.

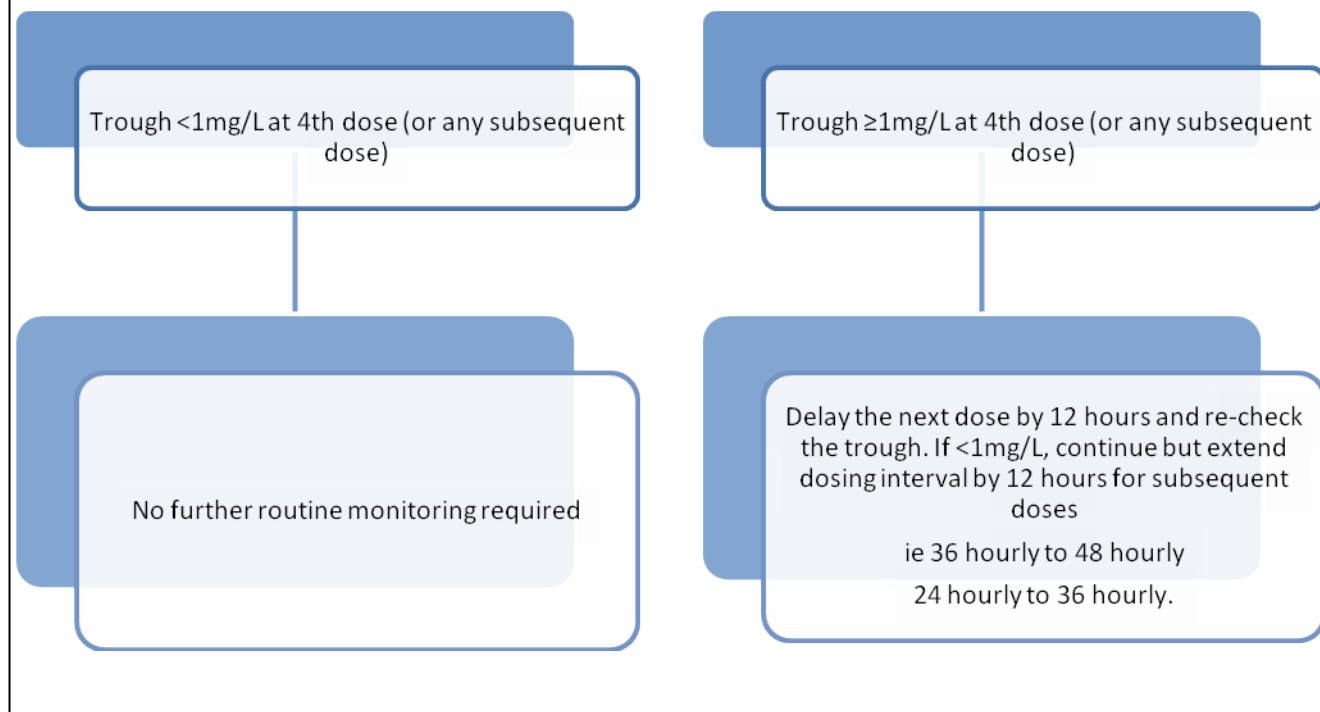
Follow advice in Box 1 re subsequent doses after result of trough level at 2<sup>nd</sup> dose is available.



**If at any point during treatment there are concerns about the patient's clinical situation, renal impairment, or the course of gentamicin is extended, it is advisable to check levels and discuss with a Neonatal Consultant as necessary.**

|                                        |                                                                   |                  |                |              |
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**Box 2: Action to take based on levels at 4<sup>th</sup> dose**



Follow advice in Box 2 re subsequent doses after result of trough level at 4<sup>th</sup> dose is available.

A peak may be measured if required. See BNFC.

**Example Calculation:** For a 2kg infant a 10mg dose would be 1ml of **20mg/2ml** solution, given over 3-5 minutes.

**Example Prescription:**

Patient name BABY EXAMPLE DOB 12/34/56 CHI 1234567890

| REGULAR THERAPY         |                                                        | Date | 21/3/17 | 22/3/17 | 23/3/17 | 24/3/17 | 25/3/17 |    |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|--------------------------------------------------------|------|---------|---------|---------|---------|---------|----|--|--|--|--|--|--|--|--|--|--|--|--|
|                         |                                                        | Time | 08      | 12      | 14      | 18      | 20      | 22 |  |  |  |  |  |  |  |  |  |  |  |  |
| Medicine/Form           | GENTAMICIN                                             |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Dose                    | 10mg                                                   |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Route                   | IV                                                     |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Signature/Print name    | ANY DOCTOR                                             |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Pharmacy                | 21/3/17                                                |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Start Date              | 36 HOURLY                                              |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Frequency               |                                                        |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Additional Instructions | ? NEONATAL SEPSIS. RIV AT 36 HRS. TROUGH LEVEL 22/3/17 |      | X       | X       | X       | X       |         |    |  |  |  |  |  |  |  |  |  |  |  |  |

**References:**

- 1) Medusa paediatric monograph for 'Gentamicin', published 12/06/2017, accessed 24/10/2018.
- 2) BNF for Children, accessed via app, December 2018.
- 3) National Patient Safety Agency. Safer use of intravenous gentamicin for neonates. Feb 2010. Available from: <https://www.sps.nhs.uk/wp-content/uploads/2018/02/2010-NRLS-1085-Safer-use-of-inonates-2010.02.03-v1.pdf>. Accessed January 2019.