| Waikato District Health Board | Type: **Drug Guideline** | Document reference: **2979** | Manual Classification: **Waikato DHB Drug Guidelines** |
|---|---|---|---|
| Title: **Vecuronium for Neonates** | | | Effective date: **23 September 2020** |
| Facilitator sign/date<br>*Kerrie Knox*<br>***Pharmacist*** | Authorised sign/date<br>*Jutta van den Boom*<br>***Clinical Director NICU*** | Authorised sign/date<br>*John Barnard*<br>***Chair Medicines & Therapeutics*** | Version: **1** / Page: **1 of 2**<br>Document expiry date: **23 September 2023** |



# BRIEF ADMINISTRATION GUIDE

For detailed information refer to The Australasian Neonatal Medicines Formulary **vecuronium** guideline

Critical Note: there are minor variations between the ANMF and Waikato DHB best practice within this drug guideline – see yellow shaded text

**Indications**:
- Skeletal muscle relaxation or paralysis in mechanically ventilated infants
- Intubation

**Route**: Intravenous
- Supplied as vecuronium bromide 10mg vial (powder for reconstitution)
  - Vecuronium is an unapproved medicine, available under Section 29
  - Use for paralysis in NICU is not a registered indication
  - pH of vecuronium is approximately 4

**Dose**:

Muscle relaxation / Paralysis in mechanically ventilated infants
- IV Injection: 100 microgram/kg initially by bolus IV injection (range 30 – 150 microgram/kg).
  Repeat as required every 1 to 2 hours. Adjust dose based on duration of paralysis.
- Continuous IV Infusion: 60-200 microgram/kg/hour (1-3.3 microgram/kg/min)
  Titrate in 10% dose increments until desired neuromuscular blockade is achieved

Intubation
- 100 microgram/kg by bolus IV injection

NOTE:
- Patients with renal or hepatic insufficiency may require reduced dosages to maintain appropriate neuromuscular blockade, and may demonstrate prolonged recovery after infusion discontinuation due to increased plasma levels of parent drug and active metabolite. Newborns, particularly premature infants, are especially sensitive to vecuronium
- Ensure adequate analgesia and sedation are achieved prior to and during neuromuscular blockade
- Use lubricating eye drops during paralysis

## Preparation and administration

Continuous IV Infusion
- Reconstitute vecuronium 10 mg vial with 10 mL of sterile water for injection (resulting concentration **1 mg/mL**).
- Suitable final concentrations are 0.2 mg/mL, or in fluid restricted patients 1 mg/mL.
- To make a **0.2 mg/mL** solution take 10 mL from the reconstituted vial (vecuronium 10 mg) and make up to 50 mL with compatible fluid (sodium chloride 0.9% or glucose 5%)
- Administer via continuous IV infusion using a syringe driver with Guardrails settings

Direct IV Injection
- Reconstitute 10 mg vial with 10 mL of sterile water for injection (resulting solution 1 mg/mL).
- Administer by IV push over 5 to 10 seconds
- Flush well after administration with compatible fluid (to avoid re-paralysis during recovery)

## Monitoring

- Continuous cardiorespiratory and pulse oximetry monitoring
- Monitor neuromuscular function, sedation and blood pressure (invasive or non-invasive)
- Monitor electrolytes and renal function
- Pressure points (to ensure pressure sores are not developing)

## Storage and Stability

- Reconstituted vecuronium solution is stable for 24 hours in the refrigerator (2 to 8 °C)

## Competency for administration

This procedure is carried out by, or under, the direct supervision of a registered nurse/registered midwife who holds current Waikato DHB Generic Medicine Management and IV certification. For CVAD administration Neonatal specific competency NCV/NAC and NIC2 is also required.

## Guardrails

Vecuronium is Guardrail profiled on the CC pump for NICU. Following are the guardrail limits:

| **Guardrails Drug Name** | **Vecuronium** |
|---|---|
| **Concentration (mg/ml)** | |
| Minimum | 0.1 |
| Maximum | 1 |
| **Dose rate (mcg/kg/hr)** | |
| Default | 60 |
| Soft minimum | 48 |
| Soft maximum | 90 |
| Hard max | 200 |

## References


- Australasian Neonatal Medicines Formulary (ANMF). Accessed 23rd March 2020. Available from: https://www.seslhd.health.nsw.gov.au/sites/default/files/groups/Royal_Hospital_for_Women/Neonatal/Neomed/neomed19vecuroniumfull.pdf
- New Zealand Formulary for Children (NZFC). 2020. Vecuronium. Accessed 23rd March 2020. Available from: https://www.nzfchildren.org.nz/nzf_6995
- Truven Health Analytics Inc. Pediatrics and Neofax®. 2019. Vecuronium monograph. Accessed 23rd March 2020. Available from: http://www.micromedexsolutions.com.
- Phelps SJ, Hagemann TM, Lee KR, Thompson AJ. The Teddy Bear Book: Pediatric Injectable Drugs. 11th edition. American Society of Health-System Pharmacists; 2018.
- The Royal Children's Hospital Melbourne. Paediatric Injectable Guidelines. Accessed 23rd March 2020. Available from: https://pig.rch.org.au.
- Vecure package insert. Mylan NZ Ltd, February 2018.
- Western Australia Health Service Neonatal vecuronium guideline. Accessed on 17th June 2020 at https://www.kemh.health.wa.gov.au/~/media/Files/Hospitals/WNHS/For%20health%20professionals/Clinical%20guidelines/NCCU/Drug%20Protocols/Vecuronium.pdf
- Australian Injectable Drugs Handbook, 7th edition. SHPA 2017.


***Note:*** **Printed copies are only valid on the day of printing – they are not controlled and may not be the current version in use. Please refer to the online version.**