		Type: Drug Guideline	Document reference: 6442	Manual Classification: Waikato DHB Drug Guidelines
Title: Clonidine for neonates			Effective date: 14 February 2022	
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BRIEF ADMINISTRATION GUIDE

For detailed information refer to [The Australasian Neonatal Medicines Formulary clonidine guideline](#)



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

Indications:

- Neonatal Abstinence Syndrome (NAS)
- Sedation

Note: Clonidine is not licensed for use in neonates

Route: Oral or intravenous

- Oral supplied as clonidine suspension 10 microgram/mL liquid, 25mL bottle prepared by Pharmacy
- Injection supplied as clonidine hydrochloride 150 microgram/mL, 1mL ampoule
 - pH of clonidine is 4

Dose: Neonatal Abstinence Syndrome:
1 microgram/kg/dose every 4 hours, adjusted daily if necessary according to Finnegan score (**range 0.5 to 1.25** microgram/kg/dose every 4 to 6 hours)
 Stop clonidine once morphine has been discontinued and Finnegan scores remain <8

Sedation

Loading dose of 0.5-1 microgram/kg over 15 minutes, followed by **either**:

- a continuous infusion of 0.2 microgram/kg/hour and titrate up to a maximum of 1 microgram/kg/hour in haemodynamically stable infants
- 1 microgram/kg/dose every 8 hours (either oral or IV), titrated up to a maximum of 2 microgram/kg/dose every 6 hours.

Note: if clonidine has been given regularly for >5 days, the dose should be reduced by approximately 50% on day 1, 25% on day 2 and discontinued day 3.

Note: clonidine has good oral bioavailability (use the same daily dose if converting)

Preparation and administration

Oral


- Draw up appropriate volume in an oral syringe.
- Consider administration with feeds to reduce gastric irritation.
 Note: the injection can be administered orally if necessary (undiluted or diluted with water)

Intravenous

Compatible fluids: sodium chloride 0.9%

- Select the **concentration** of clonidine required based on the weight of the infant and in the context of any fluid restrictions (refer to appendix for assistance) and dilute the appropriate volume of clonidine injection using compatible fluid in accordance with the table below:

Final Clonidine Concentration	1 microgram/mL	3 microgram/mL	4 microgram/mL
Volume of clonidine (150 microgram/mL)	0.33 mL	1 mL	0.8 mL
Volume of compatible fluid	49.67 mL	49 mL	29.2 mL
Total volume for infusion	50 mL	50 mL	30 mL

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- For an **intermittent** infusion draw up the prescribed dose from the above prepared 3 microgram/mL solution and administer over at least **15 minutes**
- For a **continuous** infusion administer at the prescribed rate via Guardrails profiled syringe driver

$$\text{Rate (mL/hr)} = \frac{\text{Dose (microgram/kg/hr)} \times \text{Weight (kg)}}{\text{Concentration (microgram/mL)}}$$

Monitoring

- Heart rate and blood pressure every 4 hours for the first 2 days, then 12 hourly (continue for 48 hours after stopping clonidine as rebound hypertension can occur)
If on continuous IV infusion perform continuous cardiac monitoring
- Finnegan score every 3 to 4 hours (is used for NAS)

Storage and Stability

- Store oral solution in the fridge between 2 and 8°C
- Discard any unused injection solution

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 plus Guardrails competency (if administering IV) as well as Neonatal specific competency NCV/NAC (if administering via CVAD).

Guardrails Information

Clonidine will be Guardrail profiled on the CC pump for NICU. Following are the guardrail limits:


Guardrails Drug Name	Clonidine(int&load*	Clonidine(contain)
Concentration (mcg/ml)		
Minimum	1	1
Maximum	30	10
Dose rate (mcg/kg/hour)		
Default	2	0.2
Soft minimum	1	0.1
Soft maximum	8	1.1
Hard max	12	2

Associated Documents

- Waikato DHB NICU guideline #6435 "Management of Newborns delivered to drug dependent mothers"
- Waikato DHB NICU guideline #2940 "Morphine for neonates"

References

- Australian Neonatal Medicines Formulary. Clonidine Drug Guideline, 2020. Available from: <https://www.sihd.nsw.gov.au/rpa/neonatal/NeoMedPaperCopy.html>
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Appendix

Infusion tables

Table 1: Infusion rates when using clonidine concentration **1 microgram/mL** (most useful for neonates ≤ 2 kg)

Rate (mL/hr)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Weight (kg)	Approximate microgram/kg/hour									
0.5	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2
1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
1.5	0.07	0.13	0.2	0.27	0.33	0.4	0.47	0.53	0.6	0.67
2	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5
2.5	0.04	0.08	0.12	0.16	0.2	0.24	0.28	0.32	0.36	0.4
3	0.03	0.07	0.1	0.13	0.17	0.2	0.23	0.27	0.3	0.33
3.5	0.03	0.06	0.09	0.11	0.14	0.17	0.20	0.23	0.26	0.29

Table 2: Infusion rates when using clonidine concentration **3 microgram/mL** (most useful for neonates > 2 kg)

Rate (mL/hr)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Weight (kg)	Approximate microgram/kg/hour									
1	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3
1.5	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2
2	0.15	0.3	0.5	0.6	0.75	0.9	1.05	1.2	1.35	1.5
2.5	0.12	0.24	0.36	0.48	0.6	0.72	0.84	0.96	1.08	1.2
3	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
3.5	0.09	0.17	0.26	0.34	0.43	0.51	0.6	0.69	0.77	0.86
4	0.08	0.15	0.23	0.3	0.38	0.45	0.53	0.6	0.68	0.75
4.5	0.07	0.13	0.2	0.27	0.33	0.4	0.47	0.53	0.6	0.67
5	0.06	0.12	0.18	0.24	0.3	0.36	0.42	0.48	0.54	0.6

Table 3: Infusion rates when using clonidine concentration **4 microgram/mL** (most useful for neonates > 3 kg)

Rate (mL/hr)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Weight (kg)	Approximate microgram/kg/hour									
2	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2
2.5	0.16	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.4	1.6
3	0.13	0.27	0.40	0.53	0.67	0.80	0.93	1.07	1.2	1.3
3.5	0.11	0.23	0.34	0.46	0.57	0.69	0.80	0.91	1	1.1
4	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.9	1
4.5	0.09	0.18	0.27	0.36	0.44	0.53	0.62	0.71	0.8	0.9
5	0.08	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.7	0.8