

Vasopressin for neonates

BRIEF ADMINISTRATION GUIDE

For detailed information refer to [The Australasian Neonatal Medicines Formulary \(ANMF\) argipressin \(vasopressin\) guideline](#)



Note: Shaded text indicates where Health NZ Waikato practice differs from ANMF

Note: vasopressin is also known as argipressin

1. Medicine

1.1. Indications

- Refractory hypotension
- Refractory persistent pulmonary hypertension

Refer to the Australian National Medical Formulary if using for diabetes insipidus or gastrointestinal haemorrhage

1.2. Route and Presentation

Intravenous

- Supplied as vasopressin (argipressin) 20 units/1mL ampoule
An unapproved medicine, available under Section 29 of the Medicines Act
 - pH of vasopressin is 2.5 to 4.5

1.3. Dose

0.01 – 0.05 units/kg/hr (usual range). Maximum recommended 0.07 units/kg/hour

Start at 0.01 unit/kg/hour and titrate upward every 30-60 minutes by 0.01 unit/kg/hour until a clinically acceptable response is achieved.

2. Preparation and Administration

2.1. Compatible fluids

Sodium chloride 0.9%, glucose 5% (not tested with other fluids)

2.2. Administration Method

Continuous IV Infusion

- Select the **standard concentration** of vasopressin required based on the weight of the infant and in the context of any fluid restrictions, and prepare as per the table below:

Final Vasopressin Concentration	0.05 unit/mL	0.2 unit/mL	0.4 unit/mL
Volume of vasopressin (20 unit/mL)	0.1 mL	0.4 mL	0.6 mL
Volume of compatible fluid	39.9 mL	39.6 mL	29.4 mL
Total volume	40 mL	40 mL	30 mL

- Administer by continuous intravenous infusion via a syringe driver, strongly recommended via a central line
Note: Taper the infusion slowly when discontinuing treatment e.g. reduce dose by 0.01 unit/kg/hr every 2 – 3 hours

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

2.3. Monitoring

- Continuous cardiac monitoring
- Injection site for signs of extravasation (is a vesicant)
- Fluid balance and electrolytes, especially sodium (vasopressin can cause hyponatraemia)

2.4. Storage and Stability

- Store ampoules in the fridge between 2 and 8° C and protect from light
- Discard any remaining solution in the ampoule
- Change infusion solution every 24 hours

Vasopressin for neonates

2.5. Competency for Administration

This procedure is carried out by, or under, the direct supervision of a registered nurse/registered midwife who holds current Health NZ Waikato Generic IV / Medicine Administration skills verification plus Guardrails competency as well as Neonatal specific competency NCV/NAC (if administering via CVAD).

2.6. Guardrails

Vasopressin is not currently Guardrail profiled on the CC syringe driver for NICU.
Infusions will need to be run as “mL/hr” until vasopressin is added (see calculation in section 2.2).

3. Associated Documents

- Congenital diaphragmatic hernia management in NICU. Waikato NICU procedure, reference 3127.
- Persistent Pulmonary Hypertension of the Newborn (PPHN), Management of. Waikato NICU guideline, reference 6503

4. References

- Australian Neonatal Medicines Formulary. Argipressin Drug Guideline. 2021. Available from: www.anmfonline.org/wp-content/uploads/2021/06/argipressin-vasopressin-15042021-2.0.pdf
- Guidelines for the Use of Vasopressin in the NICU. Giesinger, R et al.
- Queensland Health Argipressin (vasopressin) clinical guideline. July 2022. Accessed via www.health.qld.gov.au/data/assets/pdf_file/0033/1165893/nmq-argipressin.pdf
- Phelps SJ, Hagemann TM, Lee KR, Thompson AJ. The Teddy Bear Book: Pediatric Injectable Drugs. 11th edition. American Society of Health-System Pharmacists; 2018.
- Canterbury DHB Neonatal Services. Vasopressin Drug Information Sheet. June 2022. Available from: <http://www.cdhb.health.nz/Hospitals-Services/Health-Professionals/Neonatal-Clinical-Resources/Neonatal-Drug-Information-Sheets>.
- Notes on Injectable Drugs. NZ Hospital Pharmacists’ Association. Accessed via www.noids.nz/wp-content/uploads/2020/11/Vasopressin-argipressin-S.pdf
- Australian Injectable Drugs Handbook 9th edition, 2023. Society of Hospital Pharmacists of Australia.

Document Ownership

Document Authorisor:	John Barnard	Chair Medicines & Therapeutics Committee
Document Authorisor:	Jutta van den Boom	Clinical Director Neonatal Intensive Care Unit
Document Facilitator:	Kerrie Knox	Pharmacist

Disclaimer: This document has been developed by Health NZ Waikato specifically for its own use. Use of this document and any reliance on the information contained therein by any third party is at their own risk and Health NZ Waikato assumes no responsibility whatsoever.

Vasopressin for neonates

Appendix A – Infusion tables to assist concentration selection

Table 1: Infusion rates when using vasopressin concentration **0.05 unit/mL**
(most useful for babies <1kg)

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 units/kg/hour									
0.5	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
1	0.005	0.01	0.015	0.02	0.025	0.03	0.035	0.04	0.045	0.05

Note: Whilst outside the recommended concentration in references, this allows for appropriate dosing in tiny babies.

Table 2: Infusion rates when using vasopressin concentration **0.2 units/mL**
(most useful for babies >1kg)

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 units/kg/hour									
1	0.02	0.04	0.06	0.08	0.1	0.12	0.14	0.16	0.18	0.2
1.5	0.013	0.027	0.04	0.053	0.067	0.08	0.093	0.107	0.12	0.133
2	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
2.5	0.008	0.016	0.024	0.032	0.04	0.048	0.056	0.064	0.072	0.08
3	0.007	0.013	0.02	0.027	0.033	0.04	0.047	0.053	0.060	0.067
3.5	0.006	0.011	0.017	0.023	0.029	0.034	0.04	0.046	0.051	0.057
4	0.005	0.01	0.015	0.02	0.025	0.03	0.035	0.04	0.045	0.05
4.5	0.004	0.009	0.013	0.018	0.022	0.027	0.031	0.036	0.04	0.044
5	0.004	0.008	0.012	0.016	0.02	0.024	0.028	0.032	0.036	0.04

Table 3: Infusion rates when using vasopressin concentration **0.4 units/mL**
(most useful for babies >3kg)

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 units/kg/hour									
3	0.013	0.027	0.04	0.053	0.067	0.08	0.093	0.107	0.12	0.133
3.5	0.011	0.023	0.034	0.046	0.057	0.069	0.08	0.091	0.103	0.114
4	0.01	0.020	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
4.5	0.009	0.018	0.027	0.036	0.044	0.053	0.062	0.071	0.08	0.089
5	0.008	0.016	0.024	0.032	0.04	0.048	0.056	0.064	0.072	0.08