		Type: Drug Guideline	Document reference: 0591	Manual Classification: Waikato DHB Drug Guidelines
Title: Caffeine Citrate for Neonates			Effective date: 8 June 2020	
Facilitator <small>sign/date</small>	Authorised <small>sign/date</small>	Authorised <small>sign/date</small>	Version: 5	Page: 1 of 3
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BRIEF ADMINISTRATION GUIDE

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



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

- Indications:**
- **< 30 weeks gestation (neuroprotection)**
 - Apnoea of prematurity
 - Weaning from mechanical ventilation
 - Premedication for infants at risk of post-operative apnoea

- Route:**
- **Oral.** Supplied as caffeine citrate oral solution 20 mg/mL (supplied in 25mL bottle)
 - **Intravenous:** peripheral, umbilical venous or central venous line catheter. Supplied as caffeine citrate injection 20 mg/mL (2.5mL amp)
 - Both preparations are unapproved medicines, available under Section 29
 - Both preparations are preservative free
 - pH of caffeine citrate adjusted to 4.7

Dose: *Note: caffeine citrate 2mg = caffeine base 1mg. State dose as caffeine citrate*

For prevention of post-operative apnoea only a single dose of 10mg/kg is required. For all other indications both a loading and maintenance dose are required. Note: IV and oral doses are equivalent.

Loading dose: 20mg/kg of caffeine citrate

Maintenance dose: 10mg/kg (range 5 to 20 mg/kg) daily of caffeine citrate, adjusted based on response.

Administer once daily, at 0600. If loading dose given before 2200 hrs, start maintenance at 0600 next day. If loading dose given after 2200 hrs, miss the next 0600 hr dose and give a day later at 0600hrs (i.e. between 24 to 32 hours after the loading dose).

Note: dose can be delayed if there is no IV access

Cessation of Treatment Cease as long as possible before discharge, review to stop at 34 weeks CGA with the aim to stop at 35 weeks CGA

Preparation and administration:

Intravenous


- Draw up the prescribed dose and dilute with compatible fluid (sodium chloride 0.9%, glucose 5%, or glucose 10%) to **desired volume** e.g. 1.6 mL for slow infusion
- Administer loading dose over at least 30 minutes and maintenance dose over **15-30** minutes via Guardrails profiled syringe driver using the NICU [slow infusion procedure](#) (#4360)

Oral

- Draw up appropriate volume in an oral syringe. Dilute with sterile water in a ratio of 1:2 .
- Consider administration with feeds to reduce gastric irritation.
- Store oral solution at room temperature

Monitoring:

- Minimum monitoring is continuous pulse oximetry

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- Additional monitoring as the patient's condition indicates
- Symptoms suggestive of caffeine-induced toxicity (e.g. tachycardia, tachypnoea, jitteriness, tremors, and unexplained seizures and vomiting)

Note: therapeutic drug monitoring is available but is considered unnecessary for most patients.

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

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

Note: limits in brackets are valid at the start of 2020 but will be updated to those outside the brackets during 2020

Guardrails Drug Name Pump	Caffeine Cit (load)* CC	0.4-1kg	1-2kg	2-3kg & 3-5kg	
Concentration (mg/ml)					
Minimum		5	12.5	19.9	
Maximum		12.5	20	20	
Administration Rate (mg/kg/h)					
Soft minimum		39	39	39	
Default		40	40	40	
Soft maximum		41	41	41	
Hard maximum		42	42	42	


Guardrails Drug Name Pump	Caffeine Cit(maint)* CC	0.4-1kg	1-2kg	2-3kg	3-5kg
Concentration (mg/ml)					
Minimum		1.25	3.12	6.25	9.37
Maximum		12.5 (6.25)	20 (12.5)	20 (18.8)	20
Administration Rate (mg/kg/h)					
Soft minimum		19 (9)	19 (9)	19 (9)	19 (9)
Default		40 (10)	40 (10)	40 (10)	40 (10)
Soft maximum		80 (21)	80 (21)	80 (21)	80 (21)
Hard maximum		82 (60)	82 (60)	82 (60)	82 (60)

Associated Documents

- Caffeine Citrate Oral Solution. Quality Use of Medicines - Medication Alert; Alert 13, October 2011.
- Waikato DHB NICU "to give slow infusion / intermittent infusion" procedure. Document ref. 4360.
- Waikato DHB NICU guideline "Dilution of oral medication and osmolality management"

References

- Australian Neonatal Medicines Formulary. Caffeine Drug Guideline. February 2016. Available from: <https://www.slhd.nsw.gov.au/rpa/neonatal/NeoMedPaperCopy.html>
- Truven Health Analytics Inc. Pediatrics and Neofax®. 2019. Caffeine citrate monograph. Accessed 11.12.2019. Available from: <http://www.micromedexsolutions.com>.
- New Zealand Formulary for Children (NZFC). Caffeine citrate. Accessed 11.12.2019. Available from https://www.nzfchildren.org.nz/nzf_1908
- 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 11.12.2019. Available from <https://pig.rch.org.au>.
- Auckland DHB Newborn Services. Caffeine citrate Drug Protocol. August 2011. Available from <http://www.adhb.govt.nz/newborn/drugprotocols/CaffeineCitrateAdministration.htm>

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- Canterbury DHB Neonatal Services. Caffeine citrate Drug Information Sheet. March 2016. Available from <https://cdhb.health.nz/wp-content/uploads/cead34ad-caffeine-citrate-236657.pdf>
- Waikato DHB. Guardrails Database. 2018.

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