NEONATAL MEDICATION GUIDELINE	
Fentanyl	
Scope (Staff):	Nursing, Medical and Pharmacy Staff
Scope (Area):	KEMH NICU, PCH NICU, NETS WA
This document should be read in conjunction with the Disclaimer.	

Quick Links

Dose	Preparation & Administration	Side Effects & Interactions	Monitoring

Restrictions

Formulary: Highly Restricted

HIGH RISK Medication ⚠

1mg = 1000micrograms

Description

Opioid analgesic

Presentation

Ampoule: 100 microgram/2 mL

Prefilled Syringe: 20 microgram/2 mL (KEMH)

Storage

Store at room temperature, below 25°C

Schedule 8 Medication

Dose

Dose must be ordered in micrograms

Elective Endotracheal Intubation

IV Push:

4 microgram/kg over 3 minutes

Analgesia

IV Push:

1 – 2 microgram/kg over 3 minutes every 2 – 4 hours as required

IV Continuous Infusion:

1 – 5 microgram/kg/hour

See preparation section for dose calculation and rate

Preparation

IV Push

Use prefilled syringes if available

Dilution:

Use fentanyl 100microg/2mL ampoules to prepare.

Dilute 50 microgram (1mL) of fentanyl and make up to a final volume of 5mL with a compatible fluid. **Concentration = 10 microg/mL**

IV Infusion

See Appendix 1 for a prescribing example using the Variable Infusion Chart.
See Appendix 2 for a prescribing example using the APS IV Analgesia Continuous Opioid Infusion Chart.
Use IV Infusion prepared by CIVAS Pharmacy where available

Infusion calculation:

Use fentanyl 100microg/2mL ampoules to prepare.

Dilute 50 microgram (1mL) per kilogram of baby's weight and make up to a final volume of 50mL with a compatible fluid. **1 mL/hour = 1 microgram/kg/hour**
Example: To prepare an infusion for a 780g infant
Weight = 0.78 kg
Dose in infusion = 50 microgram x 0.78 kg = 39 microgram
Dilute 39 microgram (0.78 mL) to 50 mL with a compatible fluid

Administration

IV Push

Give slowly over 3 minutes

IV Continuous Infusion

Infuse at the prescribed rate using a controlled infusion pump

Compatible Fluids

Sodium chloride 0.9%, Glucose 5%

Compatibility with Heparin:

	Sodium Chloride 0.9%	Glucose 5%
With Heparin	No information	No information
Without Heparin	Stable for 48 hours at room temperature	Stable for 48 hours at room temperature

Side Effects

Common: laryngospasm, bradycardia, chest wall rigidity (responds to naloxone), urinary retention (with continuous infusion)

Serious: respiratory depression, opioid withdrawal symptoms in neonates treated for greater than 5 days via continuous infusion

Interactions

Combination use with other CNS depressants can increase the opioid effect – increasing risk of respiratory depression and sedation

Refer to IV Compatibility Chart in Neonates for compatibility information or refer to the Pharmacy Department

Monitoring

Respiratory and cardiovascular status, urine output with continuous infusion

Comments

Naloxone is used as the reversal agent for fentanyl

Related Policies, Procedures & Guidelines

CAHS Clinical Guideline:

Pain Assessment and Management

Intubation

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Appendix 1: Fentanyl Continuous Infusion Chart Example

Child and Adolescent Health Service
Neonatology

NEONATAL VARIABLE RATE INFUSION CHART

Year: 20 21

ALLERGIES & ADVERSE DRUG REACTIONS
☐ Nil Known ☐ Unknown ☐ Yes – refer to NIMC (Tick appropriate box)

Patient Name: Baby A | Date: 01/06/2021
Gest Age 27 +1 | CGA 27 +6
BW 1200g | Working Wt 1200g

Med Rec. No: .....
Surname: ..... UMRN Sticker
Forename: ..... AFFIX LABEL HERE
Gender: ..... D.O.B. .....

MEDICATION ORDER		RATE CHANGE								
Date: 01/06/2021	Medication: Fentanyl	Date:	01/06/2021							
Route: IV		Time:	0915							
Dose in Infusion: 60 microg	Dose/kg/time (at 1mL/hr): 1 microg/kg/hour	Rate (mL/hr):	0.5mL/hr							
		Doctor:	A. Doctor							
Diluent: NaCl 0.9%	Dose Calculation: 50 microgram x 1.2kg	Nurse:	AN / BN							
Final Volume: 50mL	Doctor name: A. Doctor Signature: A. Doctor	Volume Discarded:								
Date: 01/06/2021	Medication: DOUBLE STRENGTH Fentanyl	Date:	01/06/2021							
Route: IV		Time:	1015							
Dose in Infusion: 120 microg	Dose/kg/time (at 1mL/hr): 2 microg/kg/hour	Rate (mL/hr):	0.5mL/hr							
		Doctor:	A. Doctor							
Diluent: Glucose 5%	Dose Calculation: 50 microgram x 1.2kg x 2	Nurse:	AN / BN							
Final Volume: 50mL	Doctor name: A. Doctor Signature: A. Doctor	Volume Discarded:								
Date:	Medication:	Date:								
Route:		Time:								
Dose in Infusion:	Dose/kg/time (at 1mL/hr):	Rate (mL/hr):								
		Doctor:								
Diluent:	Dose Calculation:	Nurse:								
Final Volume:	Doctor name: Signature:	Volume Discarded:								

Dose/kg/time will change if the concentration is adjusted. Indicate the steps taken to calculate the dose in the infusion

Appendix 2: Fentanyl APS IV Analgesia Continuous Opioid Infusion Chart Example

Child and Adolescent Health Service
Perth Children's Hospital

ACUTE PAIN SERVICE
INTRAVENOUS ANALGESIA
CONTINUOUS OPIOID INFUSION

Med Rec. No: .....
Surname: Patient
Forename: Addressograph
Gender: ..... D.O.B. .....

Ward	Height	Weight 3.2kg	Ideal Body Weight

Opioid Order

Date	Drug	Dose	Diluent (up to 50mLs)	Concentration (per mL)	Rate Range mLs/hr	Start Rate mL	Rate Rise mL	Bolus Dose mL
Date	Fentanyl	160	0.9% Sodium	3.2 microg/mL	0 - 5	1	0.5	
		microg	Chloride 50mL	(1mL = 1 microg/kg/hr)				

Naloxone

(IF OPIOID TOXICITY SUSPECTED PLEASE SEE OVER FOR MANAGEMENT INFORMATION)

IV Preparation: Dilute 400 microgram Naloxone up to 20mL with 0.9% Soduim Chloride (concentration 20micrograms/ml)
Note: If intravenous access is lost please administer Naloxone undiluted for intramuscular injection

	Pruritus 1 micrograms/kg	Excess Sedation 2 micrograms/kg (max 400mcg/dose)	Resuscitation 10 micrograms/kg (max 400mcg/dose)
	Dose:	Dose:	Dose:
Prescriber	Sig / Print	Sig / Print	Sig / Print
Date			
Time			
Initials			Pharmacist Initials

Additional Orders:

Supplemental Oxygen to maintain SaO_2 >	%	Face Mask L/min		Nasal Prongs L/min	

Pulse Oximetry	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Please Circle:	C H A	C H A	C H A	C H A	C H A	C H A	C H A	C H A

C = Continuous; H = Hourly; A = When Asleep

Anti-emetic prescribed on (please tick)	Medication Chart		PONV chart	

Prescriber Signature	Dr Signature	Prescriber Print Name	Dr Name	Date	Date	Pharmacist Initials	

Infusion Start & Loading Dose

A Registered Nurse may prepare, program and commence the infusion (in accordance with S8 policy checking procedures) as prescribed. A loading dose may be necessary to achieve an adequate therapeutic opioid level. This should be administered by the APS (Anaesthetist/NP/CNC) or the DA.

Bolus Assessment and Administration (All bolus doses are to be checked as per S8 policy):

1. Pre bolus: assess patient:
   - **Pain Assessment:** Moderate to severe
   - **Sedation Level:** Awake; easily roused to voice or tactile stimuli UMSS ≤ 2 (see over for scale)
   - **Respiratory Rate:**
     - 30 neonates infants <6months
     - 20 infants 6-12 months
     - 15 1-4 yrs
     - 12 5 – 11 yrs
     - 10 children >12 yrs
   - **Oxygen Saturation:** > 94% (or as specified according to pt condition/history)
   - **Opioid Bolus:** Dose available to be administered
2. Give bolus dose as prescribed above (ONLY ADMINISTER BOLUS IF PATIENT MEETS ALL CRITERIA)
3. Post bolus: continue assessment as per protocol.
4. If pain persists after 15 minutes, repeat steps 1 – 3 and increase the rate as prescribed above.
5. Repeat steps 1 – 4 until the maximum rate is reached.
6. Where pain remains uncontrolled following increase to the maximum infusion rate contact the Acute Pain Service or the Duty Anaesthetist.

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