

# INTRANASAL FENTANYL: USE IN THE EMERGENCY DEPARTMENT FOR PAIN RELIEF

## PRACTICE GUIDELINE<sup>®</sup>

### DOCUMENT SUMMARY/KEY POINTS

- This guideline is designed to describe the use of intranasal fentanyl for paediatric patients experiencing acute pain within the emergency department (ED).
- If you are at CHW please read this in conjunction with the [Pain Management CHW Guideline](#)
- This guideline refers to use of intranasal fentanyl for analgesia. For further information on use of intranasal fentanyl in procedural sedation please refer to the appropriate Procedural sedation guideline for your area.

### CHANGE SUMMARY

- Linked information to the Fracture Reduction guideline.
- Changes made in the Drug preparation, Drug administration and Monitoring sections.

### READ ACKNOWLEDGEMENT

- Clinical staff working in ED are to read and acknowledge they understand the contents of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure and Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> July 2020	<b>Review Period:</b> 3 years
<b>Team Leader:</b>	Staff Specialist & Deputy Department Head	<b>Area/Dept:</b> Emergency Department

## Background

Intranasal fentanyl has been identified as a rapid, painless, and safe method of administering opioids to paediatric patients in whom there is no intravenous access or who cannot tolerate the parenteral route of administration<sup>1-3</sup>. Numerous studies identify the efficacy of intranasal fentanyl when treating pain in children for burns dressings, acute long bone fractures, abdominal pain and postoperative analgesia<sup>2-6</sup>. Intranasal fentanyl administration has been proven as a viable alternative to IV morphine which provides similar analgesic outcomes<sup>2</sup>. It is rapidly absorbed as it is highly fat soluble and bypasses first pass metabolism when used intranasally, achieving therapeutic levels within two minutes of administration, with a duration of action from 30-60 minutes and a bioavailability of around 70%<sup>2,7</sup>.

## Aim

To provide adequate pain relief to paediatric patients experiencing acute pain via a relatively non-invasive route in a timely manner within the resuscitation bay or acute care areas of the ED.

## Recommendations

### Indication

Actual or potential moderate to severe pain (>6 on age appropriate pain scale)

- requiring opiate analgesia without intravenous access for use by ED staff trained in the use of the Mucosal Atomiser Device (MAD)
- Intranasal fentanyl may also be used in conjunction with nitrous oxide for the reduction of fractures. For CHW ED please see: [Fracture Reduction in the Emergency Department - CHW.](#)

### Contraindications

- Patients under 1 year of age.
- Known fentanyl hypersensitivity.
- Moderate head injuries, brain tumours, or evidence of increased intracranial pressure.
- Altered level of consciousness GCS < 15.
- Bilateral occluded nasal passages/rhinorrhoea.
- Epistaxis.
- Significant respiratory depression
- Gastrointestinal obstruction, including paralytic ileus.

- Monoamine oxidase (MAO) Inhibitor antidepressant use within 14 days (eg moclobemide, tranylcypromine, phenelzine).

## Precautions

- Respiratory, hepatic or renal impairment
- Hypothyroidism
- Chronic opioid use
- Cardiac arrhythmia
- Hypovolemia

## Side Effects

- Respiratory depression (Note: **Naloxone** must be available in case of overdose )
- Nausea/vomiting
- Hypotension
- Bad taste

## Dose

- As per AMH – Children's Dosing Companion via CIAP
- 1.5 micrograms/kg/dose via atomiser attached to a small syringe;
- Usual maximum is 75 micrograms due to volume limitations when using the 100 micrograms/2 mL ampoules; up to 100 micrograms may be given if using the 300 micrograms/mL concentration
- Repeat after 5–10 minutes if required; consider obtaining IV access for further analgesia. Maximum 2 doses.

## Drug Preparation

- CHW and SCH 100 micrograms/2 mL – Standard injectable ampoule.
- CHW Only - 450 micrograms/1.5 mL, 1.5 mL Vial Labelled Intranasal Administration Only.

## Drug Prescription

- Intranasal fentanyl must be prescribed as once only in eMM. If using the paper medication chart (PNIMC) it should be prescribed in the “once only” section.
- A suitable prescription for a 30 kg child would read:
  - Fentanyl 45 micrograms intranasal frequency - once only.
- Orders must be prescribed in micrograms (not mL) to avoid confusion.
- Intranasal fentanyl can be prescribed by Medical Officers and accredited Nurse Practitioners.

## Drug delivery device

Mucosal Atomiser Devices (MAD) are disposable single patient use atomisation devices designed for atomising topical solutions across the nasal, oropharyngeal and laryngotracheal mucous membranes.

The MAD nasal drug delivery devices have 0.1 mL system dead space. Ensure preparation of the MAD includes priming of the device. Priming is only to be done ONCE per device.

## Drug Administration

- Assess the child's pain score utilising an age appropriate pain tool.
- Provide the parent and child with an explanation of the procedure.
- Calculate the dose required (see [Appendix 1](#) and/or refer to [AMH Children's Dosing Companion](#)).
- Check the patient identification, weight and allergy including any adverse reactions to drugs.
- Attach drawing up needle (filtered for glass ampoules) to syringe (BD Luer-lock tip mL) (or at SCH 3mL syringe if dose volume more than 1mL) and withdraw required dose plus extra for priming MAD. Remove any air bubbles from syringe ensuring minimal loss of medication then remove drawing up needle and attach MAD. Prime MAD device with syringe down to required dose.

*Opioid*

Blue label with black font

Fentanyl

- Syringe must be labelled as per [National Standard for User-applied Labelling](#)
- Both clinicians checking and drawing up the medication must then proceed to the bedside and check the 8 rights of medication delivery
- Position the patient either sitting up at a 45 degree angle or with their head to one side.
- If the patient is cooperative getting them to blow their nose prior to administration may be helpful in ensuring uptake of the medication.

- Administer the dose by inserting the atomizer into the nostril loosely and aim for the centre of the nasal cavity
- Using a pulsating action administer dose in approximately 0.2mL aliquots (to maximise atomisation and absorption of the medication). For SCH, if dose is greater than 1mL, divide dose between nostrils.
- Prepare for possible IV cannulation (consider the use of the Coolsense device, Lignocaine 4% cream or lidocaine/prilocaine cream).
- Provide other supportive measures for pain management i.e. splinting a suspected fracture as required.
- Do not discard the device; it can be reused for the subsequent dose for the same patient. Label the MAD and syringe with the patients name and MRN and store appropriately. **Note: maximum of 2 doses.**
- A subsequent dose can be given if the pain is uncontrolled after five minutes, utilising the same MAD device.
- Document the child's response to the intranasal fentanyl by assessing the pain score 5-10 minutes post administration of the drug.
- Consider oral analgesia such as paracetamol and ibuprofen for ongoing pain relief.
- If further analgesia is required beyond the maximum 3 microgram/kg dose of fentanyl (that is 2 doses of 1.5 micrograms/kg), insert an IV cannula and administer a rescue dose of 0.1 mg/kg of morphine.

## Monitoring

The onset of action of intranasal fentanyl is approximately 2 – 3 minutes with duration of 30 – 60 minutes.

The child who has received intranasal fentanyl should be monitored with the same vigilance and precautions as a child receiving opiate IV therapy. They require close observation for early signs of respiratory depression or apnoea and assessment of pain should continue for 10 minutes following each administration. Observation and assessment includes: pulse, respiratory rate, SpO<sub>2</sub>, pain and sedation scores. All these are documented on the Standard Paediatric Observation Chart (SPOC) as a baseline prior to administration and then at 5 to 10 minutely intervals after each dose. Ongoing SpO<sub>2</sub> monitoring should be maintained for one hour post administration.

Discharge can occur if all observations are within normal limits after one hour if intranasal fentanyl alone has been used.

However, if intranasal fentanyl is used with other medications for eg for procedural sedation,, then refer to the [Procedural Sedation in ED –CHW](#) guideline or [Fracture Reduction in the Emergency Dept – CHW](#).

## Treatment of Adverse Effects

- Cease administration of fentanyl
- Move child to appropriate area in ED (i.e. Resus)
- Support the airway
- Administer oxygen and assist with ventilation
- Consider naloxone IM or IV (initial dose 10micrograms/kg (maximum dose 2mg). If no response consider 100micrograms/kg dose ( maximum dose 2 mg)

## Education

Training and competency in the use of the MAD device and the delivery of intranasal fentanyl must be assessed by accredited assessors i.e. Emergency Medicine Staff Specialists, Emergency Department Nurse Education Team and identified accredited assessors.

## References

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## Appendix 1: Fentanyl Doses

**Note: SCH uses one strength of Fentanyl , 50micrograms/ml**

**CHW uses 2 different strength formulations of Fentanyl, 50micrograms/ml AND 300micrograms/ml, which is for use in children 20 kg and over**

### Intranasal Fentanyl dose – Children 10-19kg – CHW and SCH

Using **50micrograms/mL** Fentanyl (Standard 100microgram/2mL amps)

(Intranasal dose = 1.5micrograms/kg/dose)

Weight kilogram	Fentanyl Dose microgram	Volume Fentanyl 50microgram/mL
10	15	0.3
11	16.5	0.33
12	18	0.36
13	19.5	0.39
14	21	0.42
15	22.5	0.45
16	24	0.48
17	25.5	0.51
18	27	0.54
19	28.5	0.57
For volumes greater than 0.2mL administer in several small aliquots to maximise absorption and reduce sneezing		

**For SCH, if dose is greater than 1mL, divide dose between nostrils.**

## Intranasal Fentanyl dose – Children 20-80kg- CHW only

Using 300micrograms/mL. (Standard 450 micrograms/1.5 mL, 1.5 mL Vial Labelled Intranasal Administration Only)

(Intranasal dose = 1.5microgram/kg/dose)

Weight kilogram	Fentanyl Dose microgram	Volume Fentanyl 300microgram/mL
20-21	30	0.10
22-23	33	0.11
24-25	36	0.12
26-27	39	0.13
28-29	42	0.14
30-31	45	0.15
32-33	48	0.16
34-35	51	0.17
36-37	54	0.18
38-39	57	0.19
40-41	60	0.20
42-43	63	0.21
44-45	66	0.22
46-47	69	0.23
48-49	72	0.24
50kg and greater	75	0.25

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