Worcestershire Acute Hospitals NHS Trust

Intranasal Fentanyl for the Management of acute pain in children.

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

The use of intranasal fentanyl has been found to be fast-acting and effective for the management of acute, severe pain in children; with its' administration causing minimal distress to the patient by reducing the requirement for cannulation.

This guideline is for use by the following staff groups:

All qualified healthcare professionals who are involved in prescribing, administration and supply of intranasal fentanyl in paediatric patients in ED departments or paediatric ward across the Trust.

Lead Clinician(s)

Louise Williams	Lead Women's and Children's Pharmacist
Selena Malone	Paediatric Clinical Educator
Approved by Medicines Safety Committee on:	9th July 2025
Review Date: This is the most current document and should be used until a revised version is in place	9th July 2028

Key amendments to this guideline

Date	Amendment	Approved by:
28th June 2021	New document approved	Medicines Safety Committee
14th August 2024	Reference list updated. No changes to document. Approved for 3 years.	Louise Williams
March 2025	Include use in Riverbank/PAU. Include sickle cell as an indication. Include information on peak effectiveness and duration of action.	Paediatric Governance Committee
May 2025	Update to dosing table, final volumes calculated including dead space in the device.	

Intranasal fentanyl for the management of acute pain in children.

Introduction
Many Emergency Departments now use intranasal fentanyl for the management of acute, moderate to severe pain in children instead of intranasal diamorphine or oral morphine.

Intranasal delivery is a fast and effective route of administration that avoids the additional distress of inserting an intravenous cannula.

Indication
Children presenting with acute, severe pain (usually resulting from burns, fractures, or sickle cell crisis).

See separate policy: Guideline for the acute management of sickle cell disease in children <18 years presenting to Riverbank Ward or the Children's Emergency Department at WRH.

Patient group
Children weighing between 10 and 50kg.

Contra-indications, cautions and prescribing considerations
- Hypersensitivity to fentanyl or any other opiates
- Drug interactions
- Evidence of respiratory depression or upper respiratory tract infection
- Evidence of head injury and/or altered state of consciousness
- Evidence of liver disease
- Epistaxis
- Bilateral occluded nasal passage
- Age <1 year (limited safety data available)
- MAOI administration within the last 14 days

Peak Effectiveness and Duration of Action
- Compared with intravenous route, intranasal fentanyl has a slower onset of action. Therapeutic level is reached within 2 minutes and peak plasma levels reached between 5 and 16 minutes.
- The half-life of Fentanyl is up to 65 minutes when given via the intranasal route. Therefore, Children should be observed for a minimum of 1 hour prior to discharge after administration of intranasal fentanyl.

Prescribing
- Establish patient weight - weigh child or use APLS formulae available in resus (NOT to be used in patients <10kg).
- Establish baseline observations including pulse, blood pressure, SpO_2, capillary refill, respiratory rate, pain score and sedation score.
- **Initial dose to be prescribed at 1.5microgram/kg** (*figure 1)* with a **2nd dose to be prescribed at 1microgram/kg** (*figure 2*) **after 10 minutes** *only if the initial analgesic effect of the initial dose was inadequate.*
- If in doubt, round down to lower dose bracket.

- In severe renal impairment, patients may be at risk of accumulation and toxicity -consider using lower dosing of 0.75 microgram/kg initially or alternative analgesia.
- Please note that intranasal fentanyl is an off-label indication thus the prescribing clinician will take full responsibility for its' use.

Initial dose: 1.5 microgram/kg

Weight (kg)	Initial Dose: (1.5 micrograms/kg)	Dose of Fentanyl 100 microgram/2mL injection (mL)	Final Volume of 100 microgram /2mL Fentanyl Required*
10-11.9	15 micrograms	0.3ml	0.4ml
12-13.9	18 micrograms	0.35mL	0.45ml
14-15.9	20 micrograms	0.4mL	0.5ml
16-17.9	24 micrograms	0.5mL	0.6ml
18-19.9	27 micrograms	0.55mL	0.65ml
20-24.9	30 micrograms	0.6mL	0.7ml
25-29.9	37.5 micrograms	0.75mL	0.85ml
30-34.9	45 micrograms	0.9mL	1.0ml
35-39.9	50 micrograms	1mL	1.1ml
40-44.9	60 micrograms	1.2mL	1.3ml
45-49.9	67.5 micrograms	1.35mL	1.45ml
>50kg	75 micrograms	1.5mL	1.6ml

Figure 1

***Additional 0.1ml to allow for dead space within the device**

2nd dose of 1microgram/kg

To be prescribed 10 minutes after the initial dose only if required.
Patient should be awake or easily roused to voice before considering 2nd dose.
Seek medical review if requiring further analgesia after the 2nd dose.

Weight (kg)	2nd Dose: (1microgram/kg)	Volume of Fentanyl 100microgram/2mL injection (mL)
10-11.9	10 micrograms	0.2mL
12-13.9	12 micrograms	0.25mL
14-15.9	15 micrograms	0.3mL
16-17.9	15 micrograms	0.3mL
18-19.9	18 micrograms	0.35mL
20-24.9	20 micrograms	0.4mL
25-29.9	25 micrograms	0.5mL
30-34.9	30 micrograms	0.6mL
35-39.9	35 micrograms	0.7mL
40-44.9	40 micrograms	0.8mL
45-49.9	45 micrograms	0.9mL
>50kg	50 micrograms	1mL

Figure 2

Administration

- Select **Fentanyl 100microgram/2mL injection** from controlled drugs cupboard.
- Ensure prescription meets legal requirements and the transaction is entered into the controlled drugs register as per Trust policy.

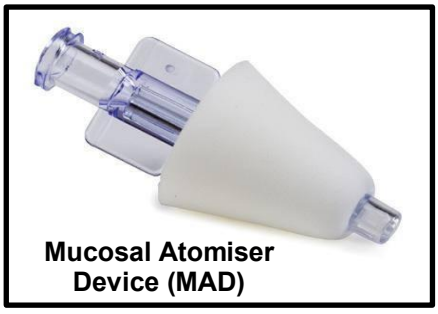
Initial dose

1.) Using a 1mL or 2mL syringe, draw up required volume of fentanyl using the above dosing table above **plus 0.1mL** to allow for dead space in the device (*Note, volumes of fentanyl in table have been rounded to the nearest 0.05mL for ease of measuring*).
2.) Attach the Mucosal Atomiser Device (MAD) to the end of the syringe.
3.) Ensure patient is sat at 45 degrees or with head to one side and loosely insert the MAD into one nostril. Aim for centre of nasal cavity and quickly press the plunger. For doses >0.5mL, spilt the dose between 2 nostrils.
4.) Hold MAD in place for 5 seconds to reduce spillage from nostril.

If requiring a 2nd dose: only draw up the dose required as the MAD will already be primed.

Monitoring and adverse effects

- Take observations at 10 minute intervals for 20 minutes post dose (i.e. 2 sets of observations should be taken following administration).
- Increase frequency of observations to every 5 minutes if the patient appears overly sedated or have abnormal observations, attach a continuous oxygen saturation monitor and seek a medical review.
- Observe closely for any adverse effects including sedation, respiratory depression and hypotension.
- Contact a senior doctor if there are any concerns regarding the above adverse effects - the child may require naloxone therapy to reverse the effects of intranasal fentanyl.
- Mild, uncommon side effects following administration of intranasal fentanyl include nausea, vomiting or reporting a “bad taste”.
- Children should be observed for a minimum of 1 hour prior to discharge after administration of intranasal fentanyl. Ensure the child is easily rousable to voice prior to discharge.



Mucosal Atomiser Device (MAD)

Monitoring Tool

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	Ensuring the appropriate use of intranasal fentanyl within the patient demographics stated within this guidance.	Review efficacy of agent against relevant pain scores.	Once every 3 years.	Emergency medicine audit lead.	Emergency medicine directorate.	Once after audit completion.
	Ensuring the appropriate use of intranasal fentanyl within the patient demographics stated within this guidance.	Review efficacy of agent against relevant pain scores.	Once Every 3 years.	Paediatric medicine audit lead	Women's and children's directorate	Once after audit completion.

References

Guideline for the use of intranasal Diamorphine (WAHT-A&E-028). Worcestershire Acute Hospitals NHS Trust. (June 2025).

Intranasal analgesia (Fentanyl and Diamorphine) for children in the Emergency Department. Leicester Royal Infirmary Emergency Department (March 2024).

Murphy et al. Intranasal fentanyl for the management of acute pain in children. *Cochrane Database of Systematic Reviews* 2014, Issue 10. Art. No.: CD009942.

Prommer, E. & Thompson, L. Intranasal fentanyl for pain control: current status with a focus on patient considerations. Patient Prefer Adherence 2011. Available at: Intranasal fentanyl for pain control: current status with a focus on patient considerations - PubMed [Accessed 13/03/2025].

Serra et al. Intranasal Fentanyl for Acute Pain Management in Children, Adults and Elderly Patients in the Prehospital Emergency Service and in the Emergency Department: A Systematic Review. J Clin Med 2023 Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC10095441/ [Accessed 13/03/2025].

Worcestershire Acute Hospitals NHS Trust. MedPolSOP5 Procedure for the Use of Unlicensed Medicines and Unlicensed Use of Licensed Medicines (Off-Label). June 2024.

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation
All ED Consultants
Dr Catrin Dyer - Consultant body representative for ED
Keith Hinton – Lead Pharmacist for Critical Care, Surgery and Anaesthetics
Tina Evans – Lead Pharmacist for Urgent Care
Elma Wong – Consultant Anaesthetist (Acute Pain Lead)
Mike McCabe - Consultant Anaesthetist

This key document has been circulated to the chair(s) of the following committees / groups for comments;

Committee
Paediatric Governance Committee
Medicines Safety Committee

Supporting Document 1 - Equality Impact Assessment Tool

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

Worcestershire Acute Hospitals NHS Trust

Worcestershire Acute Hospitals NHS Trust

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	✓	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	**Louise Williams**

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Louise Williams	**Lead Pharmacist – Women's and Children's division**	**Louise.williams49@nhs.net**
Date assessment completed	**02/08/2021**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title: Intranasal Fentanyl for the Management of acute pain in children within the Emergency Department**			
What is the aim, purpose and/or intended outcomes of this Activity?	To advise on the safe prescribing and administration of intranasal fentanyl in children attending A&E across the Acute Trust.			
Who will be affected by the development & implementation of this activity?	❑	Service User	✓	Staff
	✓	Patient	❑	Communities
	❑	Carers	❑	Other _____
	❑	Visitors	❑	
Is this:	✓ Review of an existing activity ☐ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			

What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	Approached by ED consultant to review existing intranasal diamorphine guideline due to national stock shortage of diamorphine. Evidence for the use of intranasal fentanyl is based on Cochrane systematic review for its' use in paediatric patients hence specific for this group. Patients, parents and carers were not contacted or involved in the production of this guideline as not applicable in this instance; fentanyl use is sporadic in an accident and emergency setting hence cannot have a pre-determined patient group.
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	n/a
Summary of relevant findings	n/a

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		✓		
Disability		✓		
Gender Reassignment		✓		
Marriage & Civil Partnerships		✓		
Pregnancy & Maternity		✓		
Race including Traveling Communities		✓		
Religion & Belief		✓		
Sex		✓		
Sexual Orientation		✓		
Other Vulnerable and		✓		

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		✓		

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	Analgesic effect not as efficacious as diamorphine.	Audit efficacy of fentanyl with regards to effect on pain scores- to discuss experience of using fentanyl with ED consultants.	W&C pharmacist to liaise with ED consultants	After 3 months.
	Appropriate storage and handling of fentanyl as schedule 2 controlled drug.	Ensure practice is in line with that in Trust Controlled drugs policy and to carry out quarterly CD audit..	ED pharmacy team	Quarterly (ongoing).
How will you monitor these actions?	Controlled drugs audit results available on GAP.			
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	Approximately 3 months after implementation.			

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation
1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.
1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	L Williams
Date signed	02/08/2021
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval