Whittington Health NHS

Administration of Intranasal Diamorphine to Children in the Paediatric Emergency Department

Subject:	Intranasal Diamorphine administration
Policy Number	N/A
Ratified By:	Clinical Guidelines Committee
Date Ratified:	April 2012, reviewed with minor update September 2015
Version:	3.0
Policy Executive Owner:	Clinical Director, Emergency and Urgent Care ICSU
Designation of Author:	Paediatric Emergency Nurse Consultant Paediatric Advanced Nurse Practitioner/Lead Nurse
Name of Assurance Committee:	As above
Date Issued:	October 2015
Review Date:	October 2018 (3 years hence)
Target Audience:	All Clinical Staff in Emergency Dept
Key Words:	Analgesia, intranasal, diamorphine

Version Control Sheet

Version	Date	Author	Status	Comment
1	August 2009	Lorrie Lawton	Off line	New guideline ratified at CGC
2	April 2012	Lorrie Lawton	Off line	Reviewed with minor amendments
3.	Sept 2015	Natasha Macleod	Current	Reviewed with minor amendments • Reduced Glasgow Coma Scale addition to Exclusion Criteria • Update of Appendix B Algorithm including MHRA restricted use of codeine to children over 12 years of age. • Reference docuemnts amendments

➢ Criteria for use

Children (> 10kg in weight) presenting to the Paediatric Emergency Department with:

- pain score of 3,
- or have significant injury
- or who are refusing Morphine Sulphate orally.

➢ Background/ introduction

The Paediatric Emergency Department at Whittington Health uses the College of Emergency Medicines algorithm for the treatment of children in pain (revised July 2013). The algorithm clearly indicates the use of intranasal diamorphine, for those children with a pain score of 3. See appendix A & B.

Diamorphine is highly water soluble and has a number of properties that render it suitable for administration via the nasal route. Intranasal diamorphine has a peak plasma concentration occurring within 5 minutes, it is rapidly converted to 6-acetylmorphine (peak concentration within 5-10 minutes) and thence to morphine (peak concentrations within 1 hour) (1). Two prospective randomised clinical trials have been completed examining the administration of intranasal diamorphine to children. A study of 58 children from ages 3-16 years with suspected limb fractures, concluded that intranasal diamorphine is an effective, safe, and acceptable method of analgesia for the children requiring opiates(2).

A larger (n=404) multi centred prospective randomised controlled clinical trial, found that onset of pain relief was faster in the spray group that in the intramuscular group, with lower pain scores in the spray group at 5, 10, and 20 minutes after treatment but no difference between the groups after 30 minutes (3). There were no serious adverse events in either group. The authors conclude that nasal diamorphine spray should be the preferred method of pain relief in children presenting in acute pain.

	Please see Whittington Health Guideline: Analgesia –Management of Children over 1 year

➢ Inclusion/ exclusion criteria

Inclusion Criteria:

1. Clinically suspected limb fractures

2. Painful and distressing burns

3. Significant fingertip injuries

4. Refusing Morphine Sulphate Oral

Exclusion criteria:

1. Child less than 10kg weight – give Morphine Sulphate Oral Solution instead.

2. Concomitant use of other opiates or Midazolam.

3. Blocked nose or concurrent upper respiratory tract infection.

4. Reduced Glasgow Coma Scale

➢ Prescribing Protocol

1. Assess child's pain score is 3 then procedure with protocol – if below then consider alternative analgesia.
2. Weigh the child in Kg (if appropriate use weight estimation formula:

   Age + 4 x 2)

3. Prescribe diamorphine via intranasal route:
   - the dose is based on 100 micrograms/kg
   - but prescribe the dose (to two decimal points where necessary) in the final column of the table below.
4. Use the table to determine the volume of diluent – this need to be prescribed by medical staff as sodium chloride 0.9%.
5. Add the prescribed volume of diluent to 10mg Diamorphine ampoule, disperse the powder.
6. Draw up 0.2mls of the resulting solution into a 1ml syringe.
7. Discard all of the remaining solution following the controlled drugs procedure for disposal of waste.

➢ Administration

Attach the 1ml syringe containing the 0.3mls of diamorphine solution to a mucosal atomisation device.

1. Using 0.1ml the mucous atomiser is to be primed
2. Gently tip child's head, insert the mucosal atomisation device into a nostril and squirt the remaining 0.2ml up one nostril.
3. Ask the child to sniff. The child may sneeze – if the child sneezes immediately then a second dose is given. If the child sneezes after 5 minutes the diamorphine will be absorbed – so a second dose is unnecessary.
4. Observe every 15-minute following administration of the opiate, with regular assessment of GCS and SaO2.
5. Reassess pain score after 30 minutes – act appropriately e.g. if no pain relief give intra venous Morphine as per algorithm
6. Ensure clear documentation on the Drug chart and within the ED notes
7. Make sure staff are aware of administration when handing over care – they may assume no analgesia has been given if they do not see a cannula!

NB:

ALL CHILDREN RECEIVE 0.2MLS

THE SMALLER THE CHILD, THE GREATER THE AMOUNT OF DILUENT USED SO THEY RECEIVE A SMALLER DOSE. (See table)

IMPORTANT CONSIDERATIONS

1. Absorption can be as fast as the IV route
2. Parents/carers should be given opiate/sedation advice sheet.

➢ Table of diluents & resultant doses

The table below lists the volume of diluent – 0.9% Sodium Chloride which is used to dilute the contents of a 10mg ampoule of diamorphine. Discard all but 0.2mls following controlled drugs procedure.

WEIGHT (KG)	Volume of Diluent (Sodium Chloride 0.9%) mls to be added to 10mg ampoule	Resultant dose in 0.2mls
10	2.00	1.00mg
11	1.80	1.11mg
12	1.70	1.18mg
14	1.40	1.43mg
16	1.20	1.67mg
18	1.10	1.82mg
20	1.00	2.00mg
25	0.80	2.50mg
30	0.70	2.86mg
35	0.60	3.33mg
40	0.50	4.00mg
50 and above	0.40	5.0mg

➢ Protocol and feedback

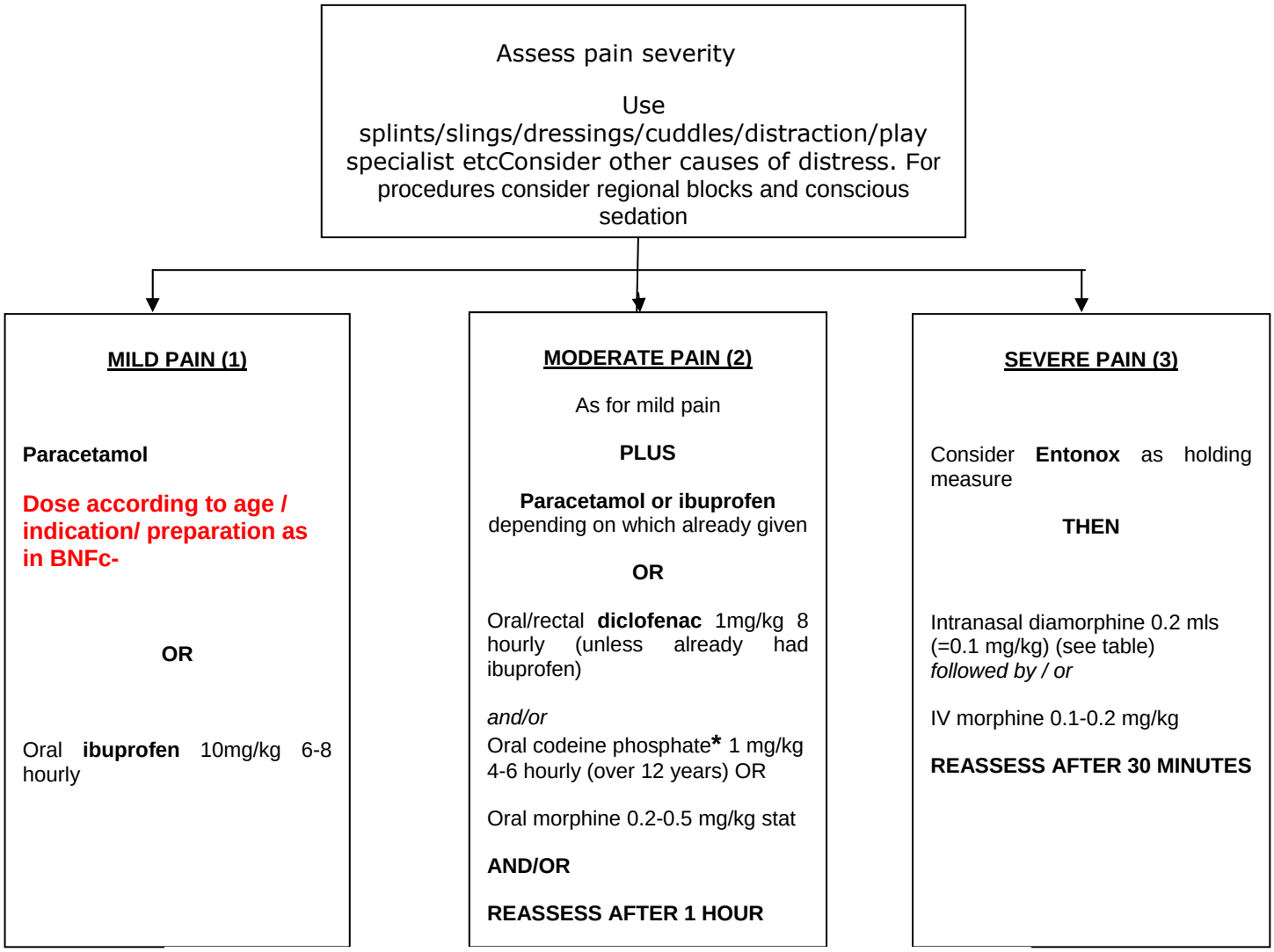
The protocol will be, initially, audited yearly using the audit form in appendix B. The results will be feedback to the Emergency Department Board and the relevant Clinical Governance forums.

Append

	No Pain	Mild Pain	Moderate Pain	Severe Pain
Faces Scale				
Whittington Pain Score	**0**	**1**	**2**	**3**
Behaviour	• Normal activity • No ↓movement • Happy	• Rubbing affected area • ↓ movement • Neutral expression • Able to play/talk normally	• Protective of affected area • ↓ movement • Quiet • Complaining of pain • Consolable crying • Grimaces when affected part moved/touched	• No movement or defensive of affected part • Looks frightened • Very quiet • Restless, unsettled • Complaining of lots of pain • Inconsolable crying
Injury example	• Bump on head	• Abrasion • Small laceration • Sprain ankle/knee • # fingers/clavicle • Sore throat	• Small burn/scald • Finger tip injury • # forearm/elbow/ankle • Appendicitis	• Large burn • # long bone/dislocation • Appendicitis • Sickle crisis

Appendix B

Use the algorithm below in conjunction with the acute pain assessment chart to help decide which analgesia a child in pain should receive. Continue to reassess the child's pain throughout their stay in A&E and act as necessary.



* The MHRA has restricted use of codeine to those over 12 years of age

Time of initial assessment	
Pain score at initial assessment	
Action taken (slings/distraction etc)	
Analgesia given	
Time reassessed	
Pain score at reassessment	
Further analgesia given	

➢ References

1. Kendall J & Latter V (2003) Intranasal diamorphine as an alternative to intramuscular morphine: pharmacokinetics and pharmocdynamic aspects **Clinical Pharmacokinetics 42(6):501-503**

2. Wilson J, Kendall J and Cornelius P (1997) Intranasal diamorphine for paediatric analgesia: assessment of safety and efficacy **Journal of Accident and Emergency Medicine 14(2):70-72**

3. Kendall J, Reeves C, Latter V (2001) Multicentre randomised controlled trail of nasal diamorphine for analgesia in children and teenagers with clinical fractures **BMJ 322:261-265**

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to	Yes	

	Title of document being reviewed:	Yes/No	Comments
	support the monitoring of compliance with and effectiveness of the document?		
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			