St. James’s Hospital
HOPE Directorate
National Centre for Hereditary Coagulation Disorders (NCHCD)

Haemophilia - Acute Pain Pharmacological Management SOP
SOP No. SJH: CLN(HOPE)050

<table>
<thead>
<tr>
<th>Owner:</th>
<th>Approved by:</th>
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<tbody>
<tr>
<td>Clinical Nurse Manager III: Ms. V Graham</td>
<td>Consultant Haematologist: Dr. N. O’Connell</td>
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<tr>
<th>Reviewed by:</th>
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<tr>
<td>Palliative Care Consultant: Dr. L. Balding</td>
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This policy replaces all existing policies/protocols related to Acute Pain Management in Haemophilia from December 2014 and are due for review in December 2016. It will be reviewed during this time as necessary to reflect changes in best practice, law, and substantial organisation, professional or academic change.

Distributed to: Director of Nursing; ADON HOPE Directorate; Nurse Practice Development Unit; NCHCD CNSs; H&H Ward CNMs.
Posted SJH Intranet: http://www.stjames.ie/intranet/ppgs/clinicaldirectorates/

1.0 Introduction
St. James’s Hospital is committed and acknowledges its responsibility to provide safe, effective, patient-centered treatment and care in an environment that is appropriate and secure for patients, staff and site visitors. The treatment and care of all persons attending the Hospital is planned and delivered in response to the patient’s assessed needs by an appropriate multidisciplinary team under the supervision of a named Consultant in consultation with the patient and in accordance with best-practice guidelines. The Hospital recognises the importance of early effective pain management and has in place procedures for appropriate assessment and treatments.

Persons with Haemophilia are subject to acute pain as a consequence of the bleeds that they experience. In St. James’s Hospital persons with Haemophilia who present with acute bleeds are treated with Factor replacement in accordance with their individual treatment plans and National Guidelines. In addition the attending clinical staff (i.e. nursing and medical) is required to assess and treat the person’s pain using a combination of non-pharmacological interventions such as physiotherapy and PRICE (Projection, Rest, Ice, Compression & Evaluation) and the pharmacological agents directed herein. In doing so the clinician needs to take into account the severity of the bleed and pain, the patient’s immediate and on-going (24 Hours) pain assessment and analgesia requirements and where appropriate the patient’s individual analgesia treatment plan (Refer Algorithm **). Attending Clinical staff are required to assess the patient’s pain and prescribe analgesia in accordance with the treatment protocols presented herein as severity-specific algorithms which are as follows:

- Severe Pain Management (Oral Analgesia) - Page 6
- Severe Pain Management (Intravenous Analgesia) – Page 8
- Severe Pain Management (High Dose IV Analgesia) - Page 9
- Moderate Pain Management – Page 10
- Mild Pain Management - Page 11

Where required further information or support should be sought from the Coagulation Haematology Registrar/Consultant on-call.
2.0 Scope
This SOP applies to the following:
- The pharmacological management of persons with haemophilia assessed as having acute pain.
- All medical and nursing staff taking care of haemophilia inpatients experiencing acute pain.

3.0 Aim
To define responsibility and direct clinical staff in the procedures they are required to undertake when assessing and treating acute pain in persons with haemophilia.

4.0 Definitions / Glossary
- Pain is defined as “an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage”. For the purpose of this SOP three types of pain are identified as follows:
  - Transient pain is a pain of brief duration and little consequence.
  - Acute pain is usually associated with some tissue damage and the duration of the pain relates to the healing time of the injury. Acute pain is defined as pain of recent onset and probable limited duration and is usually associated either with injury or disease. Acute pain can result from bleeding episodes in haemophilia patients.
  - Chronic pain has been described as a distinct phenomenon in comparison with acute pain. For haemophilia patients the cause of chronic pain, i.e. joint damage, persists longterm. In other chronic pain syndromes, normal healing does not occur within a distinct period (usually six months is used as a guide). Chronic pain can negatively influence quality of life and mood (Rilet et al 2011). Consequently effective assessment and control of chronic pain is essential for haemophilia patients.

4.0 Standards
5.1 Pain Assessment
5.1.1 Where a person with haemophilia presents reporting pain the Clinician(Medical & Nursing) attending to the patient is required to assess their pain severity and requirements as follows:
  5.1.1.1 Ask the patient to describe the pain using the numerical pain scale (1 – 10) where 1 is the least amount of pain and 10 the most severe level of pain.
  5.1.1.2 Observe and take into account the patient’s verbal and non-verbal cues.
  5.1.1.3 Ascertain the person’s past and current medical status e.g. haemophilia treatments and frequency of bleed events, known previous analgesia requirements.
  5.1.1.4 Where a patient is identified as having a current Analgesia Treatment Plan that includes the use of high-dose morphine in the event of a bleed, the clinician should access the patient’s treatment plan on Clintech EPR under the ‘Patient Plan’ section.
  5.1.1.5 Identify known joint or muscle damage
5.1.1.6 Observe for the presence of the following to assist in assessing the severity of the bleed and the associated pain:
- Overt signs of bleeding
- Swelling or compartment syndrome
- Peripheral perfusion
- Altered sensation.

5.1.2 The clinician must determine the assessed pain severity as a numerical score using the numerical pain scale (1 – 10) where 1 is the least amount of pain and 10 the most severe level of pain.

5.1.3 The score must be recorded on the patient’s Observation Chart.

5.1.4 Using the assessed score the clinician should identify the corresponding severity rating and ‘Step’ on the ‘Reverse Pain Ladder’ (Refer Tables 1 & 2 below)

5.1.5 The clinician should select the analgesia type corresponding to the patient’s assessed pain step i.e. Step 1 (Severe) to Step 3 (Mild) in consultation in with the patient

<table>
<thead>
<tr>
<th>Pain Score</th>
<th>Level of Pain</th>
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<tbody>
<tr>
<td>&gt; 7 out of 10</td>
<td>Step 1: Severe pain</td>
</tr>
<tr>
<td>4 to 6 out of 10</td>
<td>Step 2: Moderate pain</td>
</tr>
<tr>
<td>≤ 3 out of 10</td>
<td>Step 3: Mild pain</td>
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Table 2.0: Reverse Pain Ladder (Adapted from McQuay)

Begin with high dose
Reduce analgesia when pain is controlled

High dose analgesia is for a limited period only.
5.2 Prescribing Pain Treatment

5.2.1 The doctor assessing and prescribing treatment for pain must select and prescribe analgesia in accordance with the algorithm specific to the pain level / step identified as follows:

- Persons assessed as having Step 1 (Severe) Acute Pain (Pain score >7-10) requiring oral analgesia should be treated in accordance with Algorithm A (Page 6)
- Where this person i.e. Step 1 (Severe) Acute Pain (Pain score >7-10) is identified as requiring regular oral analgesia over 24hours the analgesia requirements should be calculated and prescribed accordance with Algorithm B (Page 7)
- Persons assessed as having Step 1 (Severe) Acute Pain (Pain score >7-10) requiring intravenous analgesia should be treated in accordance with Algorithm C (Page 8)
- Persons assessed as having Step 1 (Severe) Acute Pain (Pain score >7-10) requiring high dose intravenous analgesia should be treated in accordance with Algorithm D (Page 9). These patients have existing individual analgesia treatment plans (accessible on Clintech EPR) which includes daily Opioid medication.
- Persons assessed as having Step 2 (Moderate) Acute Pain (Pain score >4-6) requiring oral analgesia should be treated in accordance with Algorithm E (Page 10)
- Persons assessed as having Step 3 (Mild) Acute Pain (≤ 3 out of 10) requiring oral analgesia should be treated in accordance with Algorithm F (Page 11)

5.2.2 The S.H.O. on call is authorised to prescribe analgesia in accordance with algorithms (included herein) for Pain assessed as Step 2 (Moderate) and Step 3 (Mild).

5.2.3 Where patient’s pain is assessed as Step 1 (Severe) the clinician must contact Coagulation Haematology Registrar/ Consultant on call for advice.

5.2.4 In the event the attending medical staff is unfamiliar with Haemophilia pain requires support or advice they must contact the Coagulation Haematology Registrar/ Consultant.

5.2.5 Analgesia must be prescribed on the patient’s medication kardex in accordance with the Hospital’s Prescribing Policy.

5.3 Opioid Reversal

5.3.1 In the event reversal of an opioid is indicated due to the presence of excessive respiratory depression Naloxone should be prescribed and administered in accordance with Algorithm G (Page 12)

5.3.2 In order to maintain the patient’s safety and comfort and avoid totally reserving the effect of the opioid analgesia naloxone should not be used for drowsiness and/or delirium which is not life threatening. The decision to administer Naloxone should be based on the following criteria only:
- Patient’s respiratory rate is < 8/min
- Patient is barely rousable/ unconscious
- Patient is cyanosed
5.3.3 Naloxone should be administered slowly and close monitoring of the patient is required. As the drug has a shorter duration of action (15 - 90 minutes) than most opioids repeat administration may be required but must be based on continuous patient assessment.

5.4 Analgesia Side Effects

5.4.1 Side effects that commonly associated with the use of opioid preparations i.e. constipation and Nausea should be pharmacologically treated in accordance with Algorithm H (Page 13)

5.4.2 In the event the patient experiences other complications the Medical Officer should contact the Coagulation Haematology Registrar/Consultant for advice and support.
Algorithm A
Step 1 (Severe) Acute Pain (Pain score >7-10)- Oral Analgesia

Oral Analgesia

*Morphine Sulphate PO*
*Sevredol® / Oramorph® (10 mg/5 ml)*

*Initial Dose*: 5-10 mg / *Onset*: 30 mins-1 hour

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Pain controlled, after 30 mins?

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Yes

(Pain score = 0-1) Prescribe 4-6 hourly, prn.

No

Reassess pain every 30 mins for 2 hours. Administer analgesia if patients pain score > 6.

Repeat dose to a max of 30 mg

Pain controlled?

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Yes

(Pain score = 0-1) change Codeine/ Tramadol.

No

Discuss with NCHCD Consultant/ Registrar

Reassess patient’s pain every 2 hours until pain has resolved

(NB if patient is sleeping, do not wake)
Algorithm B
Calculation for Regular Opioid Dose (24 hour period)

Total dose in 24 hour period

Divide by 6

(to calculate how much immediate release opioids is required for breakthrough pain)
(i.e. Sevredol®, Oxynorm®, Oramorph®, Palladone® capsules.)

Prescribe 2-4 hourly.

Review every 24-36 hours.

Add total previous 24 hours sustained release opioids plus breakthrough requirement, (i.e. immediate release opioids) and re-prescribe daily dose of sustained release opiate + breakthrough requirements.

Example: Patient on MST 30mg BD plus 4 doses of 10 mg Sevredol®= 100 mg morphine in 24 hours.
New prescription should be: 50 mg MST® BD plus 15mg Sevredol® 4 hourly PRN.

Refer to Opioid Conversion Chart (Our Lady’s Hospice and Care Services) – appendix 1
Algorithm C
Step 1 (Severe) Acute Pain (Pain score >7-10)- Intravenous Analgesia

Intravenous Analgesia
Prior to prescribing IV opioids the SHO should discuss the analgesia management plan with Coagulation Haematology Consultant / Registrar on-call

*Morphine Sulphate IV (10mg/1ml)*

**Initial Dose:** 2-5 mg / **Onset:** 20-30 mins / **Peak:** 60-90 mins

**Preparation:** Dilute 10 mg to 10 ml with NaCl 0.9% to a concentration of 1 mg/1 ml

**Administration:** Each 1 mg given over 1 minute (i.e. 5 mg/5 min) as a slow IV bolus.

**Vital Signs:** Monitor and record BP, pulse and respiration rate 10 minutes after administering IV morphine; then every 15 minutes for 30 minutes.

Pain controlled, after 30 minutes?

Yes

*(Pain score = 0-1)* change to oral analgesia.
Prescribe 4-6 hourly regularly.

No

Reassess pain every 30 mins for 2 hours. Administer analgesia if patients pain score > 6. Repeat dose to a max of 10 mg IV.

Pain controlled?

Yes

*(Pain score =0-1)* change to oral analgesia (MST®/ Sevredol®).

No

Discuss with NCHCD Consultant/ Registrar

Reassess patient’s pain every 2 hours until pain has resolved *(NB if patient is sleeping, do not wake)*
**Algorithm D**

**Step 1 (Severe) Acute Pain (Pain score >7-10) - High Dose Intravenous**

**High dose IV Morphine: Individualised patient analgesia plan**
There are a small number of patients who require high doses of IV morphine in order to provide adequate pain control. Individualised analgesia plans have been devised for each of these patients. The individual plan is located in the patients file on Clintech (the Haemostasis & Thrombosis EPR) under “Plan”. Where the plan / Clintech cannot be accessed the Prescriber must contact the Coagulation Consultant on call.

**Intravenous Analgesia (High Dose)**
*(ONLY for patients on morphine preparations at home)*
Discuss with Consultant / Registrar on-call prior to administering IV opioids

**Morphine Sulphate IV (10 mg/1 ml)**
*Initial Dose: 10 mg / Onset: 20-30 mins / Peak: 60-90 mins*

**Preparation:** Dilute 10 mg in 100 ml bag of NaCl 0.9% (final concentration 10 mg in 100 ml).
**Administration:** Over 30 minutes via IV infusion pump
**Vital Signs:** Monitor and record BP, pulse and respiration rate
10 minutes after administering the IV morphine then every 15 minutes for a total of 60 mins.

Pain controlled, after 30 minutes?

Yes

(Pain score =0-1) change to oral analgesia.
*Sevedol®/ Oromorph®*
Prescribe 4-6 hourly.

No

Reassess pain every 30 mins for 2 hours. Administer analgesia if Patient’s pain score >6.
Repeat dose to a max of 20 mg IV.

Pain controlled?

Yes

(Pain score =0-1) change to oral analgesia.

No

Discuss with NCHCD Consultant/ Registrar

Reassess patient’s pain every 2 hours until pain has resolved
*(NB if patient is sleeping, do not wake)*

All intravenous morphine should be converted to oral medication as soon as possible,
See Appendix for IV to oral opiate conversion chart
Algorithm E  
Step 2 (Moderate) Acute Pain (Pain score 4-6) - Oral Analgesia

Oral Analgesia
Option 1: Tramadol PO: 50 mg  

Dose: Initially 50mgs BD.  
Titrate to 100 mgs QDS if required. Max Dose in 24hrs: 400 mg  

Caution: Avoid in elderly patients or those patients with a history of epilepsy. In addition avoid in those patients who have been treated with MAOI/SSRIs within the past 2 weeks. Reduce dose in severe hepatic and renal impairment.

Option 2: Etoricoxib (Arcoxia®)  

Dose: Up to 120mg daily (for max. 8 days)  
Caution: in those with risk factors for IHD, CCF NYHA II-IV, Stroke, GI bleeding history, Arterial or PVD. Avoid in severe hepatic impairment (Child Pugh 10-15) and renal impairment (GFR <30ml/min). Reduce dose for patients with mild hepatic disease (Child Pugh 5-6) (60mg OD) and moderate hepatic disease (Child Pugh 7-9) (30mg OD). [http://www.stjames.ie/intranet/resources/prescribersguide/chapter,12.may2013.pdf]  

Pain controlled, after 1hour?  

Yes  
(Pain score =0-1) Prescribe 6 hourly regularly  

No  
Repeat dose of tramadol  

Pain controlled?  

Yes  
(Pain score =0-1)  
Prescribe 6 hourly  

No  
Discuss with NCHCD Consultant/ Registrar  

Reassess patient’s pain every 2 hours until pain has resolved  
(NB if patient is sleeping, do not wake)
Algorithm F
Step 1 (Mild) Acute Pain (Pain score 1-3) - Oral Analgesia

Oral Analgesia

Paracetamol 500mgs

*Dose:* 1 gram (2tabs), Max dose in 24hrs: 4 grams

Caution: Patients with hepatic cirrhosis/
Patients may be using multiple paracetamol preparations
*Ask patient if they are taking any other treatments containing paracetamol*

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Pain controlled, after 1 hour?

Yes

*(Pain score = 0-1)*
Prescribe 4-6 hourly regularly.
(Max 4 g/24 hours)

No
Prescribe Tramadol 50 mg PO

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Pain controlled, after 1 hour?

Yes

*(Pain score = 0-1)*
Prescribe 4-6 hourly regularly
(Max 4 g/24 hours)

No
Discuss with NCHCD Consultant/Registrar

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Reassess patient’s pain every
2 hours until pain has resolved
*(NB if patient is sleeping, do not wake)*
Algorithm G
Reversal of Opioids - Naloxone

**Naloxone** is an opioid antagonist
Indicated for reversal of opioid induced *respiratory depression*.

**Preparation:**
Dilute ampoule containing naloxone 400 micrograms
to 10 ml with sodium chloride 0.9% for injection.

**Dose:**
Naloxone 100 micrograms to 200 micrograms (1.5 micrograms/kg to 3 micrograms/kg) IV; if response inadequate, increments of 100 micrograms every 2 minutes.

Further doses by SC injection after 1 to 2 hours, if required. Close monitoring required.
NB naloxone is shorter-acting than morphine sulphate and other opioids

**Monitor Vital Signs:**
Monitor and record BP, pulse and respiration rate
every 5 minutes for 20 minutes; then every 15 minutes for 60 minutes post last administration.

- **Adverse effects:** Nausea and vomiting. Ventricular tachycardia and fibrillation.
Algorithm H
Side Effects - Symptom Management

Constipation
Treat underlying causes by non-pharmacological methods e.g. encouraging oral fluids, diet modification and mobility.

Begin with stimulant laxatives. Starting doses:
- **Senna**: Dose 15mg to 30mg PO at night OR
- **Bisacodyl**: Dose 5mg to 10mg PO at night.

**Lactulose** *Dose*: 15ml BD (NB takes 24-48 hrs to take effect) OR
**Movicol®** *Dose*: 1 sachet BD / TDS in 125mls water. (Onset 1-2 days).

Nausea
*Domperidone (Motilium®) 10mg*
*Dosage*: 10mg TDS. Max. Dose: 30mg/day

**Caution**: Domperidone is contraindicated in patients with QTC prolongation or for those patients taking any other QTc prolonging medication.
Reference / Information Sources

- BNF 68, September 2014 – March 2015, BMA, RPSGB, Pharmaceutical Press
- Child Pugh; Oxford Textbook of Medicine, 3rd edition, p2094
- Palliative Care Formulary, 2002, Radcliff Medical Press
- NAPP medicines information unit
- Pain status of patients with severe haemophilic arthropathy (2001) Haemophilia 7, 453-458
- St. James’s Hospital Prescriber’s Guide
Appendix 1- Opioid Conversion Chart (Our Lady’s Hospice and Care Services)

Opioid Conversion Chart

There are differences in the literature regarding opioid conversion ratios. The conversion ratios listed below are the conversion ratios commonly used in practice at Our Lady’s Hospice and Care Services (OLH&CS). The information outlined below is intended as a guide only. **ALL OPIOID CONVERSIONS OUTLINED BELOW ARE APPROXIMATE ONLY.** Therefore, all medication doses derived using the information below should be checked and prescribed by an experienced practitioner. The dosage of a new opioid to be based on several factors including the available equianalgesic dose data, the clinical condition of the patient, concurrent medications and patient safety. It is recommended that the new dose should be reduced by 30-50% to allow for incomplete cross-tolerance. The patient should be monitored closely until stable when switching opioid medications.

**GOLDEN RULE: WHEN CHANGING FROM ONE OPIOID TO ANOTHER ALWAYS CONVERT TO MORPHINE FIRST.**

<table>
<thead>
<tr>
<th>ORAL MORPHINE TO ORAL OPIOIDS</th>
<th>ORAL OPIOIDS TO PARENTERAL OPIOIDS</th>
<th>PARENTERAL MORPHINE TO OTHER OPIOIDS</th>
<th>TRANSDERMAL OPIOID TO ORAL MORPHINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO to PO RATIO</td>
<td>PO to IV/SC RATIO</td>
<td>N/SC to N/SC RATIO</td>
<td>TD to PO RATIO</td>
</tr>
<tr>
<td>Morphine → Oxydodone 1:2.1</td>
<td>Morphine → Fentanyl 1:1</td>
<td>Hydromorphone → Morphine 1:1</td>
<td></td>
</tr>
<tr>
<td>Morphine → Hydromorphone 9.1</td>
<td>Oxydodone → Oxydodone 1:1</td>
<td>1:1</td>
<td></td>
</tr>
<tr>
<td>Hydromorphone → Hydromorphone 1:1</td>
<td>Morphine → Hydromorphone 1:1</td>
<td>1:1</td>
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</tr>
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*Note: This table does not incorporate recommended dose reductions of 30-50%.*

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<tr>
<th>MORPHINE 24 hour dose</th>
<th>CODEDODONE 24 hour dose</th>
<th>HYDROMORPHONE 24 hour dose</th>
<th>FENTANYL 24 hour dose</th>
<th>ALFENTANYL 24 hour dose</th>
<th>BUPRENORPHINE 24 hour dose</th>
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<tr>
<td>ORAL 5mg</td>
<td>2.5mg</td>
<td>1mg</td>
<td>0.5mg</td>
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</tr>
<tr>
<td>10mg</td>
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<td>-</td>
<td>0.3mg</td>
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<td>2mg</td>
<td>-</td>
<td>0.7mg</td>
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<td>50 micrograms/hour</td>
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<td>240mg</td>
<td>120mg</td>
<td>40mg</td>
<td>24mg</td>
<td>100 micrograms/hour</td>
<td>-</td>
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*Indicated in the table are approximate conversion ratios. 2:1 ratios with morphine may also be used. See preparations outlined below.

1 The ratio of alfentanil to alfentanil in Inj. alfentanil and Inj. alfentanil in 25 micrograms/hour. 1 mg = 1.08 ng alfentanil (50 micrograms/hour).
2 The ratio of alfentanil to alfentanil in Inj. alfentanil in 50 micrograms/hour. 1 mg = 2.16 ng alfentanil (75 micrograms/hour).
3 The ratio of alfentanil to alfentanil in Inj. alfentanil in 75 micrograms/hour. 1 mg = 3.24 ng alfentanil (100 micrograms/hour).
4 Transdermal fentanyl is measured in micrograms/hour.

Prepared by Palliative Tech. Info. (www.thl.co.uk for Terms and Conditions.) Revised January 2013

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