Subcutaneous Patient Controlled Analgesia for Adults in sickle cell crisis CHUGGS	University Hospitals of Leicester NHS NHS Trust Trust Ref: C1/2021

1. Introduction and Who Guideline applies to:

This policy outlines the use of subcutaneous patient controlled analgesia (S/C PCA) for adults with sickle cell crisis admitted under the care of haematology. This replaces the previous trust wide guideline and applies only to adults with sickle cell disease admitted under the care of haematology managed within the Osborne building.

This policy applies to all medical, nursing and pharmacy staff involved in prescribing, setting up and monitoring of patients undergoing this treatment.

2. Guideline Standards and Procedures

2.1 Subcutaneous Patient Controlled Analgesia is a technique which allows the patient to administer their own analgesic therapy. Traditional methods of administering analgesia by intermittent intramuscular or intravascular injection of opioids for patients experiencing painful sickle cell crisis, are a frequent source of complaints. Issues include unacceptable delays in receiving analgesia, insufficient or excessive doses or inappropriate analgesia (Nice Clinical Guideline 143 2012). Using the subcutaneous route reduces the need for intravenous access.

2.2 Subcutaneous Patient Controlled Analgesia is a method of administration of subcutaneous analgesia using a special pump containing a reservoir of analgesic drug (usually an opioid). The pump has a button or handset that can be activated by the patient so that a small dose of analgesia can be administered. A lockout time can be set so the patient can only receive analgesia in a defined time frame.

2.3 The patient is the only person who knows how much pain they have and knows how much pain relief they require. If the patient can self-administer their own pain relief safely, then pain relief is usually managed better. Ultimately PCA enables the patient to control pain with less dependence on drug administration by medical and nursing staff.

2.4 Acute painful sickle cell crisis is caused by blockage of the small blood vessels. These episodes can occur unpredictably, without any precipitating factors and can be weekly events or less than one episode a year. The severe uncontrolled pain brings these patients into hospital where the primary goal of management is swift and safe effective pain management. See UHL policy C15/2012 for more information.

DEFINITIONS

S/C PCA	Subcutaneous Patient Controlled Analgesia
Bolus Dose	amount the patient can receive when pressing the handset
Lockout time/off cycle	time interval between available patient doses
Sickle Cell Crisis	acute painful sickle cell episode
e-meds	electronic Prescribing and Medicines Administration
Background Infusion	A continuous amount of analgesia running per hour

INDICATION AND PROCESS (SEE RELEVANT APPENDICES)

1. Verbal Patient Consent must be obtained to be able to set up S/C PCA

2. Indications for S/C PCA use

Patients experiencing severe sickle cell pain where oral opiates and other adjuvant analgesia have been tried and found to be ineffective.

S/C PCA should be considered when the administration of intermittent intramuscular opioid analgesia is required frequently.

The use of intravenous administration of opioid analgesia should be avoided routinely in this patient group.

3. Contraindications for S/C PCA use:

Patients not able to physically use the handset

Patients who have become over sedated with the use of oral or intramuscular administration of opioid analgesia

Patients who have been assessed as not having the mental capacity to use the pump safely (please see Trust Mental Capacity Act Policy B23/2007).

4. The advantages of S/C PCA:

Quality analgesia titrated to patients' requirements

5. Side Effects of S/C PCA:

These are related to the adverse effects of the opioid analgesia: respiratory depression, sedation, nausea and vomiting, hallucinations, hypotension, pruritus and ileus.

Pain or swelling at the subcutaneous cannula site

6. Potential problems with the S/C PCA

Some mild problems which may arise can be sorted out by Competent Medical Staff/Ward Nurses (see education and training) in liaison with the Haemoglobinopathies clinical nurse specialist. It is important that any problem is not automatically attributed to the method of analgesia. Other causes of problems such as hypotension or confusion should be actively sought and treated.

	Problem	Action	Rationale
1	Mild Hypotension	Increase IV fluids (In children seek advice from medical staff)	To maintain haemostasis
2	Pruritus	Administer chlorphenamine	To alleviate symptoms of itching
3	Respiratory Depression RR < 8 per min or Excess sedation (score of 3)	Stop the pump seek advice as below Assess conscious level Give oxygen (4litres/min and monitor Sa0² IV Naloxone should be prescribed. Doctor to give naloxone 400 micrograms (0.4mg) intravenously If unable to protect airway, doctor to consider admission to HDU and Senior Anaesthetic advice should be sought	To maintain safety and continue respiratory function
4	PCA Pump not working	Check all the pump connections Other analgesic techniques to be used regularly: oral or rectal	To ensure the pump is still connected to the patient. Ensure the battery is charged Regular analgesia has an opiate sparing effect.
5	Nausea and Vomiting	Anti-emetics should be prescribed and given regularly if nausea is a problem with PRN alternatives.	To prevent unwanted nausea and vomiting

7. Discarding of S/C PCA (see Appendix 1)

Disposal of the analgesic drug is undertaken using the Trust Policy for the disposal of opiate analgesia and recorded on the S/C PCA Chart.

ROLES AND RESPONSIBILITIES

Healthcare Professionals Prescribing S/C PCA are responsible for:

a) Assessing the patient as suitable for S/C PCA

b) Prescribing the use of S/C PCA on the patients drug chart or e-meds in line with this Policy

c) Ensuring that the Ward caring a patient with S/C PCA has suitably trained staff

Osborne Building ward manager and deputy who receive patients with sickle cell crisis are responsible for:

a) Ensuring all their clinical staff are competent to care for a patient with a S/C PCA

All Healthcare professionals who administer S/C PCA are responsible for:

a) Successfully completing the relevant training and be assessed as competent to administer S/C PCA

b) Ensure that they keep up to date with their practice

Adult haemoglobinopathy clinical nurse specialists are responsible for:

a) Provide education and training for all healthcare professionals on all aspects of S/C PCA.

b) Ensure S/C PCA equipment is available for use

c) Monitor compliance with this policy through audit

d) Manage audit data and provide reports as necessary

e) Provide information to the UHL In Patient Operational Group (IPOG) as required.

f) Support CMG'S with incident investigation and complaint management

3. Education and Training

Nursing staff undertaking the preparation and monitoring of S/C PCA must hold a valid certificate of competence to administer medications. In addition:

1. They must be assessed as competent by an appropriate member of the Haemoglobinopathy team to set up the S/C PCA infusion device, be able to change the morphine syringe, and troubleshoot the pump alarms. A certificate of competence will be issued and competence assumed as ongoing. No re-certification is required.

2. The haemoglobinopathy team will monitor training compliance. This information is currently available on the haemoglobinopathy shared drive and will be monitored by the haemoglobinopathy team. This may be transferred to HELM, but will remain the responsibility of the haemoglobinopathy team to monitor.

Healthcare Professionals new to the Trust or employed through an agency must provide evidence of training and summative practical assessment to practice within this Trust. These Healthcare Professionals must then complete an equipment competency to ensure they are able to use the infusion device.

4. Monitoring Compliance

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Lead(s) for acting on recommendations	Change in practice and lessons to be shared
S/C PCA Chart	Adult Nurse Specialist	Audit is incorporated into the charts to check compliance	Charts are monitored on ward rounds. Incidents reported on datix.	Quarterly haemoglobinopathy team meeting	Lead Clinician for Haemoglobinopathies and the Adult nursing Team will raise concerns, issues and share best practice with the CMG Management teams for their action.	Update study sessions, dissemination of information through clinical area management
Every 12 months ward will be audited to ensure current ward staff are competent to care for patients with S/C PCA	Competency Assessment for all users	Adult Nurse Specialist/Relevant Clinical Area Managers	Audit is incorporated into HELM to check for compliance after ward based training and assessment	Adult Nurse Specialist to liaise with relevant Clinical Area Managers if issues raised around compliance	Adult Nurse Specialists raise issues with Clinical Area Managers and share best practice with the CMG Management teams for their action.	Update study sessions, dissemination of information through clinical area management

5. Supporting References

National Institute for Health and Clinical Excellence; Sickle cell acute painful episode: management of an acute painful sickle cell episode in hospital. Nice clinical guideline 143 (2012)

University Hospitals of Leicester (2008a) **Policy and Procedures for the Use of Controlled Drugs on Wards, Departments and Theatres** B16/2009

University Hospitals of Leicester (2008b) **Cleaning and decontamination policy for infection prevention and control** B5/2006

University Hospitals of Leicester (2012) **Guideline for adults with sickle cell disease: acute presentation** C15/2012

KEY WORDS

S/C PCA policy, S/C PCA, Patient Controlled Analgesia, Sickle Cell Crisis, ePMA

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Dr Amy Webster, Consultant Haematologist	**Executive Lead**
Details of Changes made during review: Change to category C guideline as applicable to CHUGGS patient group only (as agreed with pain team) Change of responsibility on education and training from acute pain team to adult haemoglobinopathy team Change of administration device and dosing in line with equipment change	

Procedure for Setting Up and Administering Sub Cutaneous Patient Controlled Analgesia (S/C PCA)

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Appendix One

EQUIPMENT

1. An appropriate infusion devise and relevant disposals
2. Prescription Chart/ePMA
3. S/C PCA observation chart

No	Action	Rationale
1.	Identify the suitability of the patient for the use of patient controlled analgesia. Ensure that they are aware that they are the only person who should press the demand button and therefore it should not be used by any other person	To ensure education and preparation of the patient To prevent inadvertent overdosing by persons other than the patient
2.	Ensure that the patient fulfils the criteria • Able to understand the principles for using S/C PCA and activate the demand button	To ensure the patient is suitable for using PCA To ensure adequate understanding of the technique
3.	Ensure that the prescription adheres to the guideline for sickle cell patients. This prescription should always appear on the patients drug chart or ePMA An anti-emetic and Naloxone should also be prescribed	To prevents any errors in prescribing S/C PCA To ensure safe programming and setting up of the PCA device.
4.	The opiate which is to be used for S/C PCA (primarily morphine), should be taken from the Controlled Drug Cupboard by 2 Registered Practitioners, Information fully recorded in the Controlled Drug Register (select the appropriate page- correct drug, form and concentration. Record time, date, patients name, amount given, given by, witnessed by and stock balance), checked with the prescription chart / ePMA and signed by two practitioners for accuracy.	To enable opiates to be administered safely. To comply with Controlled Drug Regulation Policy
4.	Ensure that appropriate complementary analgesia is prescribed for the patient,	To ensure safe and adequate analgesia for the patient
5.	If PCA syringe has been made up in the clinical area it should be changed every 24 hours	To maintain drug stability and prevent harmful effects from contaminates To adhere to the UHL drug policy

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No	Action	Rationale
6.	Ensure that the patient understands the relationship between pressing the PCA button and receiving pain relief, **reiterating that the patient is the only person to press the demand button**	To ensure adequate pain control, titrated to each individual patient To prevent inadvertent overdosing by persons other than the patient
8.	Ensure nurses caring for the patient with S/C PCA regularly update themselves on the use of PCA	To ensure safe administration of PCA
9.	Ensure that staff caring for the patient are aware of how to check the pump programme	To ensure safe administration of PCA
10.	Ensure that the staff caring for the patient are aware of the side effects of Morphine and are able to deal with any emergency situation – Appendix 4	To ensure the recognition of alteration in the patients condition and facilitate effective treatment
11.	Explain to the patient what observations are necessary and why Appendix 3	To ensure that the patient is informed and to maintain confidence and co-operation
12.	Know what other medication/ analgesia is compatible with the opiate used for S/C PCA, contacting pharmacy for advice in situations that need clarification.	To prevent mixing drugs that are incompatible, ensuring patient safety from any side effects
13.	Only Staff trained as S/C PCA competent following ward based training may programme S/C PCA and set up the pump for the patient. (Appendix 2)	To ensure that the PCA is correctly and safely programmed. To maintain patient safety
14	When S/C PCA infusion is made it should be attached to the patient as soon as possible. The PCA syringe should be labelled with the patients identification details	Ensure safety of controlled drugs Ensure PCA remains free from contamination
15	Ensure that registered practitioners caring for the patient know how to change the syringe when empty • Check the Prescription • Dispense the relevant drugs from the CD cupboard according to Leicestershire Medicines Code • Two registered practitioners/nurses to check the patient • Right drug, right patient, right route • Clamp the PCA line • Change the syringe	To ensure PCA is always available To maintain patient safety and adhere to the Leicestershire Medicines Code

No	Action	Rationale
	• Reset the Pump • Unclamp the line • Check all the settings • Run to start	
16	Ensure that discussion takes place with the patient for discontinuing S/C PCA The patient should have: • Taken regular simple oral or rectal analgesia for 24hrs • Diminished their use over last 12 hours • Satisfied that the device is to be removed	To aid the opiate sparing effect and bridge the analgesia gap
16	Disposal of the S/C PCA, The Nurse should • Record the amount used and switch off the PCA pump • The line should be removed by removing the cartridge. • The CD wastage should be recorded into the CD register then emptied into the "CD Drug Disposal Kit (DOOP)" • The line and syringe should be placed onto the clinical waste bin. • Documentation for disposal of the CD on the front of the S/C PCA chart by two Registered Practitioners • Audit section is completed ascertaining patient satisfaction • The top copy of ALL the S/C PCA charts should be filed in the patients medical notes and the bottom copies returned to the acute pain team in the internal post. These are used for audit purposes • The pump has been cleaned using disinfectant wipes (NOT CHLORCLEAN) and is returned to the designated place	In accordance with the policy for disposal of controlled drugs. To help monitor efficacy of the treatments and to help with improvement and provide an audit trail To ensure that pumps are clean and available for the next patient

Doses, Settings and Equipment for Subcutaneous Patient Controlled Analgesia (S/C PCA)	University Hospitals of Leicester NHS NHS Trust **Appendix Two**

1. PREPARATIONS

1.1 PCA is provided using infusions generally containing a standard mixture of morphine (2mg/ml).

1.2 The appropriate solution should be made in the clinical area using the policy for mixing of drugs.

1.3 Any controlled drug which is to be used for S/C PCA, must be obtained from the pharmacy department using the UHL procedures for the ordering, administration and storage of controlled drugs.

ePMA prescription should be completed as followed – Adjust bolus +/- background dose as required:

Medications To Be Added

Medication	Dose	Details
morphine sulfate injection	DOSE: **100 mg** Subcut via Driver **PRN** (13:37) minimum dosage interval 12 hours Morphine sulphate 100mg in 50ml; Subcutaneous PCA via Braun syrine pump; Bolus 1mg (0.5ml) with 5 minute lockout; Background infusion 1mg (0.5ml) per hour. Monitor in line with SCA policy.	

2. DEVICES

S/C PCA may be administered via the following devises:

Braun Perfusor Space PCA Syringe Pump Labelled for Subcutaneous PCA Only. This device(s) will be available on ward 41 at the LRI

3.STANDARD PRE SET DOSES- these options are available with or without a background infusion

Morphine 2mg/ml concentration		
Bolus Dose	1mg	1.5mg
Lockout	5 minutes	5 minutes
Maximum dosage per hour	12 mgs	18 mgs
Maximum dosage per hour with Background Infusion 0.5 mls/hour	13 mg	19 mg
Maximum dosage per hour with Background Infusion 1ml/hour	14mg	20 mg

Long Term Opiates for Subcutaneous Patient Controlled Analgesia (S/C PCA)

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Appendix Three

Patients may come into hospital on long term oral opiates (zomorph, MST, oramorph, methadone, oxycodone) if possible, ensure patients continue with their regular opiate. If they are unable to continue taking these orally due to excessive nausea or Nil By Mouth the S/C PCA dose may need to be adjusted taking into account their oral daily dose

Help with calculations for other oral opiates can be gained from the acute pain team or medicines information/pharmacy department.

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Nursing Observations and Ward Management of Sub Cutaneous Patient Controlled Analgesia (S/C PCA)

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Appendix Four

These observations should only be carried out by qualified nurse who have had training in the use of S/CPCA

No	Action	Rationale
1	Monitor and observe as follows: ***ADULT PATIENTS*** • ¼ hourly for one hour • Hourly for 4 hours • Two hourly for 12 hours • Four hourly thereafter • Pain Score • Function Score • Respiration Rate • Pulse and Blood pressure • Oxygen saturation • Sedation Score • Emesis (PONV) score • Total amounts used • Programme/pump check	• To maintain patient safety • To maintain close observation and monitoring of the patient • To observe for any side effects from the morphine • To monitor fluctuations in the patients condition due to the administration of morphine

These observations should be recorded on a designated chart for the monitoring of Sub Cutaneous Patient Controlled Analgesia (Additional S/C PCA charts can be obtained from the Print Room at the LRI)

2	• Patient may sit out of bed if blood pressure and observations are stable • Intravenous access should be available at all time • Full resuscitation equipment should be available	• To encourage early mobilisation • To ensure patient can receive naloxone if required • To maintain patients safety in an emergency situation

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Role of Acute Pain team

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Appendix Five

The Acute Pain Team can be contacted regarding complex pain management issues for any patient admitted with sickle cell crisis.

Contact details are as followed:

LRI Acute Pain Nurse Specialists:	Ext 6640	Bleep 5539	Bleep 3002

They are not, however, able to offer further guidance on the use of the SC PCA equipment.

Any problems or concerns with the SC PCA should be managed by the haemoglobinopathy team. If they are unavailable, analgesia should be changed to an alternative route until they are available.

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