NHS
University Hospitals of Derby and Burton
NHS Foundation Trust

YOU MUST BE AUTHORISED BY NAME, UNDER THE CURRENT VERSION OF THIS PROTOCOL BEFORE YOU ATTEMPT TO WORK ACCORDING TO IT

PROTOCOL FOR CLINICAL MEASUREMENTS DEPARTMENT

PROTOCOL NUMBER	66
PROTOCOL NAME	Clinical Measurements Department
LEGAL CATEGORY	See individual medication pages
AREA IN WHICH THIS PROTOCOL APPLIES	Clinical Measurement
PROFESSIONALS TO WHICH THIS PROTOCOL APPLIES	Clinical Physiologists
SITE	Derby Sites

TRUST AUTHORISATION

Authorisation of this Protocol has been conferred by UHDB NHS Foundation Trust Medicines Safety Group (MSG) (Derby).

NAME	TITLE	SIGNATURE	DATE
Donna Bird	Divisional Head of Nursing - Medicine		05/2/2020
Alistair McCance	Consultant Cardiologist		17/2/20
James Hooley	Medicines Safety Officer (Pharmacist)		6/12/19

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AUTHORS

Author	Position	Date
Lead Author Dena Muirhead	Principal Clinical Physiologist	July 2018
Directorate/ Senior Clinical Pharmacist James Kerr		October 2018
Lead Doctor (Consultant) Alistair McCance		July 2018
Others eg microbiologist Name		

The professionals named above have agreed the content of the Protocol and ensured that the following policies and procedures have been adhered to in its development:

- Derby Teaching Hospitals NHS Foundation Trust Medicines Code
- Derby Teaching Hospitals NHS Foundation Trust Formulary
- Derby Teaching Hospitals NHS Foundation trust guidance notes for the development of Patient Group Directions

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

REVIEWERS		
Reviewer	Position	Date
Lead Reviewer Dena Muirhead	Must be an authorised health professional who can practice under a protocol.	
Directorate/Senior Clinical Pharmacist James Kerr	A Directorate/Senior Clinical Pharmacist must be involved in the review of the protocol	
Lead Doctor (Consultant) Alistair McCance	A doctor for the speciality must be consulted during the review of the protocol from the outset and throughout the whole process. This person will give support to the use of a protocol over prescribing.	

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SITE	**Derby sites**

Change history

Changes Reference	Change details	Date
1	*Nil*	

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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

CONTENTS

List of protocols for the administration of medication during procedures

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF GLYCERYL TRINITRATE SPRAY DURING CARDIAC EXERCISE TESTING

Introduction	A Patient Group Direction cannot cover the administration of GTN by Clinical Physiologists. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals.
Indication	Chest pain, ST changes on the ECG when there is silent ischaemia.
Inclusion Criteria	Patients over 16 years presenting with known or suspected angina; Pain occurring during cardiac exercise assessment and monitoring; During tilt table provocation testing
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; patients under 16 years old; Seek medical advice before giving this agent to a patient who is hypotensive (systolic BP < 100mmHg); Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	Hypothyroidism, malnutrition, hypothermia, recent MI, hypoxaemia, ventilation/perfusion abnormalities
Action if Patient Declines	Document refusal, action taken and advice given in testing (Cardiobase patient record) documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to medical staff for prescribing of alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer.

Name, form & strength of medicine	Glyceryl Trinitrate spray 400 micrograms
Legal Status	P
Route/Method	Sublingual
Dosage/Frequency	One dose (a second and third dose may be given at 5 minute intervals if required)
Maximum Dose	Maximum of THREE if required, but the doctor must be notified after each dose is given
Duration of Treatment	See above
Side Effects	Postural hypotension Tachycardia Throbbing headache Dizziness Flushing This is not an exhaustive list – for full details see summary of product characteristics or BNF
Advice to Patient/Carer	May cause headache, dizziness, flushing or tachycardia; Ensure the spray is in date. Monitor for sensitivity reactions; Verbal advice on why drug administered and action of the drug.
Advice to Staff	Consult medical advice if an adverse event occurs. Document in the

PROTOCOL NUMBER	*66*
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SITE	**Derby sites**

(***Identifying and managing adverse conditions)***	patient's notes. All serious adverse reactions must be reported under the National yellow card system. If headache occurs, Paracetamol may be effective in its management If symptomatic hypotension occurs, consult medical advice
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **if in any doubt advice should be sought and recorded before the drug is administered.**
Additional facilities, equipment and supplies required to be present in the clinical area	Blood pressure monitoring equipment
Arrangements for referral for Medical Advice	Seek medical advice if pain is not relieved
Follow Up	If the initial dose is ineffective, a doctor should review the patient
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division – Clinical Measurement Department , Clinical Physiologists band 5 and above BSc (Hons) in Clinical Physiology or equivalent
Continuing Professional Development (CPD)	It is the responsibility of the individual **Clinical Physiologist** to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these Protocols for the administration of medicines
Assessment	Approved drug assessment

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SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF IPRATROPIUM BROMIDE

Introduction	A Patient Group Direction cannot cover the administration of Ipratropium by Clinical Physiologists. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	Patients attending the Department for respiratory function tests with known or suspected airways obstruction
Inclusion Criteria	Patients over 16 years presenting with the above symptoms; Airways obstruction will be determined by assessment of the dynamic airways using spirometry. An FEV1/FVC%<70 and/or a FEV1 less than the normal range would indicate airways Obstruction, or symptoms of airways obstruction as assessed by a doctor
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; children under 16 years old; patients with a history of hypersensitivity to soya lecithin or related food products such as soya beans or peanuts (inhaler only); known hypersensitivity to atropine or its derivatives; patients with narrow-angle glaucoma, or with prostatic hyperplasia or bladder-outflow obstruction; patients with cystic fibrosis; Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	N/A
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to medical staff for prescribing of alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer.

Description of treatment	Bronchodilator therapy
Name, form & strength of medicine	Ipratropium Bromide 20microgram metered dose inhaler via spacer OR Ipratropium Bromide 500microgram/2ml single-dose nebules
Legal Status	POM
Route/Method	Inhalation
Dosage/Frequency	Adults (including the elderly) - 4 puffs (80 microgram) via spacer - 500 microgram via nebuliser
Maximum Dose	Maximum of ONE dose to be given or as directed by the Consultant for the agreed procedure being undertaken
Duration of Treatment	10 minutes to administer the medication ,treatment should have reached maximum effect after 45 minutes.
Side Effects	Dry mouth, nausea , headache, dizziness, cough ,throat irritation. This is not an exhaustive list – for full details see summary of product characteristics or BNF
Advice to	Monitor for sensitivity reactions; headache, nausea (with or without

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AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

Patient/Carer	vomiting) and dryness of the mouth, occular side effects, cough, local irritation and inhalation induced bronchoconstriction may occur. Verbal advice on why drug administered and action of the drug.
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient's notes. All serious adverse reactions must be reported under the National yellow card system.
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **If in any doubt advice should be sought and recorded before the drug is administered.**
Additional facilities, equipment and supplies required to be present in the clinical area	N/A
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP
Follow Up	In the case of acute or rapidly worsening dyspnoea a doctor should be consulted immediately
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division – Clinical Measurement Department, Clinical Physiologists band 5 and above who have Bsc in Clinical Physiology or equivalent qualification. Senior Assistant Physiologist band 4 who have the ARTP certificate in Spirometry..
Continuing Professional Development (CPD)	It is the responsibility of the individual **clinical physiologist** to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these protocols for the administration of medicines
Assessment	Approved drug assessment

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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

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SITE	**Derby sites**

PROTOCOL FOR ADMINISTRATION OF LIDOCAINE 2% with CHLORHEXIDINE 0.25% GEL DURING OESOPHAGEAL MANOMETRY / 24 HOUR PH MONITORING

Introduction	A Patient Group Direction cannot cover the administration of Lidocaine hydrochloride 2%, Chlorhexidine gluconate solution 0.25% by Clinical Physiologists. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Description	Local anaesthesia prior to performing oesophageal manometry and 24 hour pH monitoring
Indication	Patients over 16 years undergoing the above procedure where a tube or instrument is to be put into a body cavity
Inclusion Criteria	Patients over 16 years undergoing the above procedure where anaesthesia is required
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; children under 16 years old; patients who have had a previous sensitivity reaction to local anaesthetics or chlorhexidine; Patients in complete heart block; Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	Should be used with caution in patients with epilepsy, cardiovascular disease and heart failure, impaired cardiac function, bradycardia, severe renal dysfunction, impaired hepatic function and in severe shock. Resuscitation equipment should be available.
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to medical staff for prescribing of alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer. Omit use during procedure.

Description	Local anaesthetic
Name, form & strength of medicine	Lidocaine hydrochloride 2%, Chlorhexidine gluconate solution 0.25%
Legal Status	P
Route/Method	Oral /nasal
Dosage/Frequency	Maximum 6ml
Maximum Dose	Maximum of ONE 6ml dose to be given or as directed by the consultant for the agreed procedure being undertaken
Duration of Treatment	Effect of medication lasts for 90 minutes
Side Effects	CNS effects including confusion, respiratory depression, convulsions , hypotension and bradycardia. This is not an exhaustive list – for full details see summary of product characteristics or BNF
Advice to	Monitor for sensitivity reactions; verbal advice on why drug

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SITE	**Derby sites**

Patient/Carer	administered and action of the drug; slight stinging may be felt on application of gel; The anaesthetic effect takes between 3-5 minutes to work following application; some soreness may develop when the local anaesthetic wears off.
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient's notes. All serious adverse reactions must be reported under the National yellow card system.
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment.
Additional facilities, equipment and supplies required to be present in the clinical area	Supply an individual container for each patient to be labelled with his or her name and date of issue.
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP
Follow Up	N/A
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division– Clinical Measurement Department, Clinical Physiologists band 5 and above. BSc in Clinical Physiology or equivalent qualification
Continuing Professional Development (CPD)	It is the responsibility of the **clinical physiologist** to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these protocols for the administration of medicines
Assessment	Approved drug assessment

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SITE	**Derby sites**

PROTOCOL FOR ADMINISTRATION FOR LIDOCAINE 10% SPRAY

Introduction	A Patient Group Direction cannot cover the administration of Lidocaine 10% spray by Clinical Physiologist. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	Local anaesthesia prior to performing oesophageal manometery and 24 hour pH monitoring
Inclusion Criteria	Patients over 16 years undergoing the above procedure
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; children under 16 years old; an allergy to bananas (contains extract); Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	Should be used with caution in patients with epilepsy, cardiovascular disease and heart failure, impaired cardiac function, bradycardia, severe renal dysfunction, impaired hepatic function and in severe shock. Resuscitation equipment should be available.
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to medical staff for prescribing of alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer. Omit use during procedure.

Description	Local Anaesthesia
Name, form & strength of medicine	Lidocaine 10% Spray, 50ml bottle (approx 500 spray doses)
Legal Status	P
Route/Method	Oral and nasal application
Dosage/Frequency	Up to 20 spray applications for procedures in the pharynx, larynx and oesophagus. People who are feeling unwell and elderly people should use fewer sprays, depending on their age and how unwell they are. In all cases, as few sprays as are needed should be used.
Maximum Dose	Maximum of up to 20 spray applications to be given or as directed by the Consultant agreed procedure being undertaken
Duration of Treatment	Anaesthesia effect works within 2-3 minutes. Duration of medication 90 minutes
Side Effects	Central Nervous system effects including confusion, respiratory depression, convulsions , hypotension and bradycardia. This is not an exhaustive list – for full details see summary of product characteristics or BNF
Advice to Patient/Carer	Monitor for sensitivity reactions; Verbal advice on why drug administered and action of the drug. Absorption from wound surfaces and mucous membranes is relatively high, especially in the bronchial tree. Lidocaine spray should be used with caution in patients with traumatised mucosa and/or sepsis in the region of the proposed

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SITE	**Derby sites**

	application. Numbness of the tongue or buccal mucosa may increase the danger of biting trauma. Local irritation at the application site may occur. Following application to laryngeal mucosa, reversible symptoms such as “sore throat”, “hoarseness” and “loss of voice” may occur. The spray may sometimes cause feelings of nervousness, dizziness, and drowsiness and occasionally loss of consciousness. Other possible effects are, fits, low blood pressure, and breathing problems including slow breathing, a slow heart rate, or rarely stopped breathing or a stopped heartbeat.
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient’s notes. All serious adverse reactions must be reported under the National yellow card system.
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in “Staff Group” to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **If in any doubt advice should be sought and recorded before the drug is administered.** Patients treated with anti-arrhythmic drugs class III (e.g. amiodarone) should be under close supervision and ECG monitoring considered, since cardiac effects may be additive. If the dose or site of administration is likely to result in high blood levels, lidocaine, in common with other local anaesthetics, should be used with caution in patients with epilepsy, cardiovascular disease and heart failure, impaired cardiac function, bradycardia, severe renal dysfunction, impaired hepatic function and in severe shock.
Additional facilities, equipment and supplies required to be present in the clinical area	Supply an individual nozzle for each patient; the cardiac arrest trolley should be available
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP
Follow Up	N/A
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State ‘administered under a protocol’ with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division – Clinical Measurement Department, Clinical Physiologists band 5 & above BSc in Clinical Physiology or equivalent
Continuing Professional Development (CPD)	It is the responsibility of the individual **Clinical physiologist** to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these protocols for the administration of medicines
Assessment	Approved drug assessment

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF OXYGEN

Introduction	The supply and administration of Oxygen by Clinical Physiologists cannot be covered by a Patient Group Direction. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	Assessment for long-term oxygen therapy in patients with chronic respiratory conditions; assessment of fitness to fly; dyspnoea; chest pain as a result of exercise testing. *Hypoxia - SaO2 less than 94% with no other previous medical history.* *Patients already on prescribed oxygen.* *Type 2 respiratory failure Patients receiving treatment with non invasive ventilation*
Inclusion Criteria	See guidelines for LTOT assessment (appendix A);See guidelines for assessment of fitness to fly (appendix B) patients attending the department who are breathless and are already on oxygen at home or on the ward; Guidelines for use with Non – invasive ventilation treatment. Patients over 16 years presenting with the above symptoms.
Exclusion Criteria	Refer to 'guidelines on the use of air/oxygen for respiratory patients' Children under 16 years old
Cautions/Need For Further Advice	Be aware of the risk of hypercapnia leading to respiratory arrest.
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to appendix A – LTOT assessment protocol; Refer to appendix B for flight assessment; Refer to "Guidelines on the Use of Air/Oxygen for Respiratory Patients"; Refer to medical staff for review. Document reason for exclusion and discuss with patient/carer.

Description	Oxygen therapy
Name, form & strength of medicine	Oxygen
Legal Status	POM
Route/Method	Inhalation via mask or nasal cannulation
Dosage/Frequency	1-8 litres per minute in increments of 0.5 or 1 l/min for oxygen assessment 2 litres per minute during flight assessment *In emergency - Titrate to achieve target saturations appropriate for the patient based on the Emergency Oxygen Guidelines. Dose range – 1litre / min to 15l/Min via non re- breathe mask.*
Maximum Dose	As required or as per protocol or as directed by the Consultant for the agreed agreed procedure being undertaken
Duration of Treatment	Depending on procedure: LTOT assessment minimum 30 minutes, maximum 2 hours. Flight assessment maximum 60 minutes. Emergency oxygen refer to medics for further advice
Side Effects	None applicable

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
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AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

Advice to Patient/Carer	Monitor for sensitivity reactions; verbal advice on why drug administered, action of the drug and subsequent management of condition.
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient's notes. All serious adverse reactions must be reported under the National yellow card system.
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **If in any doubt advice should be sought and recorded before the drug is administered.**
Additional facilities, equipment and supplies required to be present in the clinical area	Oxygen concentrators available for LTOT assessment. Use piped supply wherever possible in preference to cylinders
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP
Follow Up	Report of outcome of investigations will be forwarded to the requesting physician.
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division– Clinical Measurement Department, Clinical Physiologists band 5 and above BSc in Clinical Physiology or equivalent
Continuing Professional Development (CPD)	It is the responsibility of the individual **Clinical Physiologist** to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these protocols for the administration of medicines
Assessment	Approved drug assessment; departmental competency assessment in LTOT and flight assessment.

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF SALBUTAMOL

Introduction	A Patient Group Direction cannot cover the administration of Salbutamol by Clinical Physiologists**.** This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	Patients attending the department for respiratory function tests with known or suspected airways obstruction; Patients with dyspnoea on arrival at the department prior to testing
Inclusion Criteria	Airways obstruction will be determined by assessment of the dynamic airways using spirometry. An FEV1/FVC%<70 and/or an FEV1 less than the normal range would indicate airways obstruction, or symptoms of airways obstruction as assessed by a doctor; patients with dyspnoea on arrival would only be given salbutamol if already prescribed; patients over 16 years presenting with the above symptoms **Rescue medication during provocation testing e.g. exercise and mannitol challenge tests.**
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; patients taking non-selective beta-blockers e.g. propranolol; caution with patients with hyperthyroidism, hypertension, diabetes, COPD, pregnancy and breastfeeding; 5mg or more nebulised salbutamol administered in the last hour; wheezing not due to asthma; patients < 16 years; patients with chronic respiratory conditions should have their nebulised therapy administered via air using a mechanical nebuliser; Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	Use in caution with hyperthyroidism, cardiovascular disease, arrhythmias, susceptibility to QT interval prolongation , and hypertension.
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to 'Guidelines on the use of oxygen/air for respiratory patients'. Refer to medical staff for review and prescribing of alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer.

Description	Bronchodilator therapy
Name, form & strength of medicine	Salbutamol 100 microgram metered dose inhaler via Spacer OR Salbutamol 2.5mg nebules
Legal Status	POM
Route/Method	Inhalation via nebuliser or metered dose inhaler.
Dosage/Frequency	Inhaler Adults - For the relief of wheezing, shortness of breath and attacks of acute dyspnoea in patients with asthma, or the reversible component of airways obstruction, one or two inhalations may be administered as a single dose. For prophylaxis of exercise-induced asthma, two inhalations before exercise. For respiratory function test – 4 puffs (400 micrograms)

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
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AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

	Nebuliser Adults - For the relief of wheezing, shortness of breath and attacks of acute dyspnoea in patients with asthma give 2.5mg up to 4 times daily – Give the same dose as the patient is receiving regularly. For respiratory function test – 5mg
Maximum Dose	Maximum of ONE dose to be given as required by the testing procedure or as directed by the consultant for the agreed procedure being undertaken
Duration of Treatment	5-10 minutes to administer the medication, treatment should have reached maximum effect after 20 minutes.
Side Effects	Fine tremor ,nervous tension, headache, muscle cramps, and palpitations, Other side effects include tachycardia, arrhythmias, peripheral vasodilation, myocardial ischaemia , sleep disturbance.
Advice to Patient/Carer	Observe for tremor (usually hands), tachycardia and palpitations, coughing, nervous tension, headache and/or peripheral vasodilatation, rarely - muscle cramps; monitor for sensitivity reactions; verbal advice on why drug administered and action of the drug.
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in medical notes. Stop if any decrease in consciousness or respiratory rate drops to 10 breaths per minute
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **If in any doubt advice should be sought and recorded before the drug is administered.** Risk of hypotension with antihypertensives; increased risk of hypokalaemia with corticosteroids, diuretics and theophyllines.
Additional facilities, equipment and supplies required to be present in the clinical area	N/A
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP Monitor for relief of breathlessness. If ineffective, seek medical advice
Follow Up	N/A
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Directorate – Clinical Measurement Department, Clinical Physiologists band 5 and above who have Bsc in Clinical Physiology or equivalent qualification. Senior Assistant Physiologist band 4 who have the ARTP certificate in Spirometry..
Continuing Professional Development (CPD)	It is the responsibility of the individual Clinical physiologist to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these protocols for the administration of medicines
Assessment	Approved drug assessment

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
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SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF A VASODILATOR CREAM or SPRAY (e.g 'Transvasin Heat Rub Cream) (UNLICENSED INDICATION)

Introduction	A Patient Group Direction cannot cover the administration of a vasodilator cream, e.g. Transvasin® cream, by Clinical Physiologists**.** This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	Patients attending the respiratory laboratory for ear lobe capillary samples for assessment of blood gas status
Inclusion Criteria	Patients over 16 years of age
Exclusion Criteria	Previous sensitivity or intolerance to the drug or any ingredient; children under 16 years old; not to be used on broken or sensitive skin; Non competent patients, e.g. vulnerable adult; undiagnosed medical symptoms; reservations/concerns by patient about side effects of the treatment
Cautions/Need For Further Advice	Avoid contact with the eyes, genital areas, lips, inner mouth and nose where soft skin may be more sensitive.
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate
Action if Patient is Excluded	Refer to medical staff for prescribing alternative agent if appropriate. Document reason for exclusion and discuss with patient/carer.

Description	Vasodilation of ear lobe
Name, form & strength of medicine	Vasodilator cream, e.g. Transvasin® Cream, Ralgex® Cream Deep Heat Spray
Legal Status	GSL but unlicensed for this indication
Route/Method	Topical
Dosage/Frequency	Apply one application/spray per earlobe and massage in until it has been fully absorbed. Wash hands after use.
Maximum Dose	Maximum of FIVE doses as required by testing procedure or as directed by the consultant for the agreed procedure being undertaken
Duration of Treatment	10-20 minutes
Side Effects	Temporary skin reactions such as severe burning sensation, blistering and skin rashes. This is not an exhaustive list – for full details see product insert
Advice to Patient/Carer	Monitor for sensitivity reactions – it is normal for the skin to warm and redden; verbal advice on why drug administered and action of the drug; look out for skin irritation / avoid eye contact at all times
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient's notes.
Specialist Considerations	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that

PROTOCOL NUMBER	*66*
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PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

that should be given to patients receiving concurrent medication	treatment with the drug detailed in this direction is appropriate. Check all concurrent medication with the patient and in the current BNF before supplying. Refer to a doctor if the patient is taking any medication that may interact with the intended treatment. **If in any doubt advice should be sought and recorded before the drug is administered.**
Additional facilities, equipment and supplies required to be present in the clinical area	Wherever possible the cream should be for single patient use only. Where a small volume is required for application to several patients, this should be decanted into clearly labelled, separate clean galley pots for application to individual patients and immediately discarded following use. Any remaining containers should be discarded at the end of the treatment session.
Arrangements for referral for Medical Advice	Monday to Friday 08:30am – 5pm: Clinical Measurements Department, RDH Outside these hours: Patients should contact their GP
Follow Up	N/A
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	Medical Services Division – Clinical Measurement Department, Clinical Physiologists band 5 and above. BSc in Clinical Physiology or equivalent
Continuing Professional Development (CPD)	It is the responsibility of the individual Clinical Physiologist to remain updated, with evidence of continued professional development
Additional local training	Has undertaken appropriate training for working under these Protocols for the administration of medicines
Assessment	Approved drug assessment

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
LEGAL CATEGORY	**See individual medication pages**
AREA IN WHICH THIS PROTOCOL APPLIES	**Clinical Measurement**
PROFESSIONAL TO WHICH THIS PROTOCOL APPLIES	**Clinical Physiologists**
SITE	**Derby sites**

PROTOCOL FOR THE ADMINISTRATION OF MANNITOL (OSMOHALE) DURING CHALLENGE TESTING TO ASSESS BRONCHIAL HYPER RESPONSIVENESS

Introduction	A Patient Group Direction cannot cover the administration of Mannitol by Clinical Physiologists. This protocol has been drawn up locally by doctors, pharmacists and other appropriate professionals
Indication	To be used in challenge testing procedure to assess bronchial hyper responsiveness by performing spirometry following attached protocol.
Inclusion Criteria	Patients over 18 years with suspected asthma**.**
Exclusion Criteria	Known hypersensitivity to Mannitol or any capsule ingredients. Severe airflow limitation i.e. FEV1<50% predicted FEV1 or FEV1 < 1 litre Conditions that could be compromised by induced bronchospasm or repeated blowing manoeuvres. These include Aortic or Cerebral aneurysm, uncontrolled hypertension, myocardial infarction or a cerebral vascular accident in the last 6 months.
Cautions/Need For Further Advice	As per protocol
Action if Patient Declines	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate.
Action if Patient is Excluded	Refer back to medical staff. Document reason for exclusion.

Description	Patients are given increasing doses of mannitol to assess bronchial hyper responsiveness which is monitored by measuring FEV1 during spirometry.
Name, form & strength of medicine	**Mannitol (osmohale)**
Legal Status	POM
Route/Method	Via an inhaler
Dosage/Frequency	

Dose Step	1	2	3	4	5
Dose	0mg	5mg	10mg	20mg	40mg
Quantity	1	1	1	1	1

Dose Step	6	7	8	9	
Dose	80mg	160mg	160mg	160mg	
Quantity	2x40mg	4x40mg	4x40mg	4x40mg	

Maximum Dose	Maximum dosage determined by FEV1 reduction . Challenge test would be halted when either the following occurs by : 1. **>15% fall in FEV1 from baseline** (using the *highest* post 0mg FEV1 as comparator) 2. **>10% incremental fall in FEV1 between consecutive OsmohaleTM doses**

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SITE	**Derby sites**

Duration of Treatment	20- 30 minutes
Side Effects	Cough during the challenge, Pharyngolaryngeal pain (occurrence may be reduced if the mouth is rinsed after the test) This is not an exhaustive list – for full details see summary of product characteristics
Advice to Patient/Carer	**Monitor for sensitivity reactions; verbal advice on why drug administered, action of the drug and subsequent management of condition.**
Advice to Staff (***Identifying and managing adverse conditions)***	Consult medical advice if an adverse event occurs. Document in the patient's notes. Administer bronchodilator if bronchoconstriction occurs.
Specialist Considerations that should be given to patients receiving concurrent medication	If the patient is receiving any concomitant medication or treatment it is the responsibility of the person identified in "Staff Group" to ensure that treatment with the drug detailed in this direction is appropriate. If in any doubt advice should be sought and recorded before the drug is administered
Additional facilities, equipment and supplies required to be present in the clinical area	Saturation monitor, stethoscope, sphygmomanometer. Adrenaline and salbutamol .
Arrangements for referral for Medical Advice	Seek urgent medical advice if bronchoconstriction is not resolved
Follow Up	Patients stay for 30 minutes after procedure. Bronchodilators given if appropriate.
Record	The authorised healthcare practitioner must sign (print) name in the appropriate records. State 'administered under a protocol' with name and signature of authorised practitioner. **This would either be documented in the Cardiobase records or on the associated test documentation.** Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item on ePMA. Document the administration of the medicine.

STAFF CHARACTERISTICS

Qualifications and Competencies	**Medical Directorate – Clinical Measurement Department , Clinical Physiologists band 6 and above BSc (Hons) in Clinical Physiology or equivalent (speciality respiratory)**
Continuing	It is the responsibility of the individual **Clinical Physiologist** officer to

PROTOCOL NUMBER	*66*
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SITE	**Derby sites**

Professional Development (CPD)	remain updated, with evidence of continued professional development.
Additional local training	Has undertaken appropriate training for working under these Protocols for the administration of medicines and mannitol. Trained in ILS and appropriately trained to treat acute bronchospasm.
Assessment	Approved drug assessment.

PROTOCOL NUMBER	*66*
PROTOCOL NAME	**Clinical Measurement Department**
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SITE	**Derby sites**

RECORDS

Records	The following would either be documented in the Cardiobase records or on the associated test documentation. - name of the health professional providing treatment - patient identifiers - details of the medicine provided - date the medicine is supplied or administered - patient consent or refusal - patient inclusion or exclusion from PROTOCOL - information given to the patient, batch number and expiry date must also be recorded for immunisations, vaccinations and blood derived products such as immunoglobins - state any other agreed records to be kept for audit purposes Where EPMA is in use: Document the utilisation of the medicine under protocol by ordering the appropriate drug order item against the correct patient record. Document the administration of the medicine.

REFERENCES

References	Practical Handbook of Respiratory Function Testing part 1 and Part 2 – Published by ARTP. BNF 66 – Published by the BMJ

This protocol must be agreed to and signed by all healthcare professional involved in its use.
The Pharmacy Department will hold the original signed copy.
An electronic version of the protocol will be available via the Trust intranet.