Appendix 4 - Locally Agreed Clinical Procedure for the Administration of Entonox® to manage pain

Name of specific Locally Agreed Clinical Procedure	**Locally Agreed Clinical Procedure for the Administration of Entonox® to manage pain**
Clinical Department/Service	All clinical areas that use Entonox®

1. Clinical Condition/Situation for use of the Locally Agreed Clinical Procedure

1.1	Define situation/condition	Entonox® may be used alone or in combination with other analgesics to manage pain (for types of pain see 1.3, criteria for patient inclusion). Also check 1.4, criteria for patient exclusion prior to use of Entonox®..
1.2	Criteria for confirmation of above	Following an assessment and recording of the level of pain for one or more of the following situations.
1.3	Criteria for patient inclusion	Uterine contractions during Labour (there is no absolute contraindication to use of Entonox at any stage in pregnancy). Changing dressing packs, removing drains, insertion and removal of sutures. Invasive procedures e.g venepuncture, venous canulation, catherisation, sigmoidoscopy. Changing position of limbs, manipulation, splintering, plastering and applying traction. Removal of gynaecological splints or applicators. Movement of limbs during x-ray. Physiotherapy. Renal colic. Biopsy procedures. Bowel management/constipation. Acute myocardial infarction – the relief of ischaemic heart pain. Short term supplementation of opioid and non-steroidal anti-inflammatory drugs (review analgesic requirements).
1.4	Criteria for patient inclusion	Age limit (There is no age limit as long as patient has an understanding of the therapy they are receiving and can self administer the drug under supervision). Head injuries with impairment of

		consciousness (Glasgow coma score of 14 or less, or any signs of cerebral injury). Nitrous oxide may raise ICP in head injury. Pneumothorax. Air embolism. Decompression sickness or within 48 hours of an underwater dive. Following air encephalography. Severe emphysema with bullae. During or following myringoplasty or middle ear surgery. Gross abdominal distension. Intoxication. Maxillofacial injuries (where patient unable to administer the drug using a mouthpiece/mask, or there is the risk of causing further damage to facial wounds and there may also be a significant risk of blood inhalation). Patients with chronic pulmonary disease for whom an inspired oxygen concentration of more than 28% oxygen might be dangerous. See special considerations 3.13, regarding concurrent medicine being administered to the patient.
1.5	Action to be taken with reference to the care of excluded patients	• Document exclusion and reasons in the patient's notes. • Consider analgesia from an alternative PGD/LACP. • Consider alternative methods of pain relief-immobilisation, elevation, ice pack etc. • Refer to doctor for prescription of analgesia required.
1.6	Action if patient declines care under the locally agreed clinical procedure	• Document in patient's notes. • Consider analgesia from an alternative PGD/LACP. • Consider alternative methods of pain relief-immobilisation, elevation, ice pack etc. • Refer to doctor for prescription of analgesia required.

2. Characteristics of staff authorised to use Locally Agreed Clinical Procedure

2.1	Required professional qualification	Registered General Nurse or Midwife. (Student Midwife under the supervision of a qualified Midwife). Registered Physiotherapists and Radiologists.
2.2	Specialists qualifications, training, experience and competence required in the clinical context of the locally agreed clinical procedure	Inservice training by the pain control team, BOC or a named link nurse trained in the use of Entonox®. Training to include successful completion of BOC study pack and practical skill training i.e assessment in use of Entonox® apparatus, in order to enable practitioners to safely assist patients in the administration of Entonox®. Knowledge of Salisbury Health Care NHS Trust Locally Agreed Clinical Procedure
2.3	As above, relevant to the medicines to be used	As above.
2.4	Details of continued training or education required	Practitioners need to keep up to date with any changes to the Trust Locally Agreed Clinical Procedure.

3. Description of Treatment

3.1	Name of medicines(s) to be supplied or administered under the locally agreed clinical procedure	Entonox® (50% Nitrous Oxide, 50% Oxygen) gas Contained within portable cylinders which are blue with a blue and white yoke.
3.2	Legal status Prescription Only Medicine (POM)/Pharmacy Only (P)/ General Sales List (GSL)	P
3.3	Dose(s) Where a range is applicable include criteria for deciding on a dose)	On demand dosing. Gas is only delivered from the cylinder on inhalation by the patient.
3.4	Route/Method of Administration	By inhalation through a mask or mouthpiece. Use a new disposable mouthpiece (or a mask) and anaesthetic breathing filter for each patient – this protects the apparatus and the patient from contamination and reduces the effect of dry gases on the respiratory tract. Do not leave the patient unattended when using Entonox®. Please refer to BOC technical information for Entonox® for information on the safe use/handling of Entonox® cylinders.
3.5	Frequency of Administration	As necessary
3.6	Total dose and number of times treatment can be administered over what time frame	If regular use exceeds four days refer for Medical advice (if treatment exceeds four days, twice weekly blood cell counts should be performed looking for evidence of megaloblastic changes in red cells or hypersegmentation of neutrophils).
3.7	Information concerning follow up management	After commencement of therapy regularly check with the patient that the full effects have been achieved. Maintain contact with the patient throughout the procedure.

		Check for excess sedation. When Entonox® is self administered from demand apparatus under trained supervision, loss of consciousness is unlikely. If it does occur, it will be momentary as the mask falls aside, the flow of gas ceases and the patient wakes up and the pain will return. The patient should be helped to reapply the mask. The nurse should not hold the mask onto the patient's face.
3.8	Patient information advice	Check that the patient understands the objectives of using Entonox® and possible side effects. Patient information leaflets available from pain team.
3.9	Side effects of drugs (to include potential adverse reactions) and any monitoring required and how adverse drug reactions are to be reported to the doctor	With normal short term use Entonox® is very effective and safe. Side effects of Entonox® may include light-headedness, dry mouth and tingling in the fingers (due to hyperventilation)- these effects can be avoided by rhythmic, steady breathing and adequate hydration after use. If excessive sedation or loss of consciousness develops, remove the mouthpiece from the patient and clear the airway. Support respiration if necessary. Administer oxygen and contact medical team. Document all adverse reactions in the notes.
3.10	Arrangements for referral for medical advice	Seek medical advice in cases of treatment failure, patient refusal to be treated under the LACP, patient exclusion from LACP, or excessive sedation.
3.11	Facilities and supplies which should be available at sites where care is provided	Availability of resuscitation equipment (normal hospital procedure).
3.12	Specify method of recording supply/administration, names of health professional, patient identifiers, sufficient to enable audit trail	Record the administration, date, and name of practitioner in the Nursing/Midwifery/Physiotheray/Radiology notes and on observation charts. Also record administration of Entonox® on "additonal medication given" section of the drug chart and endorse chart "Entonox given as per LACP". Document if the full effects have been achieved.
3.13	Special consideration regarding concurrent medicine being administered to patient	The Summary of Product Characteristics for methotrexate states that methotrexate should be used with caution in patients taking drugs known to have an anti-folate potential, including nitrous oxide. Seek medical advice before administering Entonox® to a patient receiving treatment with methotrexate.