### Protocol for Entonox Administration by demand system

**Title:** Protocol for Entonox Administration by demand system  
**Version:** 3

**Supersedes:** All previous versions (2003)

**Description of Amendment(s):** New hospital contact details applied. Free Flow entonox to be used by medical staff only. System to be disconnected when not in use.

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**Approval by:** Professional Nurse Forum

**Sub Committee Approval Date:** [if required]

**Delete as necessary**

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<th>All Patients</th>
<th>Patients –</th>
<th>Patients – Children only</th>
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<td>Staff Group</td>
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**Issue Date:** September 2009

**Circulated by:** Children’s Pain Team

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**Responsibility of:** Children’s Pain Team
**POLICY CONTROL PAGE (2) CIRCULATION DOCUMENT**

**Circulation List:**

| For Information |

Central Manchester and Manchester University Hospitals NHS Trust is committed to promoting equality and diversity in all areas of its activities. In particular, the Trust wants to ensure that everyone has equal access to its services. Also that there are equal opportunities in its employment and its procedural documents and decision making supports the promotion of equality and diversity. Refer to section 8 for more detail on undertaking equalities impact assessment.

This document must be disseminated to all relevant staff, refer to section 10: Dissemination and Implementation

The Policy must be posted on the intranet: Date Posted:
Introduction
Entonox is a compressed gaseous mixture of 50% Nitrous Oxide and 50% Oxygen which acts as a potent analgesic agent when inhaled, it works on the opioid receptors in the body and is rapidly absorbed and excreted through the lungs.
Entonox is administered using a patient demand system with either a mouthpiece or facemask. Using a self demand system ensures that when the child becomes drowsy the mouthpiece or mask drops away from the child’s mouth and the Entonox ceases to flow, this prevents loss of protection of laryngeal reflexes. The nurse is also able to maintain verbal contact with the child throughout the procedure. Entonox is fully effective within 6-8 breaths and wears off rapidly with minimal side-effects making it suitable for outpatient use and dressing clinics. Entonox can be used alone or in conjunction with other analgesics.
Continuous flow or free flow Entonox may be used in the Burns unit and A&E by medical staff only. Nitrous oxide is an anaesthetic gas therefore free flow Entonox can cause deep sedation and requires close monitoring.
Entonox is for short term procedural pain and not an alternative to a general anaesthetic. Procedures should not last longer than 30 minutes.

Uses of Entonox
The use of Entonox is indicated prior to and during a number of painful procedures:
- Changing dressings
- Removal of wound drains/packs
- Removal of K wires or cleaning of pin sites
- Physiotherapy or application of splints
- Acute trauma
- Invasive procedures such as venepuncture or cannulation in extreme needle phobic patients where distraction or Ametop has failed.

Contra indications
- Entonox should not be used with any condition where air is trapped within the body and where its expansion might be dangerous i.e. pneumothorax, abdominal distension, severe bullous emphysema.
- Patients who have maxillofacial injuries, partial airway obstruction or history of airway obstruction.
- Reduced level of consciousness i.e. intoxication or head injuries.
- Use with caution in presence of IV sedation or IV opioids.
- Following recent underwater dive
- Entonox should be used with caution in children who suffer from “Glue Ear “, discontinue use immediately if child complains of ear ache.
- Repeated use can interfere with the production of Vitamin B₁₂ and cause megaloblastic changes in the bone marrow. Children having Entonox more frequently than every four days should have monitoring of their blood with regular full blood counts.
- Patients with acute exacerbation of asthma or severe chest infections may acquire post inhalation hypoxia following use of Entonox.
- Long term use of Entonox can lead to peripheral neuropathy.
Methods of Administration.

Self Administration
By use of face mask or mouth piece connected through a demand valve to the Entonox cylinder or wall outlet. For use in any child over age 5 years fulfilling the above criteria

Safety actions
- Entonox must only be administered by staff that have undertaken appropriate training and have been assessed as competent.
- An Entonox patient assessment form must be completed
- The Entonox cylinder is coloured blue and has a white quartered collar or a piped O₂/N₂O entonox outlet on the wall of the clinic or patient room.
- Cylinders should be stored above -6°. If not the cylinder must be brought inside for 24 hrs before use.
- Ideally the cylinder should be stored in the horizontal position and in a cradle.
- **Entonox must be prescribed on the patient’s drug prescription sheet.**
- Patients do not need to be starved if Entonox alone is being used.
- Suction equipment, oxygen and resuscitation equipment must be available. Oxygen saturation monitoring must take place if opiate or sedative drugs have been given
- Patients on IV opiates or other sedative drugs will need to be fasted from food for 2 hours prior to the use of Entonox. Use observation form on reverse of Entonox Patient Assessment form to record respiration, level of sedation and oxygen saturation levels.
- Child must remain on bed for minimum of 10 minutes following cessation of the Entonox with the nurse in attendance.

When not in use the entonox demand system must be dismantled or detached from the wall outlet to avoid inadvertent misuse and conform to the trust medicines policy.