INTERNAL ONLY
STANDING ORDER
EMERGENCY DEPARTMENTS

NITROUS OXIDE with OXYGEN -
Administration by Accredited Emergency Nurses for mild to moderate pain

POLICY STATEMENT

This order may only be activated under the specific circumstances set out in the section “Indications” and provided there are no contraindications present.

The administering nurse must be accredited to administer the drug and record the administration in ink on the once only section of the medication chart. This order must be checked and signed by a medical officer within 24 hours, and preferably within 4 hours, of activation of the standing order.

This standing order is only valid until the date noted by the Drug and Quality Use of Medicines Committee under the heading "Effective To:" at the end of this document.

1. NURSING ACCREDITATION REQUIREMENTS

Accredited Registered Nurses employed within SESLHD Emergency Departments (ED) who are working in a extended practice nurse or Advanced Clinical Nurse (ACN) capacity must have at least a minimum of two (2) years emergency / critical care experience and must be able to work at a minimum of resuscitation level or above (i.e. triage / clinical initiatives nurse) and/or as approved by the ED Nurse Manager.

2. INDICATIONS

- Adult patients (16 years of age and over) who present to the Emergency Department:
  - in acute mild to moderate pain due to fractures and/or burns with verbal numerical rating scale of greater than three (3) and less than seven (7); or
  - requiring temporary pain relief during peripheral intravenous cannulation insertion or wound care; or
  - requiring relief of anxiety associated with painful conditions or procedures. ¹

3. CONTRAINDICATIONS ²,³

- Less than16 years of age
- Patient unable to self-administer via inhalation
- Consent or understanding of the process is not able to be obtained
- Haemodynamically unstable (meets PACE / Between The Flag criteria⁴)
- Current acute asthma attack
- Recent administration of intravenous opioids or sedatives, including intoxication with alcohol
- Concurrent use of tobramycin, kanamycin, neomycin or streptomycin as increases the risk of respiratory depression
- First and second trimesters of pregnancy
- Abdominal pain, suspected bowel occlusion or perforated viscous
- Dyspnoea
- Intra-ocular gas injection
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- Chronic Obstructive Pulmonary Disease
- Patients presenting with a head injury
- Suspected air embolism or decompression sickness
- Suspected raised intracranial pressure
- Craniotomy
- Maxillofacial fractures or facial/airway burns
- Patient refusal
- Pneumothorax
- Following air encephalography.
- Severe bullous emphysema.
- Myringoplasty

4. PRECAUTIONS

- Use caution in patients with renal or hepatic failure, or elderly (greater than 65 years)
- History of sleep apnoea, snoring
- Significant obesity
- May worsen cardiovascular compromise (e.g. hypotension, hypovolaemia)
- Increased risk of myocardial ischaemia in patients with coronary artery disease
- Vitamin B₁₂ deficiency
- Myasthenia gravis, muscular dystrophy
- Debilitated patients

5. ACTIONS/MONITORING REQUIRED

Pre administration:
- Assessment of previous pain treatments utilised i.e. over the counter and/or prescription drugs
- A full set of vitals (heart rate, blood pressure, respiration rate, temperature, Glasgow Coma Scale (GCS) and pain score) must be taken prior to administration of nitrous oxide and oxygen

Documentation:
- Document patient observations including the patient’s pain score on the ED Standard Adult General Observation (SAGO) Chart and/or electronically within Firstnet.
- The administering nurse must record the administration in ink on the ‘once-only’ section of the National Inpatient Medication Chart (NIMC) as Emergency Department Standing Order (i.e. “ED SO”) plus print and sign their name.
- The EDSO drug order must be countersigned by the medical officer that subsequently assesses and treats the patient within 4 hours.
- The administering nurse must record in the patient’s progress notes the administration and effect of the medication.
- Drugs must be checked and ordered according to hospital policy and adhering to the Ministry of Health Policy Medication Handling in NSW Public Health Facilities PD2013_043.
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Post administration:
- Continuous monitoring of patients using Nitrous Oxide/Oxygen is the responsibility of the clinician administering the gas. They have no other role during the procedure.\(^5\)
- Evaluate and document therapeutic response to pain via numerical or visual analogue pain score
- **Continually re-assess pain and level of sedation**
- Monitor respiratory rate
- **Senior medical review must be obtained if any of the following occur:**
  1. Respiratory rate less than 10 breaths a minute
  2. SpO2 <92%
  3. Systolic blood pressure <100mmHg
  4. Heart rate <50bmp
  5. GCS < 14
  6. Sedation score >1

- Notify a medical officer if patient meets PACE / Between The Flag criteria\(^2\)
- Monitor for side effects and consider flow rate reduction or anti-emetics if nausea / vomiting develops.

**Sedation scoring**
Measuring patient sedation in relation to the medication discussed within the document, the following tool is to be used:

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Wide awake</td>
</tr>
<tr>
<td>1</td>
<td>Easy to rouse</td>
</tr>
<tr>
<td>2</td>
<td>Constantly drowsy, unable to stay awake</td>
</tr>
<tr>
<td></td>
<td><strong>Yellow Zone:</strong> Cease administration. Given high-flow oxygen, complete primary survey, alert attending emergency medical officer. If patient respiratory rate less than or equal to 5 breaths per minute, <strong>activate emergency call buzzer</strong>.</td>
</tr>
<tr>
<td>3</td>
<td>Difficult to rouse or unresponsive</td>
</tr>
<tr>
<td></td>
<td><strong>Red Zone:</strong> Activate emergency call buzzer, complete primary survey, administer high-flow oxygen.</td>
</tr>
</tbody>
</table>

6. **PROTOCOL/ADMINISTRATION GUIDELINES:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Route</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrous Oxide</td>
<td>50% with Oxygen</td>
<td>Inhaled, Patient administered</td>
<td>Once only</td>
</tr>
</tbody>
</table>
7. POTENTIAL ADVERSE EFFECTS/INTERACTIONS:

Most common side effects:
- Shivering (independent of temperature), nausea, vomiting

Less frequent side effects:
- Arrhythmias

Uncommon side effects:
- Malignant hyperthermia, hepatotoxicity (volatile agents)

8. REFERENCES:


Authourised by:

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<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Signature</th>
<th>Date</th>
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Endorsed by:

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