**Approvals**

The signatures below certify that this procedure has been reviewed and accepted, and demonstrates that the signatories are aware of all the requirements retained herein and are committed to ensuring their provision.

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Position</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewed by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approved in monthly SMT meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amendment Record**

<table>
<thead>
<tr>
<th>Page No</th>
<th>Context</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing policy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Guidelines

The indication for Resuscitation must be part of the client’s medical record. All staff who can initiate oxygen therapy in a resuscitation must have been trained in use of oxygen. Oxygen must be administered by clinical staff trained in the use of the delivery apparatus, with an understanding of appropriate choice of apparatus to use in emergency situations and how to adjust the flow rate. The training will include the practical use of the oxygen system, emergency and safety procedures.

High Flow Oxygen

- Hypoxia is life threatening and in most emergency clinical situations where oxygen is indicated the aim should be to achieve inspired concentrations of between 35 and 60%. Simple face masks are inadequate for most patients with severe hypoxia or tissue hypoxia due to shock.

- High concentrations of inspired oxygen are more reliably given with a mask and reservoir system, sometimes known as a non-rebreathing mask. As long as the oxygen supplied is at a rate greater than the minute ventilation, then an inspired concentration of 60% can be achieved. An inspired O2 flow rate of at least 10 L/min should be used. With acute respiratory distress, the ventilatory minute volume can rise to 30 litres per minute and in those circumstances the inspired concentration would be < 60%. Care should be taken to ensure that the reservoir bag does not empty during inspiration.

- An inspired oxygen concentration of over 60% cannot be reliably given without a tight fitting anaesthetic mask and valve system, as used in anaesthetics. With a combination of a non-rebreathing mask and nasal cannulae, it might be possible to achieve an inspired concentration of 80 - 90%.

- Variable flow masks (medium oxygen concentration) should not be used. The quoted inspired oxygen concentration, for different levels of oxygen flow rate, depends crucially on the level of minute ventilation, which is invariably high in patients with respiratory distress. Usually the inspired oxygen would be lower than quoted and rebreathing with CO2 retention can occur.

General

1. All personnel handling gas cylinders should have adequate knowledge of the properties of the gas, precautions to be taken, actions in the event of an emergency and the correct operating procedures for their installations.

2. If you own your cylinders you must be aware of, and discharge your statutory obligations with regard to maintenance and testing.

3. You should ensure that when cylinders are collected the driver has been properly instructed in the method of handling cylinders and in dealing with any emergency.

Storage of cylinders

1. Cylinders should be stored under cover, preferably inside, kept dry and clean and not subjected to extremes of heat or cold.

2. Cylinders should not be stored near stocks of combustible materials or near sources of heat.

3. Warning notices prohibiting smoking and naked lights must be posted clearly.
4. Emergency services should be advised of the location of the cylinder store.

5. Full and empty cylinders should be stored separately. Full cylinders should be used in strict rotation.

6. Cylinders must not be repainted, have any marking obscured or labels removed.

7. CD size cylinders should be stored horizontally.

8. Precautions should be taken to protect cylinders from theft.

**Preparation for use**

1. Cylinder valves should be opened momentarily prior to use to blow any grit or foreign matter out of the outlet.

2. Ensure that the connecting face regulator is clean and in good condition.

3. Cylinder valves must be opened slowly.

4. Only the appropriate regulator should be used for the particular gas concerned.

5. Cylinder valves and any associated equipment must never be lubricated and must be kept free from oil and grease.

**Leaks**

1. Should leaks occur this will usually be evident by a hissing noise.

2. Leaks can be found by brushing the suspected area with an approved leak test solution such as 1%*Teepol HB7 solution.

3. The gland packing around the valve spindle may become loose and can be cured by tightening the gland nut clockwise. Do not overtighten.

4. Sealing or jointing compounds must never be used to cure a leak.

5. Never use excessive force when connecting equipment to cylinders.

**Use of cylinders**

1. Cylinders should be handled with care and not knocked violently or allowed to fall.

2. Cylinders should only be moved with the appropriate size and type of trolley.

3. When in use cylinders should be firmly secured to a suitable cylinder support.

4. Medical gases must only be used for medicinal purposes.

5. Smoking and naked lights must not be allowed within the vicinity of cylinders.

6. After use cylinder valves should be closed using moderate force only and the pressure in the regulator or tailpipe released.
7. When empty the cylinder valve must be closed.

8. Ensure the plastic valve cap is refitted to bullnose valves/outlets.

9. Immediately return empty cylinders to BOC.

Further information concerning specific problems arising from the storage and handling of gases, hazards and first aid treatment can be obtained from BOC.

**General references**

‘Gas Safe — with Medical Gases.
‘Safe Under Pressure’ BOC Limited.
The Road Traffic (Carriage of Dangerous Substances in Packages etc) Regulations 1986, SI.1986, No 1951 and supporting Code of Practice.