IMPORTANT NOTICE TO ALL REGISTERED BASIC LIFE SUPPORT PROVIDER

Herewith the January 2006 booklet containing the most recently approved Medications, Guidelines, Capabilities, Regulations and Ethical Rules for Registered Basic Life Support Providers (Basic Ambulance Assistants and Emergency Care Assistants) as approved by the Professional Board for Emergency Care Practitioners (PBECP).

It is imperative that you familiarise yourself with the entire content thereof, as this document and the inherent recommendations and guidelines replace all previous versions and publications issued under the authority of the Professional Board for Emergency Care Practitioners.

Any comment or enquiries in this regard can be directed in writing to Ms Alta Pieters, the Board Manager of the Professional Board for Emergency Care Practitioners, at the address below:

The Registrar
HPCSA
P O Box 205
Pretoria
0001

Fax no (012) 328 4862
e-mail: altap@hpcsa.co.za
Website: http://www.hpcsa.co.za
PLEASE TAKE CAREFUL NOTE-

- These documents are intended to serve as guidelines for the treatment of patients by registered Basic Life Support Providers and do not replace sound clinical judgement.
- Consultation with ILS Providers, ALS Practitioners, or medical practitioners in challenging or difficult situations is strongly advocated.
- It is your medico-legal responsibility to ensure that all the necessary and appropriate documentation is duly completed and processed.
- The onus rests upon the Basic Life Support Provider to ensure that he/she is adhering to the correct and most recently HPCSA approved standards and guidelines.
- For acknowledgements and references, please refer to ALS protocol document on HPCSA website.
ANNEXURE 3

PROFESSIONAL BOARD FOR EMERGENCY CARE PRACTITIONERS

RULES OF CONDUCT SPECIFICALLY PERTAINING TO THE PROFESSION OF EMERGENCY CARE

In addition to the rules of conduct referred to in rules 2 to 27 a basic life support provider, an intermediate life support provider and an advanced life support paramedic or a basic life support student, an intermediate life support student and a student advanced life support paramedic shall also adhere to the following rules of conduct. Failure to comply with these additional rules of conduct shall constitute an act or omission in respect of which the board may take disciplinary steps in terms of Chapter IV of the Act:

1. Performance of professional acts by a basic life support provider, an intermediate life support provider or an advanced life support paramedic

Notwithstanding the provisions of rule 21, a basic life support provider, an intermediate life support provider or an advanced life support paramedic –

(a) shall not perform any professional act or exercise any capability per incident, other than those set out in the relevant protocol or annexure to such protocol as approved by the board;
(b) shall not hand over the responsibility for the treatment of a patient to any person who is less qualified or experienced than himself or herself, unless such a basic life support provider, intermediate life support provider or advanced life support paramedic assumes full responsibility for the acts performed by such other person.

2. Performance of professional acts by a student basic ambulance assistant, a student emergency care assistant, a student ambulance emergency assistant or a student paramedic

A student basic life support provider shall only perform professional acts under the supervision of a registered intermediate life support provider and, in the case of an intermediate life support student and/or student advanced life support paramedic, under the supervision of a medical practitioner or an advanced life support paramedic and to limit such acts to acts directly related to his / her education and training.
# MEDICATIONS – BLS PROVIDER PROTOCOLS

<table>
<thead>
<tr>
<th>NO.</th>
<th>MEDICATION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Activated Charcoal</td>
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<tr>
<td>2</td>
<td>Oral Glucose Powder/ Gel</td>
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<tr>
<td>3</td>
<td>Medical Oxygen</td>
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<tr>
<td>4</td>
<td>Nitrous Oxide : Oxygen</td>
</tr>
</tbody>
</table>

## ALGORITHMS

- Basic Life Support Algorithm
- Choking Algorithm
ACTIVATED CHARCOAL

DESCRIPTION

• Classification: Carbon
• Schedule: 1

PHARMACOLOGICAL ACTION

• Activated charcoal adsorbs many poisonous compounds to its surface, thereby reducing their absorption by the GIT

ADVERSE EFFECTS

The patient may experience mild constipation

INDICATIONS

To assist in the treatment of certain cases of overdoses and poisonings where the agent/s was/were orally ingested – within first hour of ingestion

CONTRA-INDICATIONS

- SHOULD NOT BE USED IN POISONING WITH iron, organophosphates, ethanol, lithium, boric acid, cyanide, ethylene glycol, methanol, petroleum products, strong acids and alkalis
- Unprotected airway in a patient with decreased level of consciousness
- Do not use if the container was not properly sealed (de-activation due to moisture exposure)

PACKAGING

Fine black powder in bottles of 25g and 50g

DOSAGE AND ADMINISTRATION

Adult and Paediatric: 0.5g/kg - 1g/kg mixed with water, given orally
ORAL GLUCOSE POWDER/GEL

DESCRIPTION

• Classification: Carbohydrate
• Schedule: 1

PHARMACOLOGICAL ACTION

Administration of an oral glucose solution / preparation provides a source of soluble carbohydrates to the tissues in order to raise the blood glucose levels

ADVERSE EFFECTS

Hyperglycaemia

INDICATIONS

• Acute management of hypoglycaemia
• HGT < 3.5mmol/l

CONTRA-INDICATIONS

No absolute contra-indications

PRECAUTIONS

• Patient must be lateral if unconscious
• Avoid aspiration

PACKAGING

• 25g and 50g powder sachet
• 25g and 50g gel

DOSAGE AND ADMINISTRATION

• 25g of gel applied to the oral mucosa of the patient with a gloved finger
• Preferably dilute powder in glass of water if patient is conscious
• Repeat after 5 minutes should blood glucose remain < 3.5mmol/l
MEDICAL OXYGEN

DESCRIPTION

Classification: Naturally occurring atmospheric gas

PHARMACOLOGICAL ACTION

• Oxygen is an odourless, tasteless, colourless gas present in the atmosphere at a concentration of approximately 21% of local atmospheric pressure
• It reverses the deleterious effects of hypoxaemia on the brain, heart and other vital organs
• Expired air contains 16-17% oxygen
• During optimal active CPR only 25-30% of the normal cardiac output is maintained and for these reasons supplemental oxygen should be administered

INDICATIONS

• Glasgow Coma Scale < 15/15
• S\textsubscript{PO2} < 90%
• Any patient with abnormal vital signs
• Any respiratory insufficiency or arrest
• Acute decompensation of COPD / Asthma
• Confirmed or suspected hypoxia
• Severe anaemia
• Chest pain of medical or trauma origin
• Multiple or severe trauma
• Cardiac arrest / cardiac failure
• Toxic inhalations
• Prophylactically during air transportation
• Scuba diving accidents

CONTRA-INDICATIONS

There are no absolute contra-indications for the use of oxygen in the emergency setting

PRECAUTIONS

• High concentrations of oxygen may reduce the respiratory drive of a COPD patient; therefore, careful monitoring of the patient is required. Do not withhold oxygen from these patients if their prevailing condition is such that oxygen is required.
• Long exposures to high concentrations of oxygen may result in retrolental fibroplasia in neonates and pulmonary fibrosis
• Neonates with a patent ductus arteriosus (PDA); should cyanosis and signs of hypoxia develop after oxygen administration, remove oxygen. In some infants with a PDA and congenital heart disease, the presence of the PDA may be lifesaving because of ductal-dependent systemic or pulmonary blood flow. Increased oxygen concentration tends to constrict the foetal ductus arteriosus.
• Oxygen supports combustion - do not use in the presence of fire, smoke or cigarette smoking
• High pressure oxygen should not be used with oil or grease based substances as it causes an exothermic reaction with the risk of explosion
• Production of superoxide radicals in the presence of paraquat (herbicide) – paraquat and oxygen enhance each other’s toxicity, causing severe pulmonary injury.
• Remove oxygen source to one metre away from defibrillation pads / paddles.

PACKAGING

Pressurised cylinder containing 100% medical oxygen

DOSAGE AND ADMINISTRATION

• Administered via:
  - Oxygen masks
  - Nasal cannulae
  - Bag-valve-mask / tube-reservoir device
  - Nebulizer device
  - Jet insufflation
• At the correct flow rate the following devices will deliver the following approx. F\textsubscript{2}O\textsubscript{2}:
  - Simple face mask = 35 - 60% at 6 - 10 L/minute
  - Venturi mask = 24 – 50% at 4 – 12 L/minute (manufacturer’s instructions)
  - Nasal cannulae = 21 - 40% at 1 – 6 L/minute
  - Partial re-breather mask = 35 - 70% at 6 – 10 L/minute
  - Non-re-breather mask = 60 – 100% at 6 – 15 L/minute
  - Bag-valve-mask/tube = 50% at 12 - 15 litres/minute
  - Bag-valve-mask/ tube-reservoir device = 95 – 100% at 15 L/minute
  (Adequate flow rate = Reservoir bag inflated > 1/3 of its volume at all times)
NITROUS OXIDE and OXYGEN (ENTONOX®)

DESCRIPTION

• Classification: Analgesic gas
• Schedule: 4

PHARMACOLOGICAL ACTION

• Colourless, sweet-smelling, non-irritant gas
• Heavier than room air / oxygen
• Nitrous oxide has mild analgesic and anaesthetic effects depending on the dose inhaled
• When inhaled it depresses the central nervous system causing anaesthesia
• In addition, the high concentration of oxygen delivered along with the nitrous oxide increases oxygen tension in the blood, thereby reducing hypoxia
• It provides rapid, easily reversible relief of mild to moderate pain

PHARMACO-KINETICS

• Extremely blood-insoluble
• Not metabolised by the body
• Eliminates via lungs (small amounts are eliminated through the skin)
• Onset of action: 30-60 seconds (maximum 3-4 minutes)

ADVERSE EFFECTS

• Light-headedness
• Drowsiness
• Nausea and vomiting

INDICATIONS

• Relief of pain from:
  - Acute myocardial infarction
  - Musculoskeletal trauma
  - Burns - not including burns of the respiratory tract
  - Active labour
  - Any other condition requiring pain relief provided there are no contra-indications present

CONTRA-INDICATIONS

• Neurological impairment:
  - Any altered level of consciousness
  - Inability to comply with instructions
  - Head injuries
• Air entrapment:
  - COPD/asthma patient during an acute episode
- Acute pulmonary oedema
- Chest injuries
- Abdominal trauma
- Diving accidents (specifically Acute Decompression Illness)
- Burns to the respiratory tract

• Other limitations:
  - Hypotension (SBP < 90 mmHg)
  - Major facial trauma (anatomic)

PRECAUTIONS

• The constituent gases nitrous oxide and oxygen disassociate at < 4°C. It is imperative that the cylinder is inverted a few times and then placed horizontal when used in cold conditions as the patient will otherwise inhale pure nitrous oxide
• Nitrogen has decreased solubility in blood. Once in a gas-containing space the gas dissociates and nitrogen diffuses out slower than nitrous oxide diffuses in, and there is a net increase in gas volume
• When the mask is removed after prolonged use, the gas will come out of solution in the lungs and displace the oxygen in the alveoli, causing hypoxia
• In order to prevent this, the mask must not be strapped to the patient’s face, and the patient must receive oxygen for ± 5-10 minutes, especially after prolonged use
• Nitrous oxide is a non-explosive gas

PACKAGING

• Pressurised cylinders containing a mixture of 52% nitrous oxide and 48% Oxygen (N₂O+O₂ 52% : 48%)

DOSAGE AND ADMINISTRATION

• Entonox is predominantly a self-administered gas
• The administration procedure is to be explained to the patient carefully beforehand to prevent unnecessary complications
• Once the patient has inhaled enough Entonox to control the pain, they will remove the mask thereby preventing any chances of overdosing
• Only registered ALS paramedics are entitled to administer Entonox to a patient, and this requires careful monitoring of the patient in order to prevent complications arising
• If the patient becomes drowsy, remove the Entonox and replace immediately with oxygen
Basic Life Support / AED Algorithm
(Agent and Child)
[Adapted from Resuscitation Council of SA BLS Algorithm]

Hazards?
Ensure scene is safe

Hello?
Check Responsiveness
Responsive
Get ALS assistance if needed
Reassess continuously
Unresponsive

Help!
Call for assistance and AED

A
Open Airway
Remove visible foreign material
Look for adequate breathing
Breathing adequately
Place in recovery position
Check for continued breathing
Reassess continuously
Not breathing adequately

B
Breathe
Give 2 effective (chest rising) breaths at 1 breath/second
(with O₂ if available). Feel for pulse for up to 10 seconds.
Is a definite pulse present?
Yes
Continue Rescue breaths:
- Adult:10/min
- Child: 12-20/min
No or Don't Know
Reassess continuously

C
Compressions
Compress chest at a rate of 100/min (almost 2 compressions/second)
Push hard / Push fast / Ensure full chest recoil / Minimize interruptions
CPR Ratios (until airway protected): 1-Rescuer = 30:2 and 2-Rescuers (Child) = 15:2
Continue until AED available and ready.

D
Turn AED on
Apply appropriate pads
Clear victim to analyze
Shockable
(VF/Pulseless VT)
Give 1 Shock if advised
Immediately resume CPR for 2 minutes
Non-Shockable
(PEA/Asystole)
Immediately resume CPR for 2 minutes

After 2 min of CPR, if organized electrical activity returns, check pulse:
- If present – provide post-resuscitation care
- If absent, continue CPR

If time from collapse > 5 minutes without CPR, first do 2 minutes of CPR before analyzing

During CPR
Check pad position and contact
Do not interrupt compressions unless absolutely necessary
Choking Algorithm
(Adult and Child)

Conscious Victim

- Able to cough, talk or breathe?
  - Yes → Encourage coughing
    (Watch for improvement/deterioration)
  - No → Adult / Child

Adult / Child
- Up to 5 Abdominal thrusts and up to 5 Back slaps

Infant
- Up to 5 Back slaps and up to 5 Chest thrusts if necessary

Pregnant/Obese
- Up to 5 Chest thrusts and up to 5 Back slaps

Stress Conscious?

- Yes → Unconscious
  - Call for assistance
- No → Open Airway
  (Look for and remove any visible foreign material)

Open Airway

Assess Breathing?

- Not Breathing → Start CPR
- Breathing Adequately → Reassess continuously

Emergency N
- Cell: 112
- Tel: 101777
- Other: ……………

Start CPR

Single Rescuer
- 2 Breaths
- followed by
- 30 Compressions

Child with 2 Rescuers
- 2 Breaths
- followed by
- 15 Compressions
# COMMONLY ENCOUNTERED ABBREVIATIONS

<table>
<thead>
<tr>
<th>ABBREVIATION</th>
<th>MEANING</th>
</tr>
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<tbody>
<tr>
<td>α</td>
<td>Alpha</td>
</tr>
<tr>
<td>β</td>
<td>Beta</td>
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<tr>
<td>μg / mcg</td>
<td>Microgram</td>
</tr>
<tr>
<td>ACS</td>
<td>Acute Coronary Syndrome</td>
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<tr>
<td>ADP</td>
<td>Adenosine Diphosphate</td>
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<tr>
<td>ALS</td>
<td>Advanced Life Support</td>
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<tr>
<td>AMI</td>
<td>Acute myocardial infarction</td>
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<tr>
<td>AV</td>
<td>Atrio-ventricular</td>
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<tr>
<td>bpm</td>
<td>Beats per minute</td>
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<tr>
<td>Ca²⁺</td>
<td>Calcium ion</td>
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<tr>
<td>cAMP</td>
<td>Cyclic adenosine mono phosphate</td>
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<tr>
<td>CETZ</td>
<td>Chemo-emetic trigger zone</td>
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<tr>
<td>CNS</td>
<td>Central nervous system</td>
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<tr>
<td>COPD</td>
<td>Chronic obstructive pulmonary disease</td>
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<tr>
<td>CPR</td>
<td>Cardiopulmonary resuscitation</td>
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<td>CVS</td>
<td>Cardiovascular system</td>
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<td>d</td>
<td>Drops</td>
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<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
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<tr>
<td>ET</td>
<td>Tracheal Tube</td>
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<tr>
<td>g</td>
<td>Gram</td>
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<tr>
<td>GABA</td>
<td>Gamma-aminobutyric acid</td>
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<tr>
<td>GIT</td>
<td>Gastrointestinal tract</td>
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<tr>
<td>GUT</td>
<td>Genito-urinary tract</td>
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<tr>
<td>H₂O</td>
<td>Water</td>
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<tr>
<td>HGT</td>
<td>Haemo-glucose test</td>
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<tr>
<td>hr/s</td>
<td>Hour/s</td>
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<td>ICP</td>
<td>Intracranial pressure</td>
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<td>IHD</td>
<td>Ischaemic heart disease</td>
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<td>IMI</td>
<td>Intramuscular injection</td>
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<tr>
<td>IOI /IO</td>
<td>Intraosseous injection</td>
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<tr>
<td>IOI =IVI</td>
<td>Equivalent doses</td>
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<tr>
<td>IVI</td>
<td>Intravenous injection</td>
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<tr>
<td>K⁺</td>
<td>Potassium ion</td>
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<tr>
<td>kg</td>
<td>Kilogram</td>
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<tr>
<td>MDI</td>
<td>Metered Dose Inhaler</td>
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<td>min</td>
<td>Minute</td>
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<tr>
<td>ml</td>
<td>Millilitre</td>
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<tr>
<td>Na⁺</td>
<td>Sodium</td>
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N/S    Sodium chloride 0.9%
prn    as required
p.o.   Per os
PVCs   Premature ventricular contractions
Resp   Respiratory
SBP    Systolic blood pressure
SCI    Subcutaneous injection
UDV    Unit dose vial
VF/V Fib ventricular fibrillation
VT/V Tach ventricular tachycardia
N/S    Sodium chloride 0.9%
5% D/W  5% Dextrose water solution

Update: January 2006