

HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA

PROFESSIONAL BOARD FOR EMERGENCY CARE PRACTITIONERS

BASIC LIFE SUPPORT PROVIDER GUIDELINES

JANUARY 2006

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:

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HPCSA
P O Box 205
Pretoria
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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.

TABLE OF CONTENTS

MEDICATIONS – BLS PROVIDER PROTOCOLS

NO. MEDICATION

- 1 Activated Charcoal
- 2 Oral Glucose Powder/ Gel
- 3 Medical Oxygen
- 4 Nitrous Oxide : Oxygen

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
- $S_{pO_2} < 90\%$
- 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_iO_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
- Eliminated 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

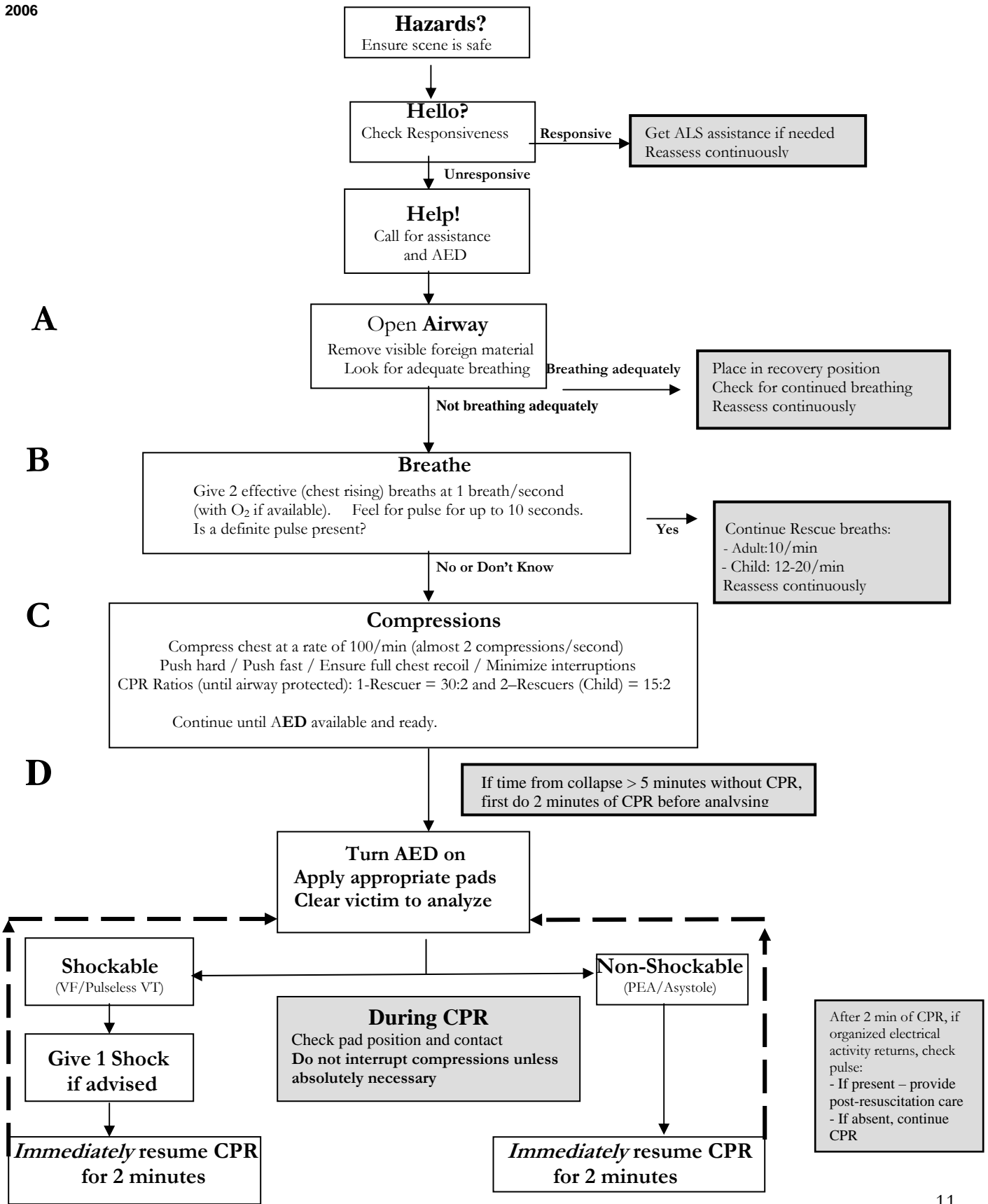
- Entonox is predominantly a self-administered gas
- The administration procedure is to be explained to the patient carefully beforehand to prevent unnecessary complications
- Once the patient has inhaled enough Entonox to control the pain, they will remove the mask thereby preventing any chances of 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



2006

Basic Life Support / AED Algorithm

(Adult and Child)
[Adapted from Resuscitation Council of SA BLS Algorithm]



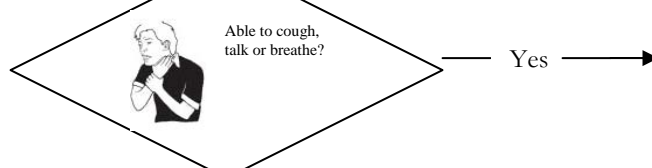


2006

Choking Algorithm (Adult and Child)

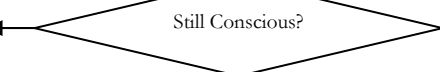


Conscious Victim



Encourage coughing
(Watch for improvement/deterioration)

 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	



Unconscious

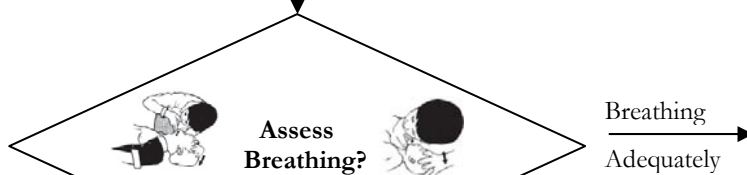
Call for assistance

Emergency N

Cell : 112
Tel : 101777
Other :

Open Airway

(Look for and remove any visible foreign material)



Place in recovery position
Check for continued adequate breathing
Reassess continuously

Start CPR

 Single Rescuer 2 Breaths followed by 30 Compressions	 Child with 2 Rescuers 2 Breaths followed by 15 Compressions
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COMMONLY ENCOUNTERED ABBREVIATIONS

ABBREVIATION	MEANING
α	Alpha
β	Beta
$\mu\text{g} / \text{mcg}$	Microgram
ACS	Acute Coronary Syndrome
ADP	Adenosine Diphosphate
ALS	Advanced Life Support
AMI	Acute myocardial infarction
AV	Atrio-ventricular
bpm	Beats per minute
Ca^{2+}	Calcium ion
cAMP	Cyclic adenosine mono phosphate
CETZ	Chemo-emetic trigger zone
CNS	Central nervous system
COPD	Chronic obstructive pulmonary disease
CPR	Cardiopulmonary resuscitation
CVS	Cardiovascular system
d	Drops
ECG	Electrocardiogram
ET	Tracheal Tube
g	Gram
GABA	Gamma-aminobutyric acid
GIT	Gastrointestinal tract
GUT	Genito-urinary tract
H_2O	Water
HGT	Haemo-glucose test
hr/s	Hour/s
ICP	Intracranial pressure
IHD	Ischaemic heart disease
IMI	Intramuscular injection
IOI /IO	Intraosseous injection
IOI =IVI	Equivalent doses
IVI	Intravenous injection
K^+	Potassium ion
kg	Kilogram
L	litres
max	Maximum
mcg	microgram
MDI	Metered Dose Inhaler
mg	Milligram
Mg	Magnesium
min	Minimum
min	Minute
ml	Millilitre
Na^+	Sodium

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