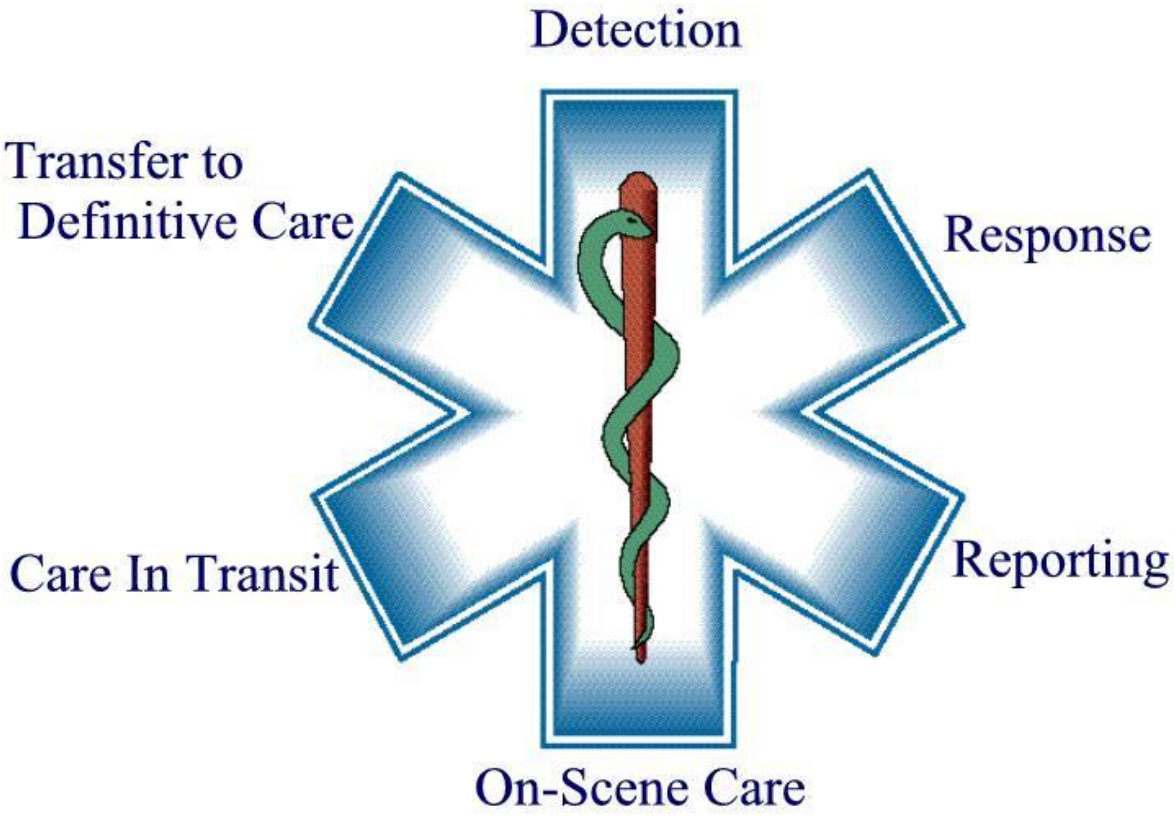
BAA Handbook



2023 Edition

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Introduction

This little handbook started as a hand-written A6 note pad which I developed as a new graduate. The purpose was to avoid forgetting something while managing a patient! Looking back, on this now well-worn notebook, it became clear updates were needed. BAA scope of practice has expanded, and evidence-based medicine has progressed. And so, this new, updated, digitized version was born! I hope it will assist you as much as it has me.

Notes on Use

This handbook is not comprehensive, nor does it seek to replace clinical judgement or knowledge. Each patient presentation is unique and there are myriad patient care considerations which simply cannot fit into a small, pocket-sized handbook. This handbook is meant purely as a memory-aid, including basic considerations around the management of specific conditions.

It should also be noted that not every management option mentioned should be used on every patient. For example, under *Pain* the medications Entonox and Methoxyflurane are mentioned. This does NOT mean that in every instance of pain both medications should be administered. They are simply noted as a reminder should they be indicated. In essence, every point mentioned in this reference book should be read with the following in mind: *"…if necessary/indicated".* ALS backup is not specifically highlighted, however, should be considered in any of the conditions mentioned.

As an example of how this handbook is intended for use, consider the management of an asthmatic patient. This patient should be managed according to clinical guidelines and one's knowledge/clinical judgement. Once immediate, life-saving interventions have been performed, this handbook may be used as a memory-aid to avoid omissions.

Please feel free to distribute and edit this document as you see fit – it is meant as a free resource which can be used as a customizable template and adjusted to any style or qualification – it's completely up to you! If you have any ideas or suggestions for updates, please let me know so this little handbook can be continually improved.

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**References to material can be provided upon request. I do not claim any ownership of the material but have simply compiled information. It remains each health care provider's responsibility to keep up to date with current, acceptable medical practice.*

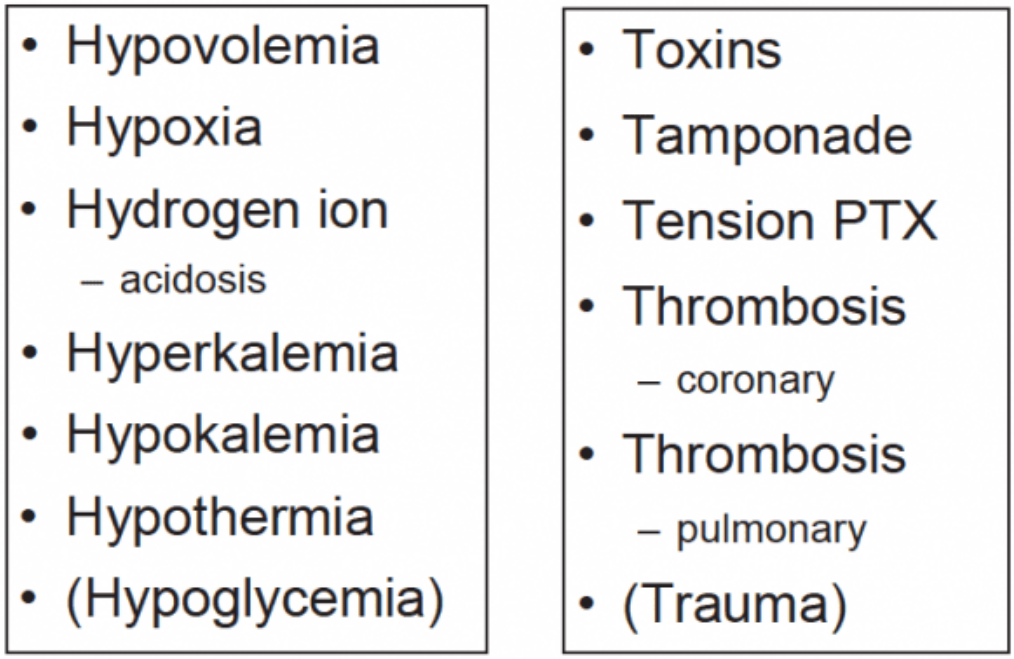
Pathologies

A. Cardiovascular

1. Cardiac Arrest

Basics

- **High quality** CPR:
  - Adequate compression depth (adults: 5cm, paeds: ≥1/3 AP diameter)
  - Allow full chest recoil
  - Adequate compression rate (100-120/min)
  - Minimize hands-off time (<5-10s)
  - Avoid aggressive ventilations.
- **Place AED** and **defibrillate** early.
- Ensure **high quality** CPR before performing other procedures.
- Use **metronome** for compressions.
- Ensure **timekeeping**: stop/swap/analyse every 2min.
- Count CPR cycles **out loud**.
- Assess for **reversible causes** of cardiac arrest:



Note: Hypoglycaemia and Trauma removed from most guidelines, but are worth assessing.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• BVM/BVT at FiO2 1.0	• BVM/BVT at FiO2 1.0 (Newborn: R/A initially)	• None

Procedures

- Post-ROSC care: optimize oxygenation and ventilation.
- Precordial thump (witnessed arrest).
- NP/OP tube insertion.
- Oral suctioning.

2. Myocardial Infarction/Acute Coronary Syndrome

Basics

- **Calm** and **reassure** patient – **minimize stress**, ensure **comfort.**
- Minimize **on-scene time**.
- Transport to appropriate **PCI** facility – **phone ahead**.
- Prepare for **resuscitation** (i.e. apply AED pads).
- History of **risk factors**: Age, Obesity, Smoking, Hypertension, Hypercholesterolaemia, Diabetes, Familial History.
- Identify **time** of symptom **onset**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• Low flow	• Consult cardiology	• SpO2 ≥90%
Aspirin	• 162-325mg PO		• Known allergy • Active pathological bleeding • Children <18yrs • Pregnancy • Renal transplant or severe impairment
Entonox	• Inhaled via self-administration		• Neurologic impairment • Air entrapment • Hypotension

Procedures

- None specific.

3. Hypertension

Basics

- Thorough **history** including duration and severity of hypertension.
- Identify likely **cause**: renal failure, toxins, genetics, medication default, etc.
- **Symptomatic**? (i.e. neurologic dysfunction, visual disturbances, pulmonary oedema, end-organ dysfunction).
- Measure BP **sitting**, **standing** and in **both arms**.
- Malignant Hypertension: **SBP ≥180mmHg** or **DBP ≥120mmHg**. These levels likely require management.
- Education on **lifestyle changes** (i.e. if diet and exercise are causal).
- Consult **cardiologist** or other related specialist.
- **Calm** and **reassure** patient – minimize **stress**, ensure **comfort**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific			

Procedures

- None specific.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

B. Respiratory

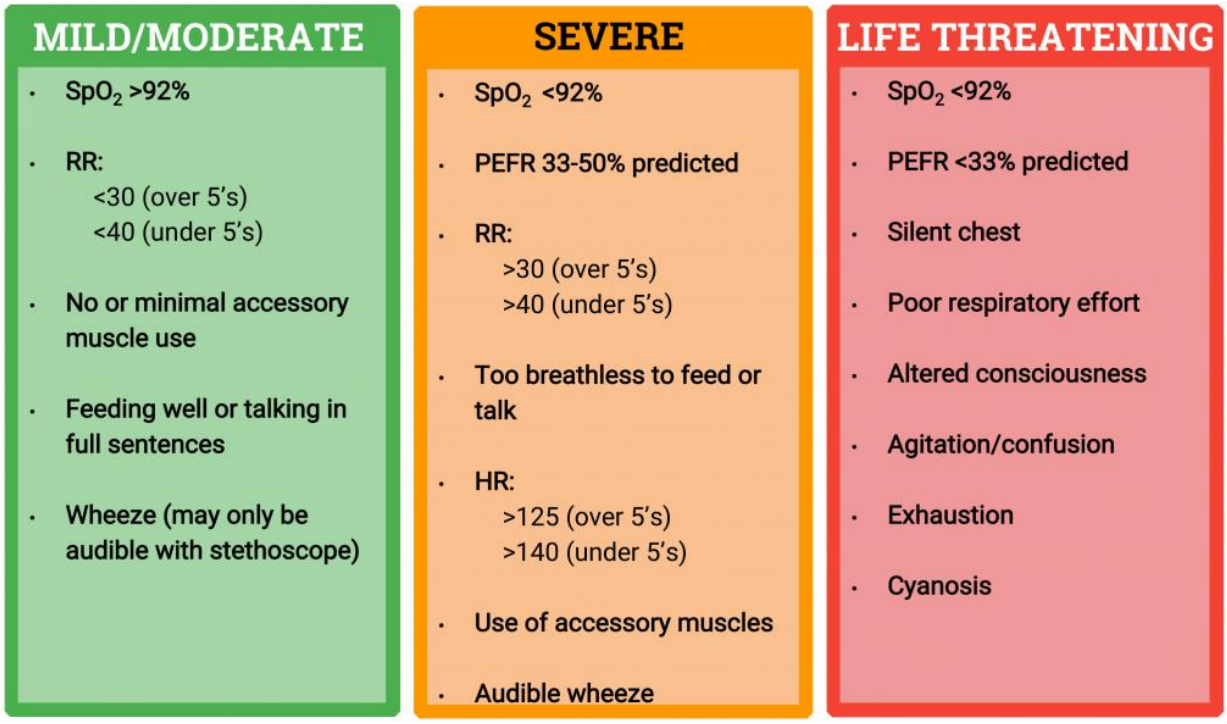
1. Asthma/COPD

Basics

- **Calm** and **reassure** patient while ensuring **comfortable** positioning (**avoid supine**).
- Remove **allergen** if still present.
- Encourage use of personal **pump/spacer** device.
- Assess **blood sugar** and **hydration** status.
- Determine **severity** (adult and paed):

Mild/Moderate	Severe	Life-Threatening
• PEF >50% predicted or personal best • Dyspnea limiting activity • Talks in phrases or sentences • Prefers sitting to lying • Possible Accessory Muscle use • SpO2 >90% on Room Air • Heart rate <120	• PEF ≤50% predicted or personal best • Dyspnea at rest • Sits hunched forward • Talks in words • Agitated, diaphoretic • Accessory Muscle use • SpO2 may be <90% on Room Air • Respiratory rate >30 • Heart rate >120	• PEF <25% predicted or personal best • Too dyspneic to speak • Depressed mental status • Cyanosis • Inability to maintain respiratory effort • Absent breath sounds • Minimal or no relief from frequent inhaled SABA • Bradycardia or Hypotension

Adapted from: References 1,3,4,6. PEF = Peak Expiratory Flow, SABA = Short Acting Beta Agonist



Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• Nebulised	• Nebulised	• None
β2 Stimulants	• Fenoterol: 1.25mg Neb (repeat continuously) • Salbutamol: 5mg Neb (repeat continuously)	• Fenoterol: 0.5mg Neb (repeat continuously)	• Known allergy • Neonates
Ipratropium Bromide	• 0.5mg Neb	• >5yrs: 0.5mg Neb • 1-5yrs: 0.25mg Neb • <1yr: 0.125mg Neb	• Known allergy

Procedures

- None specific.

2. Pulmonary Oedema

Basics

- **Calm** and **reassure** patient while ensuring **comfortable** positioning (**avoid supine**).
- Identify likely **cause**: CHF, toxins, altitude changes, drowning, etc.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None

Procedures

- None specific.

3. Pulmonary Embolism

Basics

- Consider presence of PE in **high-risk** patients: DVT, coagulopathies, pregnancy, post-operative, traumatic conditions, etc.
- **Rapid transport** to appropriate facility.
- Calculate probability (**Revised Geneva Score**):

Variable	Score
Age 65 years or over	1
Previous DVT or PE	3
Surgery or fracture within 1 month	2
Active malignant condition	2
Unilateral lower limb pain	3
Haemoptysis	2
Heart rate 75–94 beats per minute	3
Heart rate 95 or more beats per minute	5
Pain on deep palpation of lower limb and unilateral edema	4

0–3 Points indicates low probability.
4–10 Points indicates intermediate probability.
11 Points or more indicates high probability.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None

Procedures

- None specific.

4. Tuberculosis

Basics

- Extra **safety precautions**: PPE and well-ventilated space.
- Encourage **expectoration**.
- **Position** patient comfortably.
- Education regarding condition, management thereof and **lifestyle changes** if necessary.
- TB **not purely** a lung pathology and may be present elsewhere.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None

Procedures

- None specific.

5. Pneumonia

Basics

- Extra **safety precautions**: PPE and well-ventilated space.
- Encourage **expectoration**.
- **Position** patient comfortably.
- Education regarding condition, management thereof and **community acquired** pneumonia.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High, low flow or Neb	• High, low flow or Neb	• None
Other relevant medications: **β2 stimulants** and **Ipratropium Bromide** (bronchospasm).			

Procedures

- None specific.

C. Neurologic

1. Seizures/Convulsions

Basics

- **Protect** patient from **environment**.
- Turn lateral for **airway protection** (suctioning post-convulsion if necessary).
- Look for **causes**:
    - Hypoglycaemia
    - Hyperthermia
    - Hypoxia
    - Drugs/toxins
    - Trauma
    - Infection
    - Electrolyte imbalance
    - Medication default
    - Developmental pathology (e.g. cerebral palsy)
- Re-assess **primary survey** after each convulsion.
- **Calm** and **reassure** family members.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High, low flow, BVM	• High, low flow, BVM	• None

Procedures

- None specific.

2. Stroke

Basics

- **Calm** and **reassure** patient – ensure **comfort** and **communication**.
- Assess for **neurologic deficits**.
- May be elevated **ICP** – maintain adequate oxygenation, MAP, ETCO2.
- **Minimize** on-scene time.
- Transport to appropriate facility – **phone ahead**.
- Identify **time** of symptom **onset**.
- Cincinnati Prehospital **Stroke Scale** (abnormal finding = 72% increased likelihood of stroke):

Facial droop (the patient shows teeth or smiles)	
Normal	**Abnormal**
Both sides of the face move equally.	One side of the face doesn't move as well as the other.
Arm drift (the patient closes their eyes and extends both arms straight out for 10 seconds)	
Normal	**Abnormal**
Both arms move the same, or both arms don't move at all.	One arm either doesn't move, or one arm drifts down compared to the other.
Speech (the patient repeats "The sky is blue in Cincinnati")	
Normal	**Abnormal**
The patient says the correct phrase with no slurring of words.	The patient slurs words, says the wrong words or is unable to speak.

Pharmacotherapy

Medication	Adult	Paediatric	**Contra-Indications**
• None specific			
Other relevant medications: **Oxygen** (hypoxaemia).			

Procedures

- None specific.

D. Immunologic

1. Anaphylaxis

Basics

- **Calm** and **reassure** patient, ensuring comfortable **positioning** (avoid supine in case of dyspnoea).
- Remove **allergen** if still present.
- Encourage use of personal **pump/spacer** device and/or **epi-pen**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• Neb	• Neb	• None
β2 Stimulants	• Fenoterol: 1.25mg Neb (repeat continuously) • Salbutamol: 5mg Neb (repeat continuously)	• Fenoterol: 0.5mg Neb (repeat continuously)	• Known allergy • Neonates
Ipratropium Bromide	• 0.5mg Neb	• >5yrs: 0.5mg Neb • 1-5yrs: 0.25mg Neb • <1yr: 0.125mg Neb	• Known allergy

Procedures

- None specific.

2. Sepsis

Basics

- Identify type and site of infection – **source control**.
- Thorough **history** (i.e. travel).
- **Antibiotics** asap – **minimize** on-scene time.
- Assess **blood glucose** and **temperature**.
- Maintain **sterility** where possible.

qSOFA	
RR > 22bpm sBP < 100mmHg Altered GCS	0 = Mortality < 1% 1 = Mortality 2-3% ≥2 = Mortality ≥10%
Screening for outcome rather than diagnosis	

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None

Procedures

- None specific.

E. Endocrine/Metabolic

1. Hypoglycaemia

Basics

- Turn lateral for **airway protection** (suctioning if necessary).
- Identify **cause**.
- Provide **complex carbohydrate** (i.e. food) to prevent **rebound hypoglycaemia**.
- Education regarding condition, management thereof and **lifestyle changes** if necessary.
- Sugar may be provided by **basic** means (i.e. sugar water, coke).
- Normal **Blood Sugar**: 3.5-7.0mmol/L.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None
Glucose	• 25g PO/Buccal (repeat as necessary)	• 25g PO/Buccal (repeat as necessary)	• None

Procedures

- None specific.

F. Toxicologic

1. Overdose

Basics

- Identify **causative agent** and **route of exposure**.
- Turn lateral for **airway protection** (suctioning as necessary).
- **Decontaminate** patient, equipment, yourself and others.
- Risk of **seizures** exists.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High flow, BVM	• High flow, BVM	• None
Activated Charcoal	• 0.5-1g/kg PO	• 0.5-1g/kg PO	• Iron, organophosphates, ethanol, lithium, boric acid, cyanide, ethylene glycol, methanol, petroleum products, strong acids, alkalis • Unprotected airway

Procedures

- None specific.

G. Obstetric

1. Normal Vaginal Delivery

Basics

- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity, complications).
- Left-lateral **positioning**.
- Encourage maternal **breast-feeding** post-delivery**.**
- Check for **PPH**.
- Be **prepared** for neonatal resuscitation.
- Risk of **pulmonary embolism**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Entonox	• Inhaled via self-administration	• N/A	• Neurologic impairment • Air entrapment • Hypotension

Procedures

- APGAR Score – at 1 and 10min. (see reference material).
- Delayed cord clamping.

2. Prolapsed Cord

Basics

- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity, complications).
- Coach patient to **pant** and **avoid bearing down** (unless delivery imminent).
- Use two fingers to **gently push** the presenting part off the cord.
- **Cover cord** with moist, sterile dressing.
- **Avoid** cord handling.
- Knee to chest or left lateral **positioning**.
- **Minimize** on-scene time.
- **Contact** receiving facility/obstetrician.
- Be prepared for **neonatal resuscitation** in case of delivery.
- Risk of **pulmonary embolism**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific			
Relevant medications: **Entonox** (analgesia).			

Procedures

- APGAR Score if delivery (see reference material).

3. Premature Labour

Basics

- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity, complications).
- Coach patient to **pant** and **avoid bearing down** (unless delivery imminent).
- Knee to chest or left lateral **positioning**.
- **Minimize** on-scene time.
- **Contact** receiving facility/obstetrician.
- Be prepared for **neonatal resuscitation**.
- Risk of **pulmonary embolism**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific			
Relevant medications: **Entonox** (analgesia).			

Procedures

- APGAR Score if delivery (see reference material).

4. Breech

Basics

- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity, complications).
- **Do not** apply traction to the newborn.
- Left lateral **positioning**.
- **Minimize** on-scene time.
- **Contact** receiving facility/obstetrician.
- Risk of **pulmonary embolism**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific			
Relevant medications: **Entonox (analgesia).**			

Procedures

- APGAR Score (see reference material).
- Vaginal delivery:
    - **Løvset's Manoeuvre:** Support lower limbs and pelvis as delivered. Once umbilicus delivered and shoulders in AP position, apply gentle downward pressure until axilla visible. Deliver anterior arm, rotate and deliver posterior arm. Support body and neck and rotate so back is uppermost. Use **Mauriceau's Manoeuvre** to deliver head.

- **Mauriceau's Manoeuvre**: Support baby on forearm, place index and ring fingers on zygomas and middle finger in mouth. Place other hand on shoulders with middle finger on occiput. Gently induce flexion of head to facilitate delivery.



5. Shoulder Dystocia

Basics

- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity,complications).
- '**Turtle Sign'**.
- **Discourage** maternal pushing.
- **Avoid** use of **fundal pressure**.
- **Minimize** on-scene time.
- **Contact** receiving facility/obstetrician.
- Be prepared for **neonatal resuscitation**.
- Risk of **pulmonary embolism**.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific			
Relevant medications: **Entonox** (analgesia).			

Procedures

- Vaginal delivery:
  - Place patient supine, flex thighs towards chest and tilt pelvis forward with suprapubic pressure (**McRobert's Manoeuvre**).
  - Attempt to deliver anterior shoulder with gentle posterior head traction.
  - Attempt to deliver posterior shoulder with gentle anterior traction.
  - Delivery of shoulders may be assisted with 180º rotations.
- APGAR Score (see reference material).

6. Post-partum Haemorrhage

Basics

- **≥500ml** blood loss.
- **Calm** and **reassure** patient, ensuring good **communication** and **privacy**.
- Thorough **obstetric history** (i.e. maternity card, gestational age, parity/gravidity, complications).
- Encourage **breastfeeding** if possible.
- **Minimize** on-scene time.
- Focus is on **rapid transport**, identification of **cause** and bleeding **control**.
- Risk of **pulmonary embolism**.
- **Notify** receiving facility**.**

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• N/A	• None

Procedures

- Placenta delivery.
- Uterine massage/compression.

H. Trauma

1. Traumatic Brain Injury

Basics

- **GCS Severity**:
  - 13-15 Mild
  - 9-12 Moderate
  - ≤8 Severe
- Minimize **secondary brain injury**: Hypoxia, Hypotension, Increased ICP, Hyper/hypocapnia, Hypo/hyperthermia, Hypoglycaemia, Seizures, Pain.
- **CPP=MAP-ICP**.
- **Normal values**:
  - **CPP**: 60-80mmHg (minimum to prevent ischaemic brain injury: 55-60mmHg)
  - **MAP**: 93 (BP 120/80)
  - **ICP**: 5-15mmHg
- Remove **harmful immobilization** devices (C-collar, rigid backboard).
- **Elevate** head 30º (unless hypotensive).
- **Spinal injuries** managed similarly as same **principles** apply.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow, BVM/BVT	• High or low flow, BVM/BVT	• None
Analgesics	• (see pain section)	• (see pain section)	• (see pain section)

Note: Analgesia will likely require ALS backup.

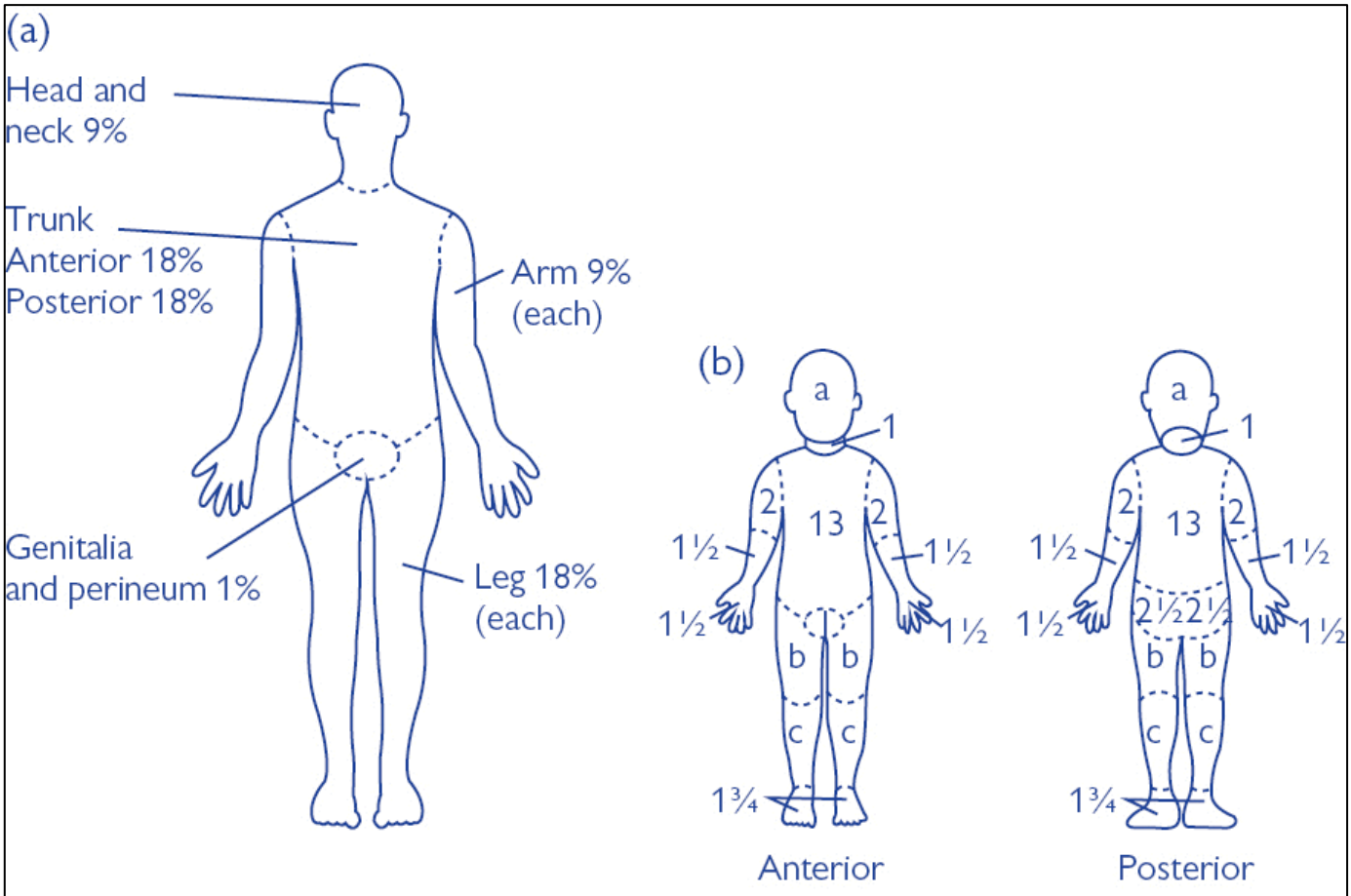
Procedures

- Spinal motion restriction.
- Bleeding control.

2. Burns

Basics

- Identify **type** and **depth** (i.e. partial thickness thermal burns).
- **Remove source** (i.e. continual irrigation for chemicals).
- **Temperature** management.
- Maintain **sterility**.
- Apply **burnshield**.
- Risk of **arrythmias**: monitor ECG.
- Calculate **BSA%**:



Relative percentage of body surface area (% BSA) affected by growth

	Age				
Body part	0y	1y	5y	10y	15y
a = ½ of head	9½	8½	6½	5½	4½
b = ½ of one thigh	2¾	3¼	4	4¼	2½
c = ½ of one lower leg	2½	2½	2¾	3	3¼

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• Neb or high flow (inhalation burns)	• Neb or high flow (inhalation burns)	• None
Analgesics	• (see pain section)	• (see pain section)	• (see pain section)

Procedures

- Moist dressing application.

3. Haemorrhage

Basics

- **Traumatic coagulopathy** may be present.
- **Lethal triad**: coagulopathy, hypothermia, metabolic acidosis.
- Identify **source**.
- **Minimise** loss.
- Look for signs of early shock. **Shock index**: HR/SBP. If >1 indicates shock.
- **BP ≠ Perfusion**.
- **Minimize** on scene time. **Rapid transport** to surgical intervention/blood products crucial.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None
Other relevant medications: **Analgesics** (pain).			

Procedures

- Bandaging/splinting.
- Tourniquet placement.
- Pelvic splinting.
- Traction splinting.
- Haemostatic agent/bandage application.

4. Crush Injury/Rhabdomyolysis

Basics

- Ensure patient **safety** from environment.
- **Analgesia** may be necessary before extrication.
- Risk of **arrythmias** – continual ECG monitoring.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Oxygen	• High or low flow	• High or low flow	• None
Analgesics	• (see pain section)	• (see pain section)	• (see pain section)

Procedures

- As per relevant trauma guidelines.

I. Other

1. Pain

Basics

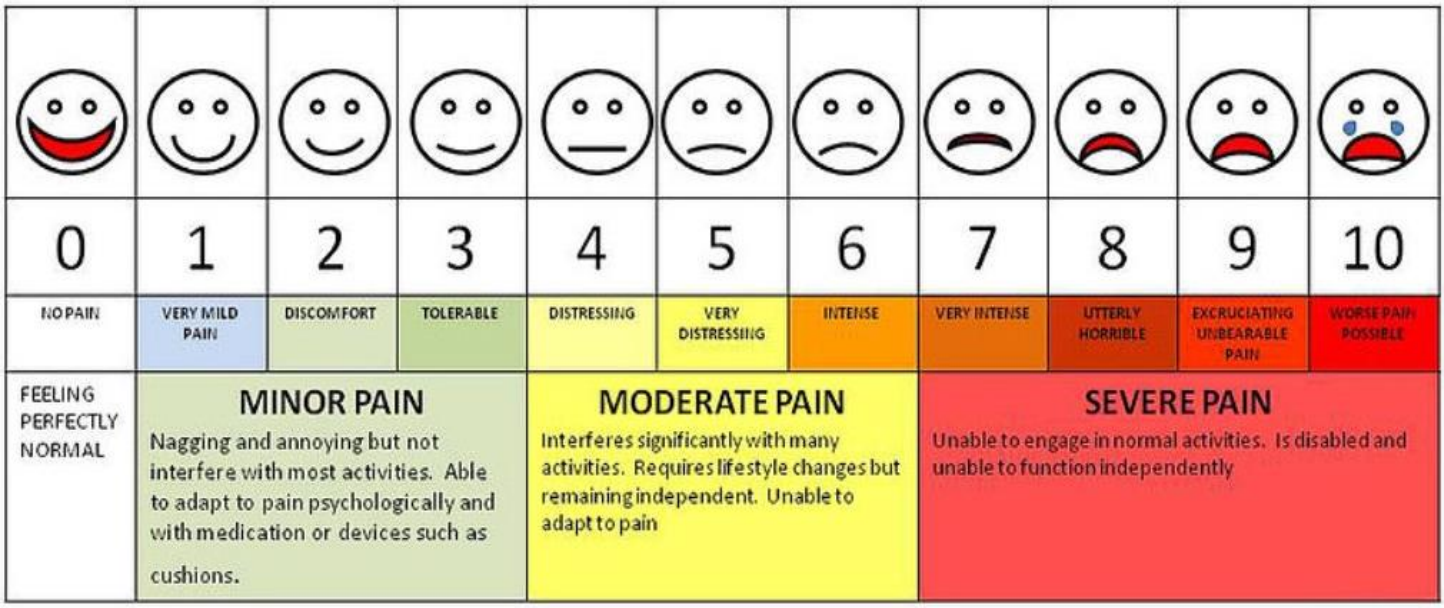
- Consider **total pain**: physical, emotional, mental, spiritual, social.
- Consider **type** of pain (i.e. musculoskeletal, visceral).
- **Acute** vs. **Chronic**?
- Use **pain scale**.
- Use **non-pharmacologic** methods (education, imagery, distraction, music, scents, communication, heat/cold application, counselling, positioning, bandaging/splinting).
- **Calm** and **reassure** patient, ensuring good **communication** and **sympathy**.
- **Do not** leave pain untreated.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
Entonox	• Inhaled via self-administration	• Inhaled via self-administration	• Neurologic impairment • Air entrapment • Hypotension
Methoxyflurane	• 3ml inhaled via self-administration (may repeat once)	• 3ml inhaled via self-administration	• Known allergy • Altered LOC • Severe hepatic/renal impairment • Malignant hyperthermia • <1yr old

Procedures

- None specific.



0	1	2	3	4	5	6	7	8	9	10
NO PAIN	VERY MILD PAIN	DISCOMFORT	TOLERABLE	DISTRESSING	VERY DISTRESSING	INTENSE	VERY INTENSE	UTTERLY HORRIBLE	EXCRUCIATING UNBEARABLE PAIN	WORSE PAIN POSSIBLE
FEELING PERFECTLY NORMAL	**MINOR PAIN** Nagging and annoying but not interfere with most activities. Able to adapt to pain psychologically and with medication or devices such as cushions.			**MODERATE PAIN** Interferes significantly with many activities. Requires lifestyle changes but remaining independent. Unable to adapt to pain			**SEVERE PAIN** Unable to engage in normal activities. Is disabled and unable to function independently			

FLACC Scale[2]	0	1	2
1 Face	No particular expression or smile.	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant frown, clenched jaw, quivering chin.
2 Legs	Normal position or relaxed.	Uneasy, restless, tense.	Kicking, or legs drawn up.
3 Activity	Lying quietly, normal position, moves easily.	Squirming, shifting back and forth, tense.	Arched, rigid or jerking.
4 Cry	No crying (awake or asleep).	Moans or whimpers; occasional complaint.	Crying steadily, screams or sobs, frequent complaints.
5 Consolability	Content, relaxed.	Reassured by occasional touching, hugging or being talked to, distractible.	Difficult to console or comfort.

2. Nausea/Vomiting/Cramping

Basics

- Identify **source/cause** and remove.
- Inhaled **isopropyl alcohol** as alternative (alcohol swab).
- Ensure patent **airway** and avoid **aspiration**.
- Avoid excess **stimulation** (i.e. movement, noise).
- Risk of **dehydration/electrolyte** imbalances.

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific.			

Procedures

- Oral suctioning as necessary.

3. Palliative/End-of-Life Situations

Basics

- **Aim** is improved **quality of life** and **relief of suffering** for both **patients** and **families**: physical, emotional, mental, spiritual, social.
- Aim is **NOT** prolonging life at all costs or shortening life.
- Take steps to ensure **patient autonomy**.
- Establish desired patient/family **care goals**.
- Avoid **unnecessary** transport (meet patient wishes).
- Avoid **futile interventions** and manage **supportively** with aim of relieving suffering.
- Avoid any procedures which will **unnecessarily** cause discomfort.
- **Multi-disciplinary** approach: consult and involve necessary individuals (i.e. MO, psychologist, counsellor, family members, social worker etc.).
- Ensure thorough, compassionate, honest **communication** and **education** regarding condition.
- Ask about **legal documentation** (Living Wills, Advance Directives, DNRs)

Pharmacotherapy

Condition	Medications
Pain	• **Analgesics:** (see pain section)
Dyspnoea	• **Oxygen:** High, low flow or nebulised

Notes: Administration of medications should not automatically result in patient transport. When in doubt, consult.

Procedures

- Communication (**SILVER**):
  - **S**eeks **I**nformation (baseline function, history)
  - **L**ife **V**alues (personality, culture, religion, beliefs)
  - **E**ducate/**E**xtend (provide info on condition and management)
  - **R**espond (solicit questions, offer support)

- Breaking bad news (**SPIKES**):

SA Supportive and Palliative Care Indicators Tool (SPICT™-SA)

SPICT™-SA is a generic tool to help identify adults with advanced life-limiting illnesses when the best available and appropriate treatment has been given and their condition continues to deteriorate. These people benefit from a palliative care approach as well as ongoing care by their current clinician or team. SPICT™ is designed for South Africa and similar middle income countries and settings.

Look for disease specific indicators:

Cancer

- Cancer not amenable to curative treatment.
- Progressive or metastatic cancer with symptoms.
- Too frail for oncological interventions.

Haematological Disease

- Haematological cancer with recurrent bleeding or infection or needing repeated transfusions.
- Any haematological condition or cancer with deteriorating clinical condition and not responding to best available treatment.

Infectious Disease

HIV

HIV with deteriorating clinical condition and not responding to best available treatment.

TB

TB with deteriorating clinical condition and not responding to best available treatment.

Other

Other infections with deteriorating clinical condition and not responding to best available treatment.

Kidney Disease

- Stage 4 or 5 chronic kidney disease with deteriorating health.
- Stopping or not starting dialysis.
- Kidney disease complicating other life-limiting conditions or treatments.

Lung Disease

- Patients on long term oxygen.
- Breathlessness at rest or on minimal effort between exacerbations.

Heart / Vascular Disease

- Heart failure or extensive, untreatable coronary artery disease with breathlessness or chest pain at rest or on minimal exertion.
- Severe, inoperable peripheral vascular disease.

Liver Disease

Cirrhosis with one or more complication in the past year:

- Diuretic resistant ascites
- Hepatic encephalopathy
- Hepatorenal syndrome
- Bacterial peritonitis
- Variceal bleeds

Neurological Disease

- Progressive deterioration in physical and/or cognitive function.
- Increasing difficulty communicating and/or progressive difficulty with swallowing.
- Stroke with significant loss of function, and ongoing disability and dependency.
- Recurrent pneumonia, breathlessness or respiratory failure.

Dementia / Frailty

- Unable to dress, walk or eat without help.
- No longer able to communicate using verbal language; little social interaction.
- Recurrent febrile episodes or infections.
- Fractured femur (hip).
- Swallowing difficulties and/or significant reduction in oral intake.

Trauma

- Severe burns (ABSI score >10).
- Brain injury with clinical deterioration and no benefit from surgical intervention.

Other Diseases

- Any deteriorating clinical condition not responding to best available or appropriate treatment.

Look for one or more general indicators of deteriorating health:

- Two or more unplanned health care facility visits within a period of 3 months with deteriorating life-limiting illness despite best available or appropriate treatment.
- Performance status is poor or deteriorating, with limited reversibility e.g. the person stays in bed or in a chair for more than half the day.
- Dependent on others for care due to increasing physical, and/or emotional, and/or mental health problems.
- The person's carer needs more help and support in caring for the patient.
- Progressive weight loss over the last few months, or remains underweight, or has low muscle mass.
- Persistent symptoms despite best available or appropriate treatment of the underlying condition(s).
- The person (or family) ask for palliative care; chooses to reduce, stop or not have treatment; wishes to focus on quality of life.

Review supportive and palliative care and care planning

- Review current treatment and medication so the patient receives best available or appropriate care.
- Consider referral for specialist assessment if symptoms or needs are complex and difficult to manage.
- Agree current and future care goals, and a care plan with the patient and family.
- Plan ahead if the patient is at risk of loss of capacity.
- Record, communicate and coordinate the care plan.

4. Psychiatric/Mental Disturbances

Basics

- Ensure **safety** for crew, family, patient and bystanders.
- Ensure thorough, compassionate and honest **communication**.
- Attempt **basic methods** to calm patient before using pharmacological interventions.
- Involve **police** where appropriate.
- **Consultation** and thorough **documentation** crucial.
- Rule out **other causes** (i.e. toxins/substances).

Pharmacotherapy

Medication	Adult	Paediatric	Contra-Indications
• None specific.			

Procedures

- None specific.

Reference Material

1. GCS:

Score*	Adult	Children aged 1–5	Infants
Best eye response			
1	No eye opening	No eye opening	No eye opening
2	Eye opening to pain	Eye opening to pain	Eye opening to pain
3	Eye opening to voice	Eye opening to voice	Eye opening to voice
4	Eyes open spontaneously	Eyes open spontaneously	Eyes open spontaneously
Best verbal response[†4]			
1	No response	No response	No response
2	Incomprehensible sounds	Incomprehensible, restless, unaware	Moans to pain
3	Inappropriate words	Inappropriate words, inconsolable, unaware	Cries to pain
4	Confused	Disoriented, consolable, aware	Irritable cry
5	Oriented	Oriented, social, interactive	Coos, babbles
Best motor response			
1	No response	No response	No response
2	Decerebrate posturing	Decerebrate posturing	Decerebrate posturing
3	Decorticate posturing	Decorticate posturing	Decorticate posturing
4	Withdraws from pain	Withdraws from pain	Withdraws from pain
5	Localizes pain	Localizes pain	Withdraws to touch
6	Follows commands	Normal spontaneous movement	Normal spontaneous movement

2. APGAR:

Indicator		0 Points	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	Below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, Blue extremities	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

3. Neonatal Resources:

Incubator Temperatures:

Neutral Thermal Environment (NTE) – Neonates Days 1-5				
	1000-1200g (+/- 0.5ºC)	1201-1500g (+/- 0.5ºC)	1501-2500g (+/- 1.0ºC)	>2500g/>36weeks
0-12hrs	35.0ºC	34.0ºC	33.3ºC	32.8ºC
12-24hrs	34.5ºC	33.8ºC	32.8ºC	32.4ºC
24-96hrs	34.5ºC	33.5ºC	32.3ºC	32.0ºC

Neutral Thermal Environment (NTE) – Neonates >5 Days			
	<1500g	1501-2500g	>2500g />36weeks
5-14 days	33.5ºC	32.1ºC	32.0ºC
14-21 days	33.1ºC	31.7ºC	30.0ºC

DDx:

DIFFERENTIAL DIAGNOSIS: THE CRITICALLY ILL INFANT			
T	Trauma	M	Metabolic
H	Heart Disease	I	Inborn Errors of Metabolism
E	Endocrine	S	Sepsis
		F	Formula
		I	Intestinal
		T	Toxins
		S	Seizures

4. Major Incident Reminders:

- Mobilize **relevant resources** (i.e. fire, rescue, medical, HEMS, HAZMAT, law enforcement/security).
- Set up **incident command** area.
- Appoint **officers** (i.e. triage, logistics, communications, safety, medical, rescue, fire, media).
- Set up **staging areas**: equipment, patients based on triage.
- **Notify** nearby receiving medical facilities in advance.
- Search scene for **hidden patients** (walk-around).
- **Reports** and **documentation**.
- **Debrief**.

5. Other/Troubleshooting:

Causes of Coma:

T – Trauma

I – Infection

P – Psychiatric

S – Stroke/Space occupying lesion

A – Alcohol (other drugs/toxins)

E – Endocrine/Environment

I – Insulin (hypo/hyperglycaemia)

O – Oxygen (hypoxia)

U – Uraemia

6. CPG Capabilities List

Approved PBEC-CPD Activity without formal assessment. Where a skill is involved, this may involve practical performance of the skill.

Approved PBEC-CPD Activity with formal assessment. Where a skill is involved, this may involve practical performance of the skill.

CAPABILITY	CATEGORY OF REGISTRATION					
AIRWAY MANAGEMENT	BAA	AEA	ECT	ECA	ANT	ECP
Basic manual airway manoeuvres	x	x	x	x	x	x
Suctioning of the airway – upper	x	x	x	x	x	x
Suctioning of the airway – (endotracheal)					x	x
Suctioning of the airway – (extraglottic)			x	x	x	x
Manual airway obstruction manoeuvres (conscious choking patient)	x	x	x	x	x	x
Use of Magill's forceps/equivalent			x	x	x	x
Oropharyngeal airway insertion	x	x	x	x	x	x
Nasopharyngeal tube airway insertion	x	x	x	x	x	x
Endotracheal intubation facilitated by induction, neuromuscular blockade, mechanical ventilation and airway adjuncts						x
Endotracheal Intubation - non-drug facilitated or via deep sedation techniques	NOT TO BE PERFORMED					
Video Laryngoscopy						x
Supraglottic/extraglottic airway devices insertion (CA - Cardiac Arrest)			x	x (CA)	x	x
Oro/nasogastric tube insertion			x		x	x
Needle cricothyroidotomy		x	x	x	x	x
Surgical cricothyroidotomy (adolescent/adult) – Commercial Device Recommended			x		x	x

OXYGENATION AND VENTILATION	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Oxygen administration	x	x	x	x	x	x
Nebulization of medications on scope of practice	x	x	x	x	x	x
Use of pulse oximetry	x	x	x	x	x	x
Needle thoracentesis (Adult and paediatric)		x	x	x	x	x
Needle thoracentesis (Neonate)						x
Bag-valve mask manual ventilation	x	x	x	x	x	x
Bag-valve tube manual ventilation	x	x	x	x	x	x
Interfacilty Mechanical Ventilation (Paediatric and Adult - without cardiovascular support)					x	x
Mechanical Ventilation (Neonate)					x	x
Non-invasive ventilation with Mechanical Ventilator					x	x
Non-invasive ventilation – oxygen driven (without mechanical ventilator)			x	x	x	x
Mechanical Infant Resuscitator			x	x	x	x
Use of capnography/capnometry – via endotracheal tube/extraglottic device			x	x	x	x
Use of capnography/capnometry - via facemask/nasal cannula		x	x	x	x	x
Humidification					x	x

CIRCULATORY MANAGEMENT	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Blood pressure measurement including the use of NIBP (automated).	x	x	x	x	x	x
Peripheral intravenous cannulation as per relevant protocol – limbs and hands (All ages >1year old)		x	x	x	x	x
Peripheral intravenous cannulation as per relevant protocol – limbs and hands (<1year old)					x	x
Peripheral intravenous cannulation as per relevant protocol – (Infant scalp)					x	x
External jugular vein cannulation					x	x
Intra-osseous insertion All Ages			x		x	x
Intra-osseous insertion – Adult			x	x	x	x
Umbilical vein cannulation			x		x	x
Intravenous fluid therapy (for purposes other than drug administration - Adult)		x	x	x	x	x
Intravenous fluid therapy (for purposes other than drug administration – Infant and Paediatric)			x		x	x
Oral rehydration	x	x	x	x	x	x
Oral Rehydration via NGT					x	x
Intravenous/intraosseous drug administration as per scope of practice		x	x	x	x	x
Subcutaneous drug administration as per scope of practice		x	x	x	x	x
Intramuscular drug administration as per scope		x	x	x	x	x

CIRCULATORY MANAGEMENT	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Endotracheal drug administration					x	x
Use of intravenous infusion devices including pressure infuser, volumetric infusion pump and syringe driver			x		x	x
External haemorrhage control including use of tourniquet	x	x	x	x	x	x
Topical Haemostatic Agents	x	x	x	x	x	x
Use of pneumatic anti-shock garment		x	x	x	x	x
Use of non-pneumatic anti-shock garment		x	x	x	x	x
Automated external defibrillation	x	x	x	x	x	x
Manual defibrillation (asynchronous)		x	x	x	x	x
Precordial thump	x	x	x	x	x	x
Synchronised cardioversion					x	x
Vagal manoeuvres					x	x
Central line management of lines in-situ					x	x
Transcutaneous cardiac pacing					x	x
3-Lead ECG monitoring and diagnosis as per scope of practice		x	x	x	x	x
12-Lead ECG Diagnosis						x
Fibrinolysis (With documented telemetry or equivalent)						x
Targeted Temperature Management (inter-facility transfer and where capabilities exist)						x

OBSTETRIC MANAGEMENT	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Normal vaginal delivery as per scope of practice	x	x	x	x	x	x
Prolapsed cord management as per scope of practice	x	x	x	x	x	x
Breech delivery management as per scope of practice	x	x	x	x	x	x
Mal-presentations management as per scope of practice	x	x	x	x	x	x
Preterm labour management as per scope of practice	x	x	x	x	x	x
Obstructed labour management as per scope of practice	x	x	x	x	x	x
Post-partum haemorrhage management as per scope of practice	x	x	x	x	x	x
DIAGNOSTIC AND CLINICAL AIDS	**CATEGORY OF REGISTRATION**					
	BAA	**AEA**	**ECT**	**ECA**	**ANT**	**ECP**
Use of ultrasound					x	x
Fundoscopy						x
Use of an otoscope						x
Use of a Snellen Chart						x
Arterial blood gas sampling and analysis						x

GENERAL	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Cardiac arrest management (adult, child, infant & neonate) as per scope of practice	x	x	x	x	x	x
Clinical assessment (as per level of care)	x	x	x	x	x	x
Vital Sign Assessment	x	x	x	x	x	x
Finger prick and blood glucose measurement (manual and electronic)	x	x	x	x	x	x
Peak flow measurement and interpretation		x	x	x	x	x
Point of Care Blood Sampling (Capillary)					x	x
Cervical spinal clearance		x	x	x	x	x
Spinal Movement Restriction[1]	x	x	x	x	x	x
Application of limb splints	x	x	x	x	x	x
Application of pelvic binding devices	x	x	x	x	x	x
Application of vacuum mattress	x	x	x	x	x	x
Urinary catheterization					x	x
Emergency wound care as per scope of practice	x	x	x	x	x	x
Suturing						x
Withdrawal of resuscitation efforts		x	x	x	x	x
Withholding resuscitation[2]	x[2]	x	x	x	x	x
On-scene discharge[3]						x
Inter-facility transfer as per relevant scope of practice	x	x	x	x	x	x
Use of an incubator	x	x	x	x	x	x

LIST OF MEDICATIONS (ROUTE OF ADMINISTRATION)	BAA	AEA	ECT	ECA	ANT	ECP
Acetyl Salicylic Acid (Oral)	x	x	x	x	x	x
Activated Charcoal (Lavage)	x	x	x	x	x	x
Adenosine (Intravenous)					x	x
Adrenaline – use in anaphylaxis and cardiac arrest (Intramuscular and Intravenous)		x	x	x	x	x
Adrenaline other than anaphylaxis and cardiac arrest (Inhaled, Subcutaneous, Intramuscular and Intravenous)			x*		x	x
Amiodarone Hydrochloride (Intravenous)			x		x	x
Atropine Sulphate - use in toxidrome (Intramuscular and Intravenous)			x	x	x	x
Atropine Sulphate (Intravenous)			x		x	x
Balanced Salt Solution	For AEA, ECT, ECA, ANT and ECP - Not to be prescribed/supplied unless through direct Medical Practitioner prescription/supply. All other professional registration categories, not permitted. Currently undergoing review.					
Betamethasone (Intravenous)						x*
Calcium Chloride/Calcium Gluconate (Intravenous)					x	x
Clopidogrel (Oral)					x	x
Cyclizine (Intravenous)					x	x
Hydrocortisone (Intravenous or Intramuscular)		x	x	x	x	x
Dextran (Intravenous)		x	x	x	x	x
Dextrose Intravenous (Adult and Paediatric)		x	x	x	x	x
Dextrose Intravenous (Neonate)					x	x

ADMINISTRATION)	BAA	AEA	ECT	ECA	ANT	ECP
Dopamine (Intravenous)	Not to be prescribed/supplied					
Diazepam (All routes)			x	x	x	x
Dobutamine (Intravenous)	Not to be prescribed/supplied					
Enoxaparin (Subcutaneous)						x
Etomidate (Intravenous)						x
Fenoterol (inhaled)	x	x	x	x	x	x
Fentanyl (Intravenous)	For ECP and ANT - Not to be prescribed/supplied unless through direct Medical Practitioner prescription/supply. All other professional registration categories, not permitted. Currently undergoing review.					
Fentanyl (Intranasal)						
Flumazenil (Intravenous - only in cases of iatrogenic benzodiazepine overdose)			x	x	x	x
Flumazenil (Intravenous)						x
Furosemide (Intravenous)					x	x
Glucagon (Intramuscular and Intravenous)		x*	x	x	x	x
Glyceryl Trinitrate (Sublingual)			x		x	x
Heparin Sodium (Subcutaneous and Intravenous)						x
Hydralazine (Oral)						x*
Hyoscine Butylbromide (Oral and Intravenous)						x*
Ibuprofen (Oral)					x*	x
Ipratropium Bromide	x	x	x	x	x	x
Isosorbide Trinitrate (Intravenous)						x*

ADMINISTRATION)	BAA	AEA	ECT	ECA	ANT	ECP
Ketamine (Intravenous)					x	x
Ketamine (Intramuscular)					x	x
Ketamine (Intranasal)					x	x
Labetalol (Intravenous)						x*
Lignocaine hydrochloride (IO Flush – Local Anaesthetic)			x	x	x	x
Lignocaine hydrochloride (Intravenous – arrhythmia management)					x	x
Lorazepam (Intramuscular and Intravenous)			x	x	x	x
Magnesium Sulphate (Intramuscular)		x*	x	x	x	x
Magnesium Sulphate (Intravenous)			x		x	x
Medical oxygen	x	x	x	x	x	x
Methylprednisole (Intravenous or Intramuscular)		x	x	x	x	x
Metoclopramide monohydrochloride (Intramuscular and Intravenous)			x		x	x
Methoxyflurane (Inhaled)	x	x	x	x	x	x
Midazolam (All routes)			x	x	x	x
Morphine Sulphate (Intravenous)			x*		x	x
Naloxone hydrochloride (All routes)		x*	x	x	x	x
Neostigmine (Intravenous)						x
Nifedipine (Oral)	For ECP - Not to be prescribed/supplied unless through direct Medical Practitioner prescription/supply. All other professional registration categories, not permitted. Currently undergoing review.					
Nitrous oxide (Inhaled)	x	x	x	x	x	x
Ondanseteron (Intravenous)						x

LIST OF MEDICATIONS (ROUTE OF ADMINISTRATION)	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Oral glucose powder/gel	x	x	x	x	x	x
Oxytocin (Intramuscular and Intravenous)			x*		x*	x
Paracetamol (Oral)					x	x
Paracetamol (Intravenous)					x*	x
Prednisolone (Oral)			x		x	x
Promethazine (Intramuscular and Intravenous)			x		x	x
Ringer's Lactate (Intravenous)		x	x	x	x	x
Rocuronium (Intravenous)						x
Salbutamol (Inhaled)	x	x	x	x	x	x
Salbutamol (Intravenous)			x		x	x
Sodium Bicarbonate 8.5% (Intravenous)					x	x
Sodium Chloride Solution (Intravenous)		x	x	x	x	x
Sotalol (Intravenous)						x*
Sugammadex (Intravenous)						x
Streptokinase (Intravenous)						x
Suxamethonium Chloride (Intravenous)						x
Tenecteplase (Intravenous)						x
Thiamine (Intramuscular)		x	x	x	x	x
Tranexamic Acid (Intravenous)					x	x
Vecuronium (Intravenous)						x

LIST OF MEDICATIONS (ROUTE OF ADMINISTRATION)	CATEGORY OF REGISTRATION					
	BAA	AEA	ECT	ECA	ANT	ECP
Water for Injection (Intravenous)		x	x	x	x	x
Water for Injection (Inhaled)	x	x	x	x	x	x
Cyanide antidotes (within occupational health and safety system)					x	x

IMPORTANT ADDITIONAL NOTES (also see superscripts)

1. Includes the use of all evidence-based spinal motion restriction devices.
2. In the context of decapitation, mortal disfigurement, post-mortem lividity and putrefaction.
3. This implies that a formal clinical assessment and patient information session including subsequent referral/re-entry into the health system has been discussed with the patient. This process does not refer to a "refusal of hospital transport (RHT)" scenario.
Where additional skills/medications not previously on the scope of practice, have formed part of a Higher Education Institution PBEC-approved curriculum (including a formal assessment of such skills/medications) a PBEC-approved CPD activity is not mandatory. This is still, however, recommended.
All interventions and medications are to be performed and administered within the Clinical Practice Guidelines and a locally relevant standard of care. Clinical governance structures shall support these guidelines.
Where the list of capabilities indicates "…within scope of practice", this implies in relation to the medications available to the category of registration and related PBEC- approved education/training.
In relation to PBEC - approved CPD activities - where skills are concerned, the content of the activity must include indications, contraindications, risks, benefits and a description (either diagrammatic and/or demonstation) of the skill.
In relation to PBEC - CPD activities - where medications are concerned, the content of the activity must include the class of drug, schedule of drug, packaging of drug, storage of drug, mechanism of action, indications, contraindications, side-effects, technique/route of administration and recommended dosing range.