It’s as easy as… ABC

Dr Andrew Smith

SIMPLY
FINALS

ABCDE

- A useful framework to apply to your assessment and management of (unwell) patients.
- Correct problems before moving on and reassess
- Call for help early – it shows you're safe!

- A – Airway
- B – Breathing
- C – Circulation
- D – Disability
- E – Exposure

} Reassessment

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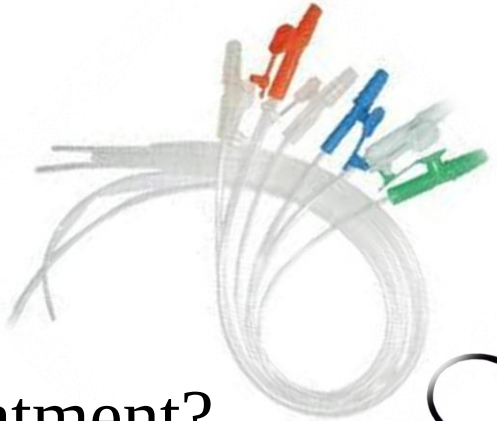
Airway

- Ask the patient to speak – if they can, the airway is patent.
- Are there added sounds?
  - Gurgles, Stridor, Snoring
- Is there visible obstruction?
  - Foreign body, Vomit, Blood
  - Can they be removed safely with forceps/suction?



- Can you implement any treatment?

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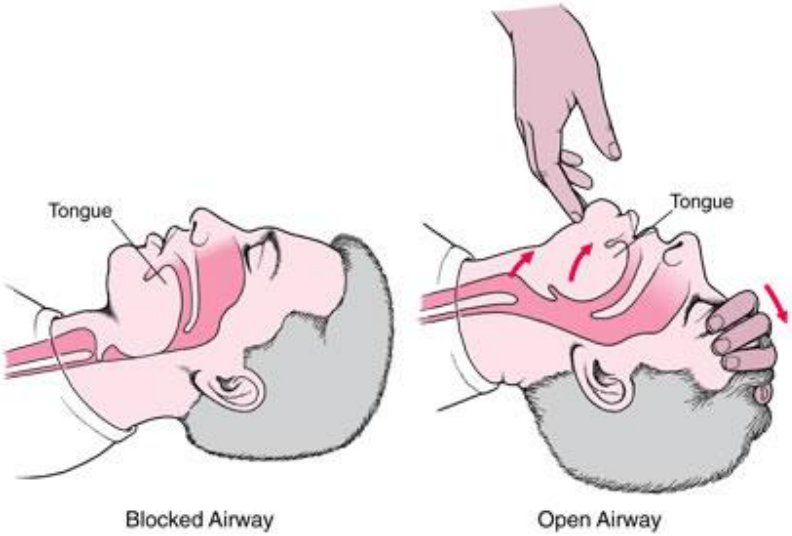
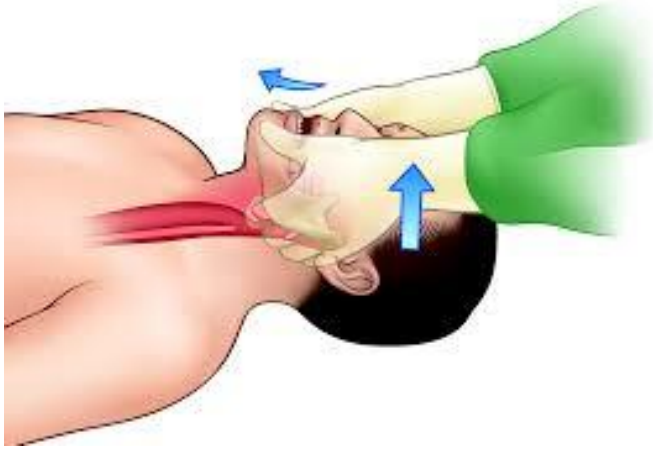
Airway manoeuvres

- Head tilt, chin lift in adults/teenagers
  - “Sniffing-the-air” in children
  - Neutral position in babies



- Jaw thrust
  - Can be used efficiently with a mask
  - Use if cervical spine concerns



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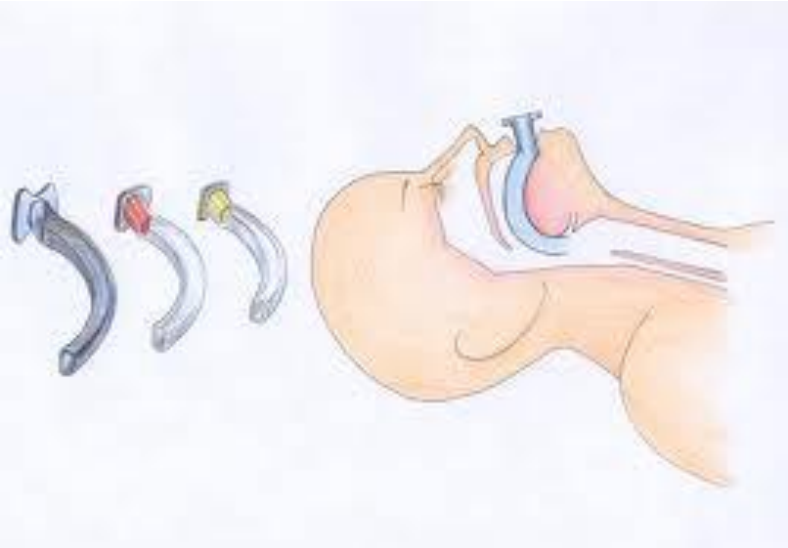
Airway Adjuncts

- **Oro-pharangeal airway (Guedel)**
  - Measure from incisors to mandible
  - Insert using rotational method (in adults)
  - Remove if gagging



- **Naso-pharangeal airway**
  - Measure from nostril to earlobe
  - Lubricate and insert in right nostril.
  - Contraindicated in basal skull fractures

- **Others:**
  - Laryngeal mask airway
  - Endotracheal Intubation
  - Cricothyroidotomy

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Breathing

- Is there accessory muscle use? Are they in obvious distress?
- What's the respiratory rate? Normal is 12-20 for an adult
  - Occasional gasps are not normal
  - ***If the patient is not breathing, this is a cardiac arrest, begin CPR!***
- Oxygen Saturations
  - Normally aim for >94%
  - 88-92% if at high risk of hypercapnic respiratory failure
  - If in doubt, give high-flow oxygen* (hypoxia will kill before hypercapnia).

- Trachea central? Chest expansion normal? Percussion normal?
- Auscultation normal?

- Consider ABG*
- Consider other investigations (e.g. PEFR, CXR)
- Can you implement any treatment?

*NB: See other talks on O2 Therapy and ABGs

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Circulation

- Capillary refill
  - Should be <2 seconds. Cold/Clammy?
- Pulse – rate, rhythm, good volume?
- Blood Pressure – *may be normal until late*
- Urine output (marker of organ perfusion)
  - 0.5mls/kg/hr – i.e. Half the weight (kg) per hour.
- JVP
- Auscultate the heart

- Gain IV/IO access and take bloods.
- Consider ECG
- Can you implement any treatment?

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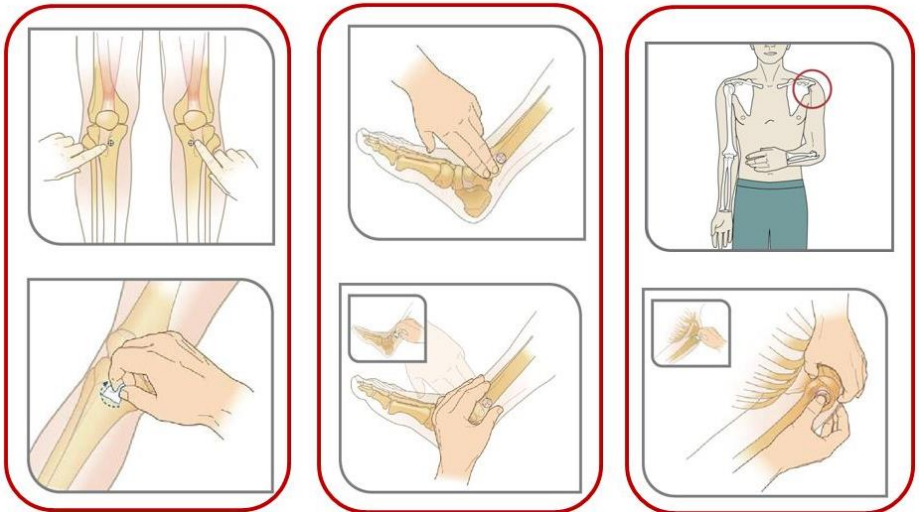
Intraosseous access



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Disability

- What's the patient's conscious level?
- AVPU – Alert, Voice, Pain, Unresponsive
- GCS:

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	*Best response*	15
	Comatose client	8 or less
	Totally unresponsive	3

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What's the GCS?

- A 17yo motorcycle collision victim is in resus. His eyes are opening to pain and he's muttering noises. On pressure to his trapezius muscle his right hand reaches to his chest. **9**

- An 85yo woman is on the medical ward. She is sitting in bed reading her paper and puts it down when you ask. She thinks you are her grandchild. **14**

- A seven year old girl is unresponsive to pain, and shows no movement despite painful stimuli. **3**

- A dog is playing catch in the park.

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
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Disability continued

- Equal and reactive pupils?
- Blood glucose (~ 3 - 11 mmol/L) [ABC**D**on't**E**ver**F**orget**G**lucose]
- Temperature (~ 35.5 - 37.5 ^{o}C)

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Exposure

- Has the patient taken any drugs, recreational or prescribed? (e.g. morphine, benzodiazepines, alcohol)
- Fully examine patient
  - Any rashes, injuries, bleeding?
- Past history
  - Collateral if needed
  - Recent events leading to deterioration
- **Reassess ABCDE**

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Human Factors

- There is growing appreciation of the effect ‘human factors’ (or ‘non-technical skills’) play in successful outcomes in critical care scenarios. Examples include:
  - Leadership
    - Identifying a team leader to run the resuscitation
    - May not be the most senior member of staff
    - They should avoid performing tasks (e.g. inserting cannulas)
    - Managing conflict of opinion within the team/making decisions
  - Communication
    - Escalating concerns/difficulties
    - Clear role allocation with feedback when jobs complete
  - Teamwork
    - Taking on experience appropriate tasks
    - Situational awareness
    - Knowing colleagues’ (first) names and job roles
    - Debrief/reflection

Don’t forget other patients witnessing the scenario

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Examples

52 ♂ brought in by ambulance with shortness of breath and cough.

- A – Patent, talking in short sentences
- B – RR38, Saturating 85% on 15L via Hudson mask
  Wheeze heard throughout the chest. Course crackles right base

Get Help
O2 driven Salbutamol/Ipratropium nebs +/- a steroid
Non-rebreathe mask (not a Hudson)
ABG and CXR.

- C – P118, regular. BP 98/67. Central Cap refill <2secs

Cannula and bloods
Fluids

- D – T38.6. BM 6.7. GCS 15/15

Antibiotics, blood cultures

- E – PMHx: Asthma. 2/7 Amoxicillin started by GP

Reassess!

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Examples

You respond to an emergency buzzer on the surgical ward for a patient who has become unresponsive

- A – Gurgling/Snoring noises

Get more help

Assess airway for obstruction e.g. vomit

Airway manoeuvres – simple adjuncts

- B – RR7, Saturating 88% on air. Transmitted upper airway sounds.

Oxygen! Consider bag-valve mask to support ventilation.

Reassess airway – can you alter your adjuncts

- C – P120, regular. No BP available as cuff not working.

Any IV access?

- D – T35.6. BM 5. GCS E1 V2 M4. Small Pupils.

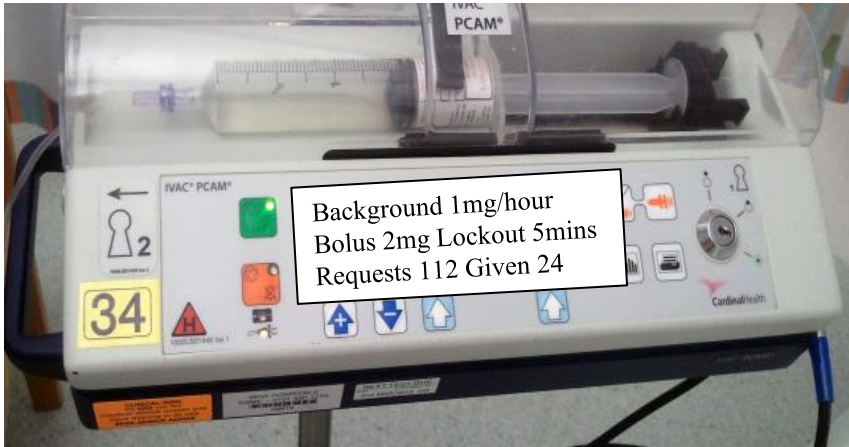
?Any medication you would consider. Cover with blanket.

- E – Left leg in cast, foot cold,
  no foot pulses palpable, delayed CR
  PCA at bedside.
  Returned from theatre 2 hours ago.

Nalaxone

Stop PCA

Remove cast/call surgeons



Examples

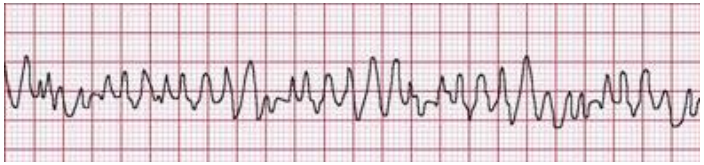
You're talking to a patient on a ward round who suddenly collapses in front of you.

- A – No obvious obstruction
- B – You can't detect any respiration.

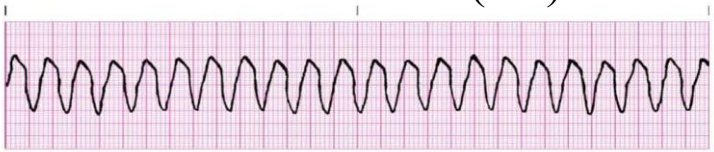
Call for Help – e.g. emergency buzzer

Commence CPR!

- 30 compressions to 2 rescue breaths
- Apply defibrillator and assess rhythm



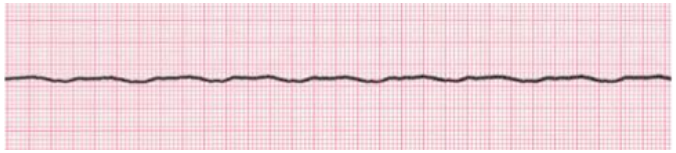
Ventricular Fibrillation (VF) **Shockable**



Ventricular Tachycardia (VT)

Assess for Pulse

- **Pulse Present** – Treat via broad complex tachycardia algorithm (e.g. Amiodorone)
- **Pulse Absent -** Shockable



Asystole **Not Shockable** – Give adrenaline

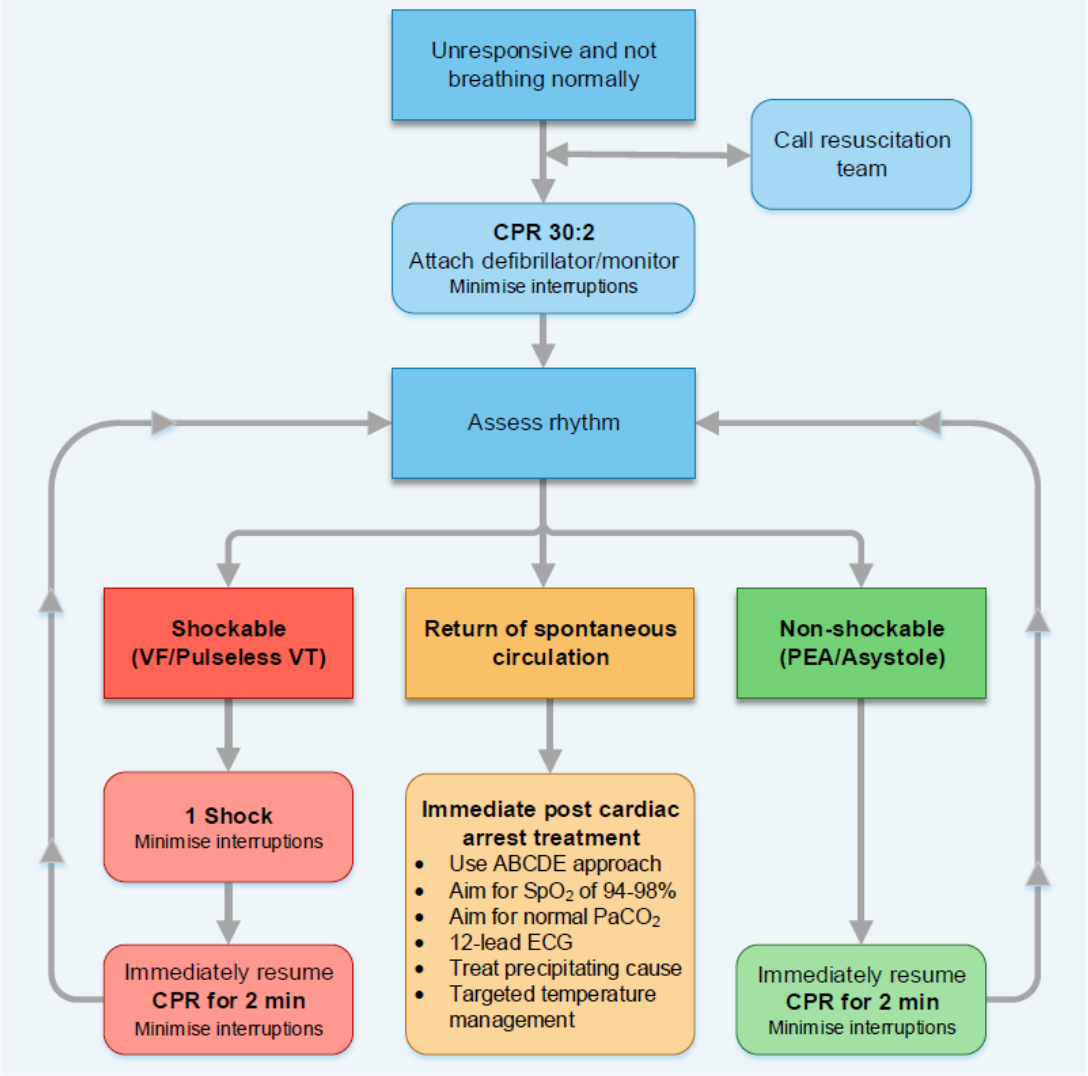
Electrical Activity

Assess for Pulse

- **Pulse Present** – Assess by ABCDE
- **Pulse Absent** – Pulseless Electrical Activity (PEA) – not shockable – give adrenaline

Recommence chest compression immediately (aim for 5s pause only)

Adult Advanced Life Support Algorithm



During CPR

- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use waveform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraosseous)
- Give adrenaline every 3-5 min
- Give amiodarone after 3 shocks

Treat Reversible Causes

- Hypoxia
- Hypovolaemia
- Hypo-/hyperkalaemia/metabolic
- Hypothermia
- Thrombosis - coronary or pulmonary
- Tension pneumothorax
- Tamponade – cardiac
- Toxins

Consider

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

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Examples

18 year old is brought into resus having a seizure which started 20 minutes ago.

- A – Non-rebreathe mask in situ, jaws clenched. Some drooling noted.

Consider nasopharyngeal airway, suction in visible field.

- B – Difficult to assess rate but sats 98% on high flow oxygen via Non-rebreathe mask. No obvious added sounds in the chest with equal percussion notes.

Continue

- C – HR 120. BP was 140/89 when last checked 10 minutes ago. CR <2secs. No IV access.

Urgent IV access. Consider IO if no success quickly

Bloods can be taken during insertion (particularly U+Es/Bone Profile/glucose/VBG +/- anticonvulsant drug levels +/- toxicology screen)

- D – Generalised clonic seizure activity. Pupils equal and reactive. GCS E4, V1, M1 = 6/15. BM 5.2. Temp 37.8

Priority is to terminate the seizure – this depends on…

- E – Patient with known epilepsy on sodium valproate. Paramedics gave 10mg buccal Midazolam 10 minutes ago which has not had any effect.

Repeat benzodiazepine – ideally IV Lorazepam (typically 4mg)

- *If no response, for Phenytoin infusion*
- *If no response, consider anaesthetising patient*

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Status Epilepticus

Open and maintain the airway, lay in recovery position
Remove false teeth if poorly fitting, insert oral/nasal airway, intubate if necessary

↓

Oxygen, 100% + suction (as required)

↓

IV access and take blood:
U&E, LFT, FBC, glucose, Ca^{2+}
Toxicology screen if indicated
Anticonvulsant levels

↓

Slow IV bolus phase—to stop seizures: eg lorazepam 2–4mg. Give 2nd dose of lorazepam if no response within 10min.

↓

Thiamine 250mg IV over 30min if alcoholism or malnourishment suspected.
Glucose 50mL 50% IV, unless glucose known to be normal
Treat acidosis if severe (contact ICU)

↓

Correct hypotension with fluids

↓

IV infusion phase: If seizures continue, start phenytoin, 15–20mg/kg IVI, at a rate of ≤50mg/min. Monitor ECG and BP. 100mg/6–8h is a maintenance dose (check levels).
Alternative: diazepam infusion: 100mg in 500mL of 5% glucose; infuse at ~40mL/h as opposite

↓

General anaesthesia phase: Continuing seizures require expert help with paralysis and ventilation with continuous EEG monitoring in ICU

Differentials to consider (especially if epilepsy is not a known diagnosis):

- Alcohol withdrawal
- Illicit drugs
- Electrolyte/Metabolic abnormalities, in particular:
  - hypoglycaemia,
  - hypocalcaemia,
  - hypomagnesaemia,
  - hyponatraemia
- Pre-eclampsia
- Head Injury
- SoL
- CVA

SIMPLY FINALS

Remember...

- ABCDE is a simple and safe approach to assess patients.
- Correct abnormalities before moving on.
- Simple interventions save lives.
- Continually reassess.
- Ask for help!

SIMPLY FINALS

Thanks for Listening

Any Questions?

SIMPLY FINALS