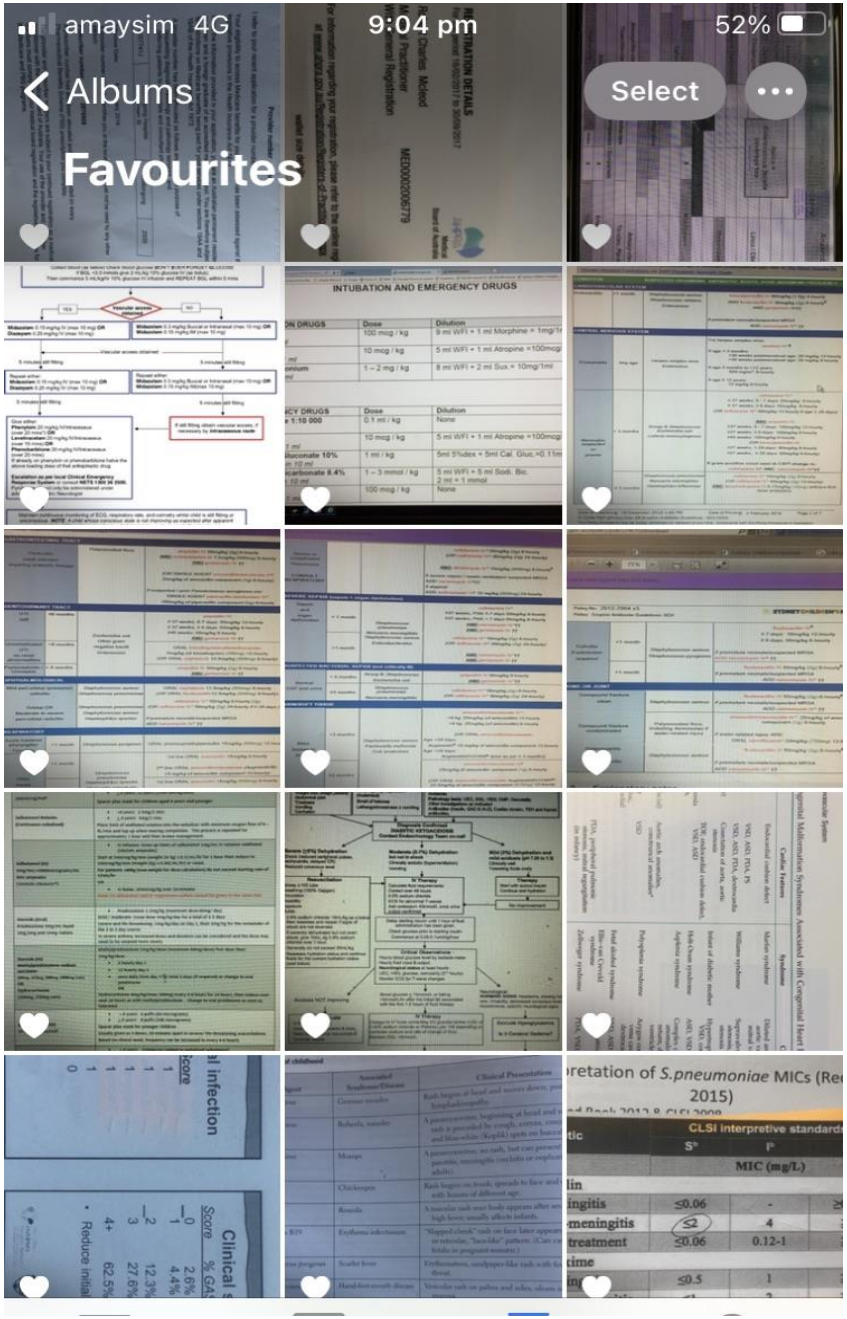
JMO Teaching
First moves, when you're the first to arrive (💩)

Dr. Rob McLeod

14/09/2021

Phone Favourites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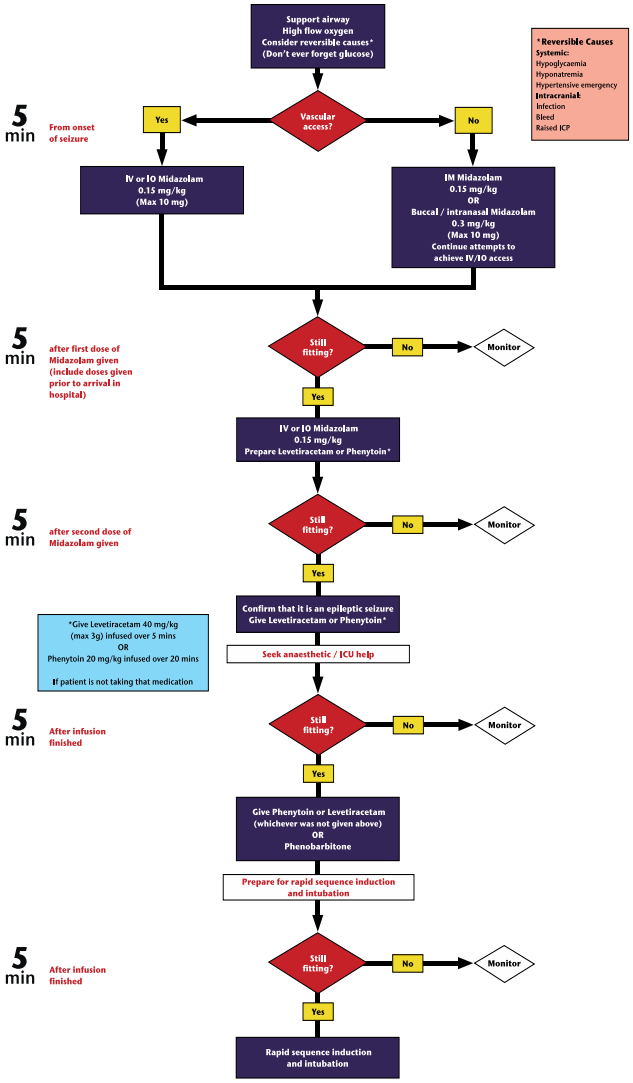
INTUBATION AND EMERGENCY DRUGS

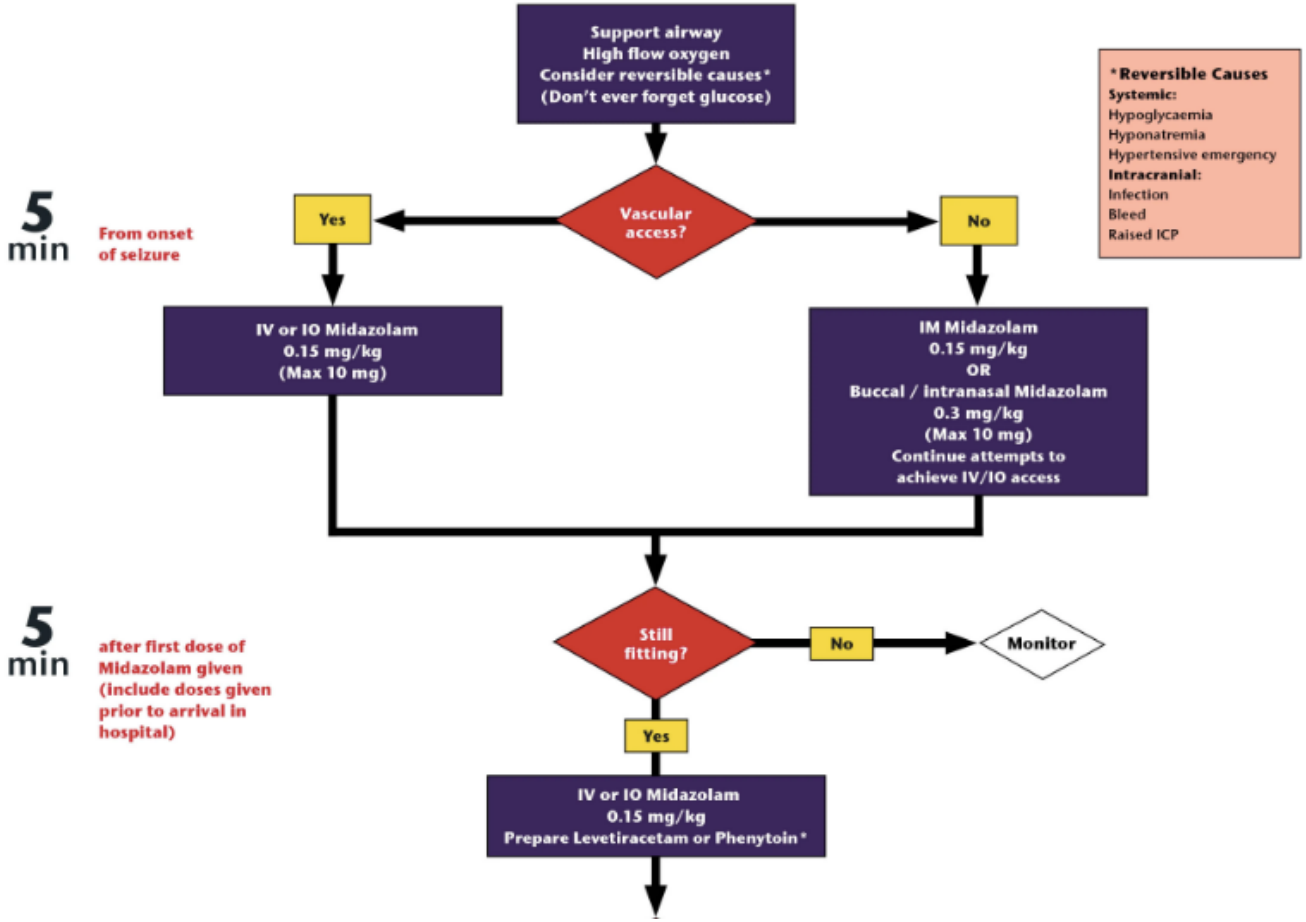

RCH

apls
Advanced Paediatric Life Support

Status epilepticus management



1st to arrive (💩)



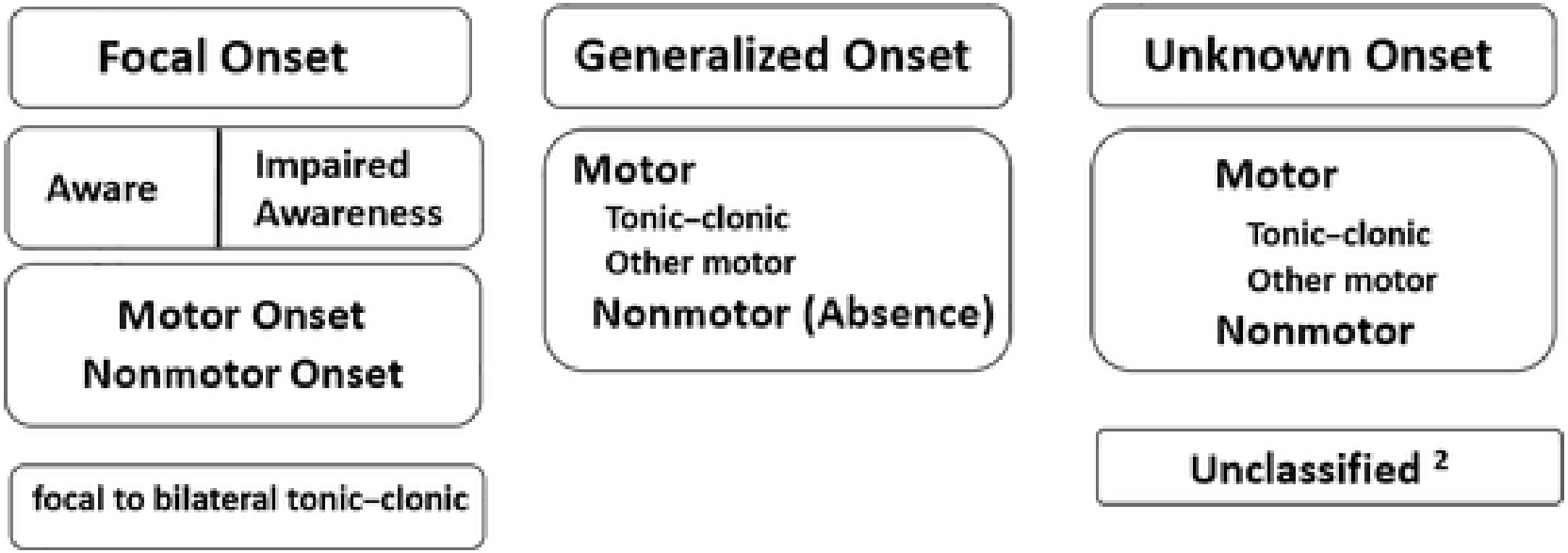
1st to arrive (💩)

- ABC's (the person who called the code is probably doing that)
- D – BSL
- IV access
- Only dose you need to know*:
  - Midazolam:
    - 0.15mg/kg IV/IO
    - 0.3mg/kg buccal/intranasal

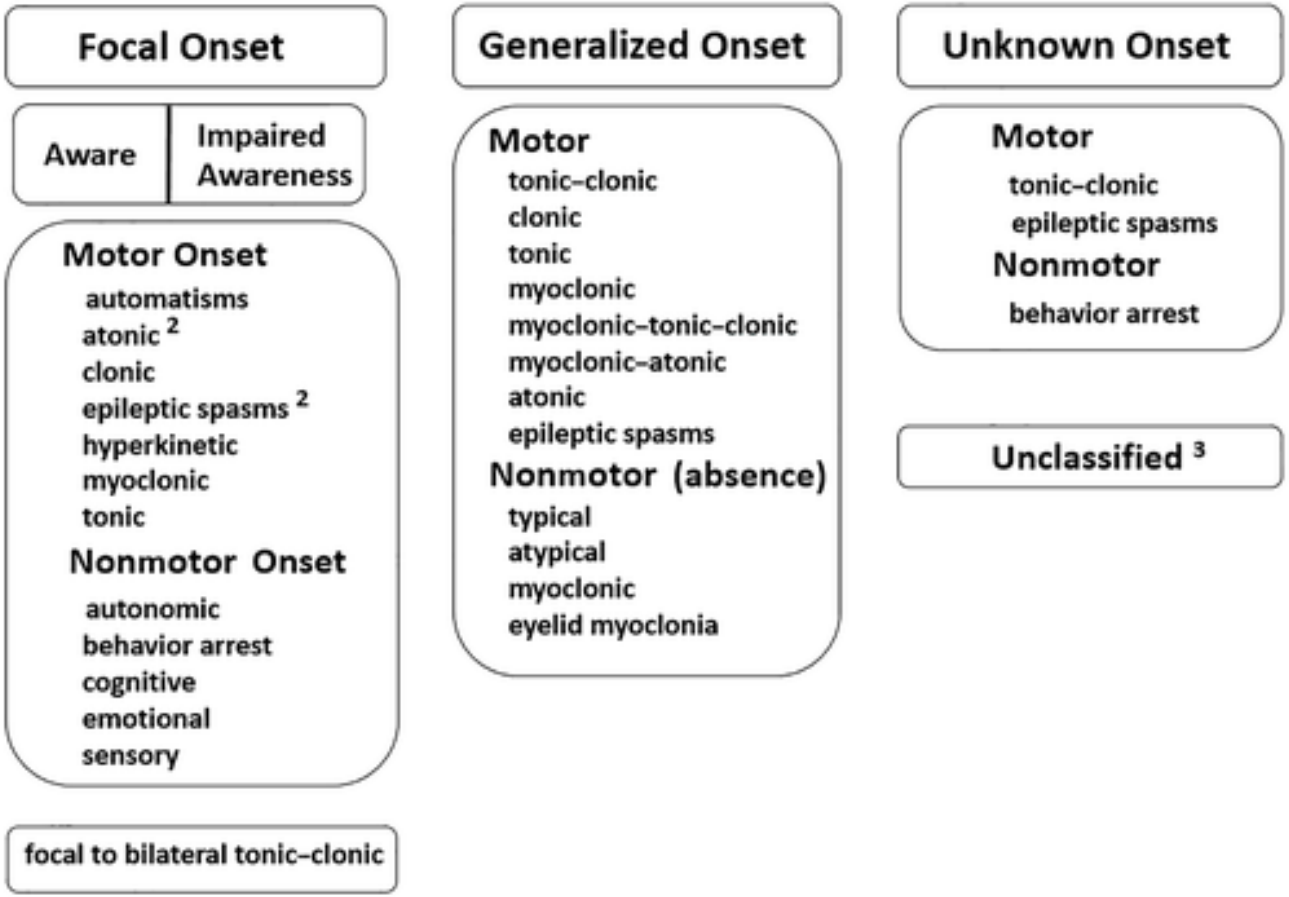
Cavalry Arrives

- Introduction and all that
- Where you're up to in the algorithm
- Key remarks to make/questions you will be asked:
  - How did it start?
  - Preserved awareness during seizure?
  - Features of the seizure?

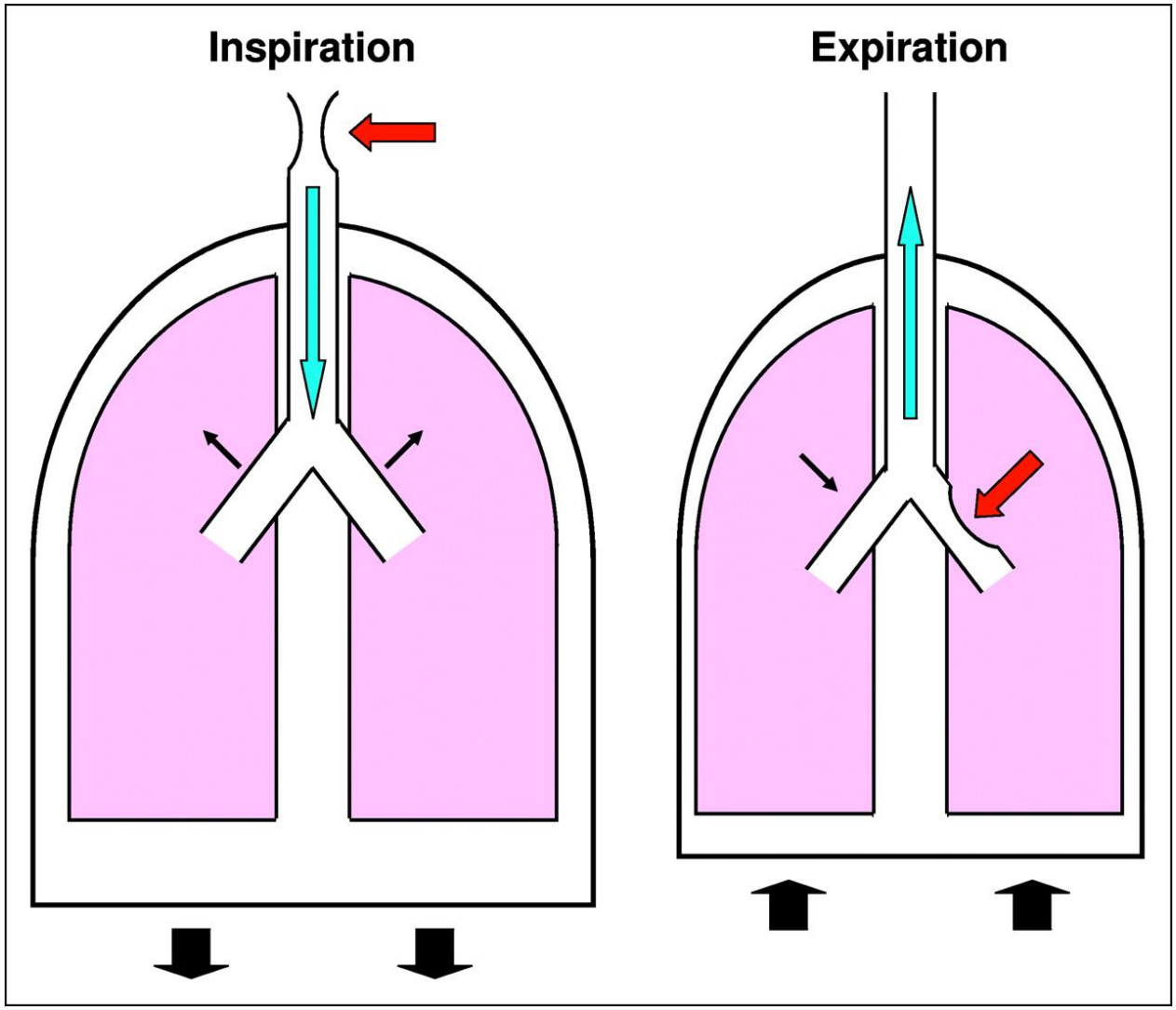
ILAE 2017 Classification of Seizure Types Basic Version [1]



ILAE 2017 Classification of Seizure Types Expanded Version [1]



Respiratory



Wheeze

- Appreciating work of breathing
- Confusing wheeze versus stridor
- What’s the first move?

6 Medications in Acute Asthma [1-6]

Medication	Dose/Directions
Oxygen	To maintain SpO_2 >94%
Salbutamol (MDI) 100microg/Puff	• < 6 years: 6 puffs (600 micrograms) • ≥ 6 years: 12 puffs (1200 micrograms) **Spacer plus mask for children aged 4 years and younger**
Salbutamol Nebules	• <6 years: 2.5mg/2.5mL • ≥ 6 years: 5mg/2.5mL • For **intermittent** add 0.9% Sodium Chloride up to 4ml for nebulisation For **continuous** nebuliser place 5mls of undiluted solution into the nebuliser with minimum oxygen flow of 6 – 8L/min and 'top up' to keep the canister ½ - 2/3 full to create the optimal size salbutamol microspheres. This process is repeated for approximately 1 hour and then review management.
Salbutamol (IV) 1mg/mL(=1000micrograms/mL 5mL ampoules *(Ventolin Obstetric®)*	• IV Infusion: Draw up 50mL of salbutamol 1mg/mL IV solution undiluted (10x5mL ampoules) Start at 5microg/kg/min (weight (in kg) x 0.3) mL/hr for 1 hour then reduce to 1microg/kg/min (Weight (kg) x 0.06) mL/hr) or cease. **For patients >40kg (max weight for dose calculation) do not exceed starting rate of 12mL/hr** OR • IV bolus: 15microg/kg over 10 minutes **Note: IV salbutamol and IV magnesium sulfate cannot be given in the same line**
Steroids (Oral) Prednisolone 5mg/mL liquid 1mg,5mg and 25mg Tablets	• Prednisolone 1-2mg/kg (maximum dose 60mg/ day) Mild / moderate: Usual dose 1mg/kg/day for a total of 3-5 days Severe and life threatening: 2mg/kg/day on Day 1, then 1mg/Kg for the remainder of the 3 to 5 day course. In severe asthma, increased doses and duration can be considered and the dose may need to be weaned more slowly.
Steroids (IV) **Methylprednisolone sodium succinate** (40mg, 125mg, 500mg, 1000mg vials) **OR** **Hydrocortisone** (100mg, 250mg vials)	Methylprednisolone 2mg/kg/dose (maximum 60mg/dose) first dose then: 1mg/kg/dose • 6 hourly day 1 • 12 hourly day 2 • once daily from day 3 for total 5 days (if required) or change to oral prednisone **OR** Hydrocortisone 4mg/kg/(max 100mg) every 4-6 hours for 24 hours, then reduce over next 24 hours as with methylprednisolone . Change to oral prednisone as soon as tolerated.
Ipratropium (MDI) 21 micrograms/Puff	• < 6 years: 4 puffs (84 micrograms) • ≥ 6 years: 8 puffs (168 micrograms) **Spacer plus mask for younger children** Usually given as 3 doses, 20 minutes apart in severe/ life-threatening exacerbations Based on clinical need, frequency can be increased to every 4-6 hourly
Ipratropium (Nebulised) 250 micrograms/mL 500micrograms/mL	• < 6 years: 250microg (added to nebulised salbutamol) • ≥ 6 years: - 500microg (added to nebulised salbutamol) Usually given as 3 doses, 20 minutes apart in severe/ life-threatening exacerbations Based on clinical need, frequency can be increased to every 4-6 hourly

6 Medications in Acute Asthma [1-6]

Medication	Dose/Directions
Oxygen	To maintain SpO_2 >94%
Salbutamol (MDI) 100microg/Puff	• *< 6 years*: 6 puffs (600 micrograms) • *≥ 6 years*: 12 puffs (1200 micrograms) **Spacer plus mask for children aged 4 years and younger**
Salbutamol Nebules	• *<6 years*: 2.5mg/2.5mL • *≥ 6 years*: 5mg/2.5mL • For **intermittent** add 0.9% Sodium Chloride up to 4ml for nebulisation For **continuous** nebuliser place 5mls of undiluted solution into the nebuliser with minimum oxygen flow of 6 – 8L/min and 'top up' to keep the canister ½ - 2/3 full to create the optimal size salbutamol microspheres. This process is repeated for approximately 1 hour and then review management.

3 Assessment and Initial Management of Acute Asthma[1]

Initial Severity Assessment Treat in the highest category in which any symptoms occurs			
Symptoms	**Mild** Likely to go home	**Moderate** Possible admission	**Severe / Life Threatening** Will be admitted
Oximetry in Air	>94%	90% - 94%	<90%
Heart rate	Close to normal range for age	Mild- moderate Tachycardia for age	Marked tachycardia – beware bradycardia
Age appropriate ability to talk	Sentences or long vigorous cry	Phrases or Shortened Cry	Words/ Weak Cry or Unable to Speak/ Cry
Wheeze Intensity	Variable	Moderate to loud	Often quiet Life threatening – silent chest
Accessory Muscle Use	None or very mild	Mild to moderate	Moderate to Severe
Altered Consciousness	Alert Age Appropriate	Easily engaged Age appropriate	May be Agitated, Confused or Drowsy
Cyanosis in Air	None	None	May be Cyanosed
Treatment Options (Treatments to be considered)	⇩	⇩	**Notify Consultant/Fellow** (ED, Medical or Respiratory) ⇩
Oxygen	To maintain SpO_2 >94%	To maintain SpO_2 >94%	To maintain SpO_2 >94%
Salbutamol **Metered Dose Inhaler (MDI) & spacer**	**Review frequently and repeat when required**	Every 20 min x 3 **Repeat as required**	Every 20 min x 3 **Reassess** **OR**
Salbutamol nebulised	If child does not tolerate MDI & spacer or co-condition prevents use of spacer	If child does not tolerate MDI & spacer or co-condition prevents use of spacer	Continuous nebulised salbutamol **Reassess**
Systemic corticosteroids	Consider oral prednisolone depending on history and response to treatment	Consider oral prednisolone	Oral Prednisolone or IV methylprednisolone or IV hydrocortisone if above unavailable
Ipratropium (3 doses always with salbutamol)	No	Consider 3 doses at 20 minute intervals	Consider 3 doses at 20 minute intervals
No or Poor Response to Treatment	Check diagnosis and treat as per Moderate	Check diagnosis and treat as per Severe and Life Threatening	**Immediate senior review –** **Notify Consultant/ Fellow**
IV magnesium sulfate	Not applicable	Consider IV magnesium sulfate	Give IV magnesium sulfate
IV aminophylline or **IV salbutamol**	Not applicable	Not applicable	Consider either as 3rd line agent. Consult ICU
Investigations	Nil (routinely) required	Nil (routinely) required	UEC, VBG, CMP, FBC Consider CXR
Intravenous Fluids	Not required	Not usually required	Maintenance IV fluids with potassium
Observation and Review	HR, RR & SpO_2 pre and post treatment. MO review prior to discharge.	HR, RR and SpO_2 monitoring pre and post treatment Regular medical review as clinically indicated	Continuous cardiorespiratory monitoring (ECG, RR and SpO_2) Regular medical review as clinically indicated
Disposition	Home if salbutamol required less frequently than 3 hourly. See Ongoing Management and Discharge" below.	Home if salbutamol required less frequently than 3 hourly. See "Discharge Criteria". If not then admit to ward. See Admission below.	Notify / consult ICU Admit to ward bed or ICU

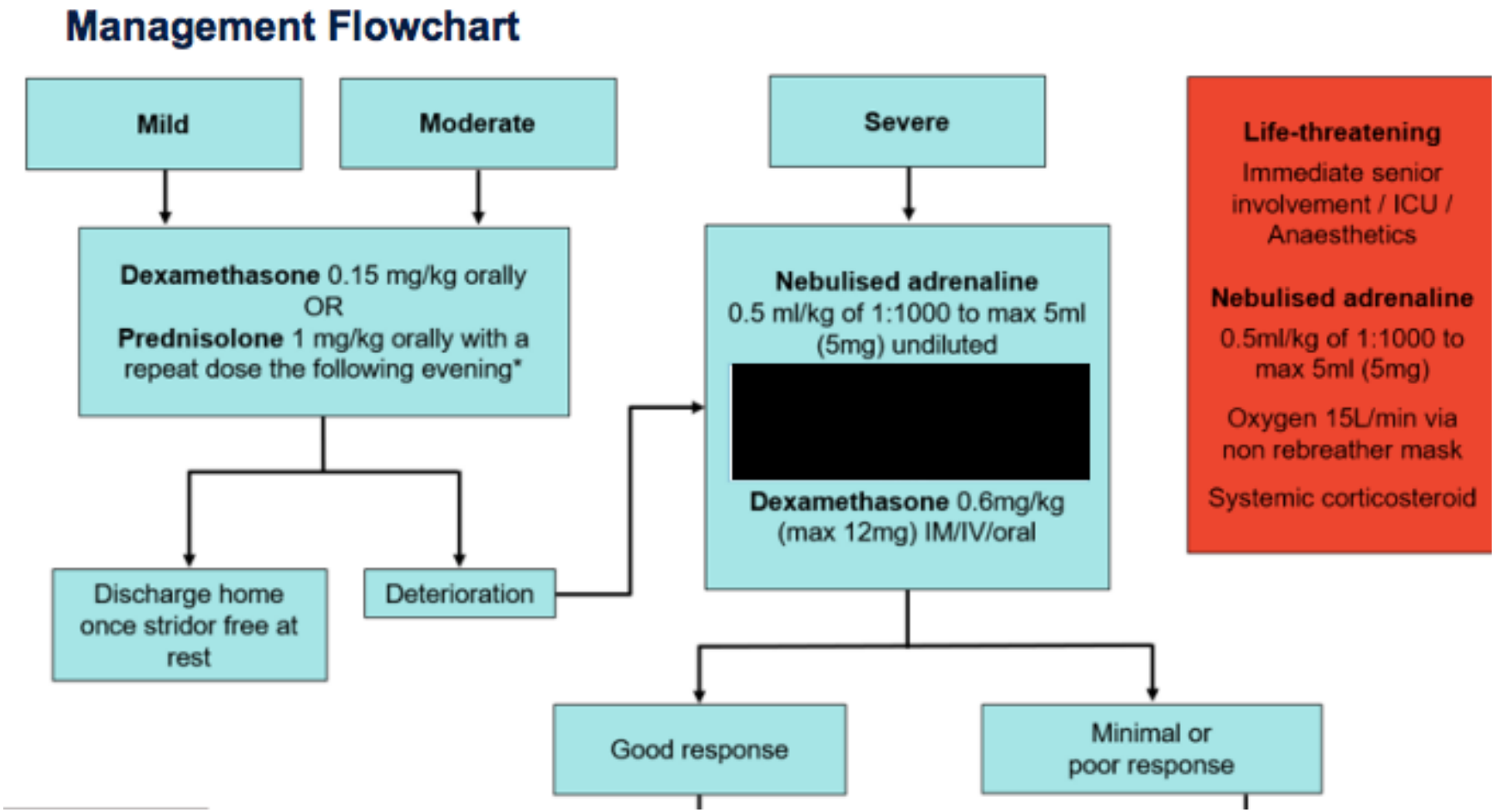
1st move

Altered Consciousness	Alert Age Appropriate	Easily engaged Age appropriate	May be Agitated, Confused or Drowsy
Cyanosis in Air	None	None	May be Cyanosed
Treatment Options (Treatments to be considered)	↓	↓	**Notify Consultant/Fellow** (ED, Medical or Respiratory) ↓
Salbutamol **Metered Dose Inhaler (MDI) & spacer**	**Review frequently and repeat when required**	Every 20 min x 3 **Repeat as required**	Every 20 min x 3 **Reassess** **OR**
Salbutamol nebulised	& spacer or co-condition prevents use of spacer	spacer or co-condition prevents use of spacer	Continuous nebulised salbutamol **Reassess**
Systemic corticosteroids	Consider oral prednisolone depending on history and response to treatment	Consider oral prednisolone	Oral Prednisolone or IV methylprednisolone or IV hydrocortisone if above unavailable
Ipratropium (3 doses always with salbutamol)	No	Consider 3 doses at 20 minute intervals	Consider 3 doses at 20 minute intervals
No or Poor Response to Treatment	Check diagnosis and treat as per Moderate	Check diagnosis and treat as per Severe and Life Threatening	**Immediate senior review – Notify Consultant/ Fellow**

Stridor

- Setting: middle of the night
- Stridor
- Barking Cough

1st moves

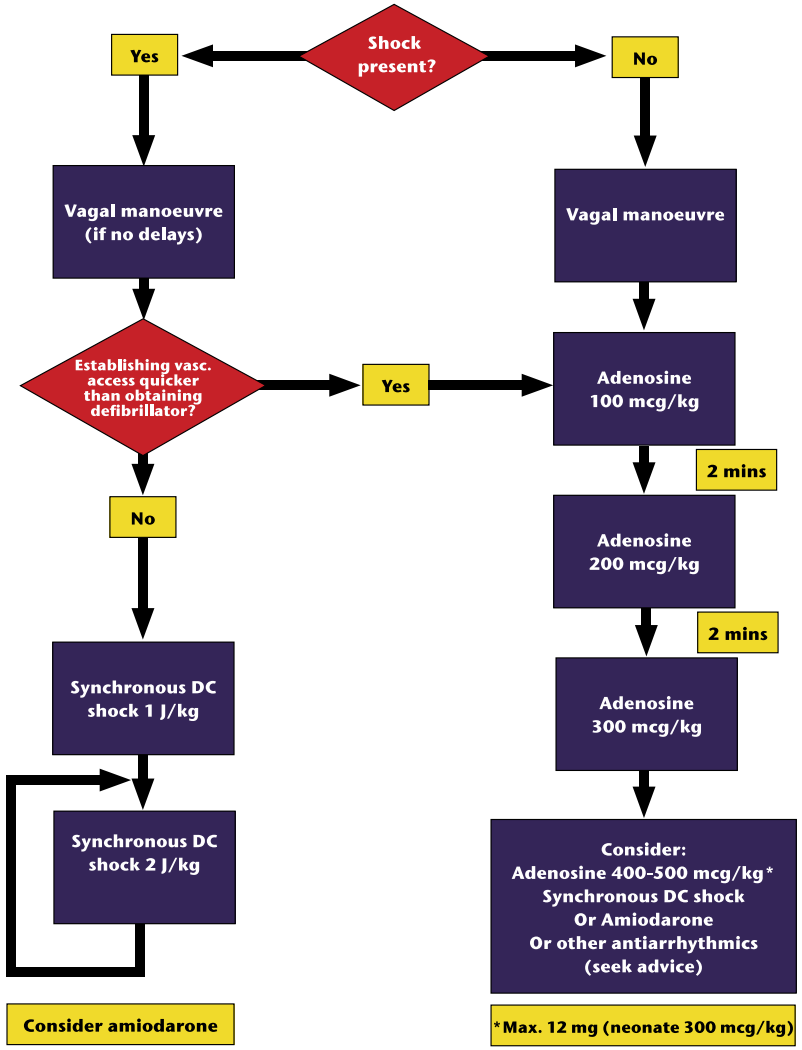

Management Flowchart
Mild
Moderate
Severe
Life-threatening
Immediate senior involvement / ICU / Anaesthetics
Nebulised adrenaline
0.5ml/kg of 1:1000 to max 5ml (5mg)
Oxygen 15L/min via non rebreather mask
Systemic corticosteroid
Dexamethasone 0.15 mg/kg orally
OR
Prednisolone 1 mg/kg orally with a repeat dose the following evening*
Nebulised adrenaline
0.5 ml/kg of 1:1000 to max 5ml (5mg) undiluted
Dexamethasone 0.6mg/kg (max 12mg) IM/IV/oral
Discharge home once stridor free at rest
Deterioration
Good response
Minimal or poor response

Cardiology

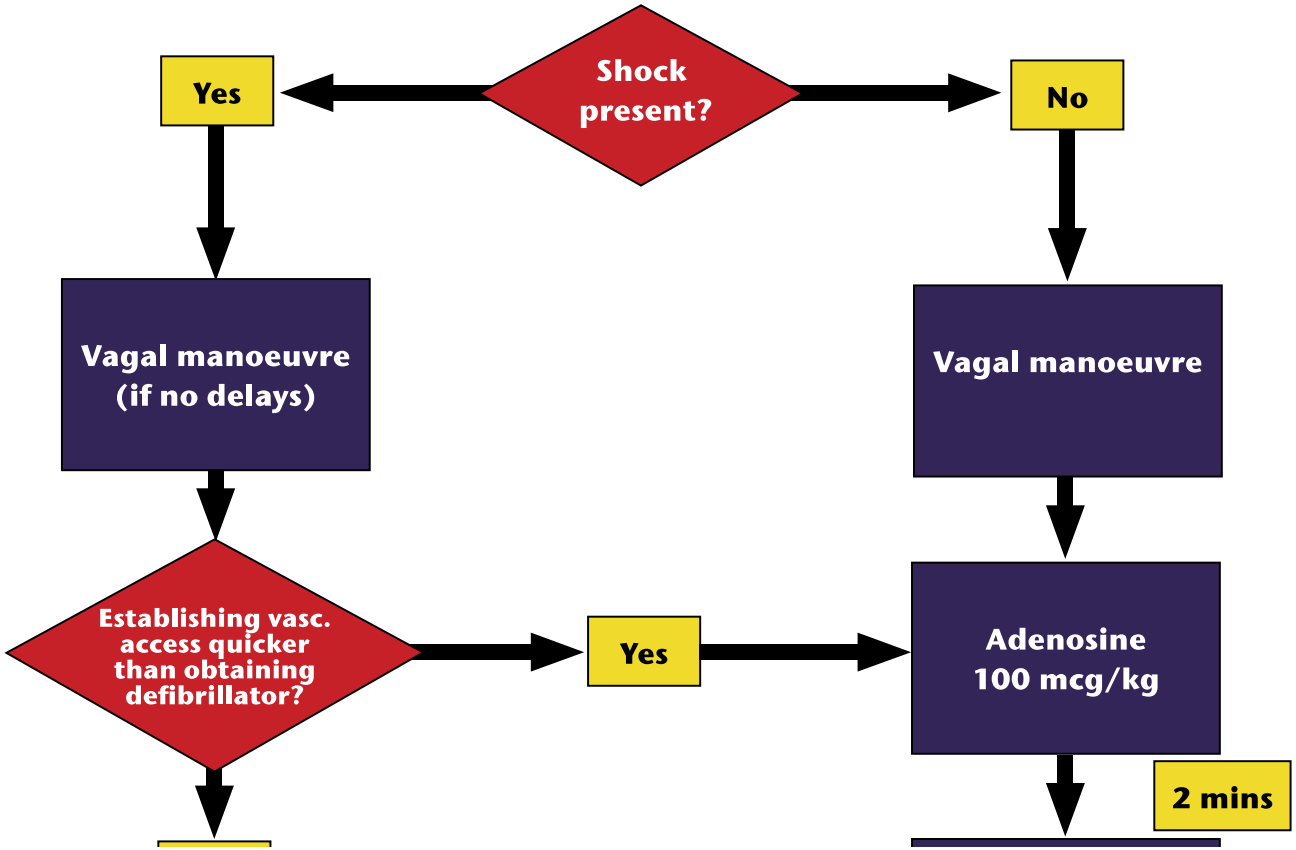
Compared to adult medicine this is rare

apls
Advanced Paediatric Life Support

Supraventricular tachycardia (SVT) management



1st moves


Shock present?
Yes
No
Vagal manoeuvre (if no delays)
Vagal manoeuvre
Establishing vasc. access quicker than obtaining defibrillator?
Yes
Adenosine 100 mcg/kg
2 mins

IVF Prescribing

- Fluid types
  - 0.9% NaCl
  - 0.9% NaCl + 5% dextrose
- Bolus: 10-20mls/kg with 0.9% NaCl
- Maintenance (0.9% NaCl + 5% dextrose)
  - 4:2:1 /100:50:20
  - Eg. 30kg = 70mls/hr
- Replacement (0.9% NaCl + 5%)
  - Weight x % dehydration (5) x 10
  - Ie. 10kg x 5 x 10 = 500mls over 24 hours

Enteral Rehydration

- Iceblock (always try this first)
- ORS (gastrolyte, hydralyte)
- NGT:
- Rapid rehydration = 10-20mls/hr x 4hours
- Maintenance = same calculation (4:2:1, 100:50:20)

Pain

- Panadol and Neurofen are good
  - Panadol 15mg/kg (max QID dosing)
  - Neurofen 10mg/kg (TDS dosing)
- Feel uncomfortable with next line?

Moderate to severe pain				
Use medications above, and consider adding the following				
Oxycodone	oral	1–12 months: 0.05–0.1 mg/kg, >12 months: 0.1–0.2 mg/kg 4 hourly	5–10 mg 4 hourly	For short term use Do not prescribe for outpatient use if no clear diagnosis Higher / more frequent dosing can be used in inpatient settings
or				
Morphine	IV / subcutaneous	0.05 mg/kg >12 months: up to 0.2 mg/kg (max 5–10 mg)	Cumulative maximum <1 month: 0.1 mg/kg 4–6 hourly 1–12 months: 0.1 mg/kg 2–4 hourly >12 months: 0.2 mg/kg 2–4 hourly	Higher / more frequent dosing can be used in inpatient settings
or				
Fentanyl	Intranasal	>12 months: 0.75–1.5 microg/kg (max 75 microg) 10 minutely	Total dose of 3 microg/kg	Rapid onset (5 minutes) Divide dose between nostrils Consider alternative ongoing analgesia after second dose Not recommended <12 months of age