APLS: Illness Scenario 1

This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs.

History {initial candidate briefing prior to arrival of child}

A 5 year old boy being treated with chemotherapy for abdominal neuroblastoma is brought into the Emergency Department by his mother who noticed that he was unusually sleepy and breathing fast this morning. She measured his temperature at 39.5°C.
Estimated weight 20 kg.

Initial impression {provide information as candidate assesses child and applies monitoring}

Rapid respirations with a respiratory rate of 40 and increased work of breathing. His SpO_2 in room air shows a poor trace, 88%. HR, 160 with reduced volume. Skin is mottled with CRT 7. He responds to his mother's voice by crying for his teddy.

Clinical Course {to be given to candidate as they progress}

He is shocked and in respiratory distress. Pulse volume and capillary refill time only improves slightly with fluids leading to need for inotropes. Respiratory rate and effort increase and SpO_2 initially responds to oxygen. Oxygenation and conscious state deteriorate requiring BVM ventilation. Intubation needs to be arranged. Conscious level deteriorates as scenario progresses until he's only responding to pain.
VBG; pH 7.15, PCO_2 45 mmHg, PO_2 40 mmHg, HCO_3 17 mmol/L, Lactate 5 mmol/l.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

Airway	Establish airway patency High flow O_2 via face mask commenced early Titrate O_2 therapy to SpO_2 94-98% when stable Arrange for intubation	
Breathing	BVM ventilation with 100% O_2	
Circulation	IV access (may include use of implanted central line) FBC, Blood Cultures, Blood Gas, Electrolytes, CRP. Fluid boluses, 10 mls/kg up to 40 mls/kg Inotropes	
Specific Therapy	Empiric Antibiotics*	

Diagnosis: Fever & Neutropenia – Sepsis and pneumonia

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management, and diagnosis of shock
- Recall and apply the principles of management of septic shock in their own practice

Potential Issues to be Discussed

- A high index of suspicion for significant sepsis is needed in children being treated for cancer. Normal symptoms and clinical indicators may be blunted. Rapid assessment, IV access and use of empiric antibiotics are paramount.
- Interpretation of blood gas with severe metabolic acidosis and high lactate
- Fluid resuscitation and inotropes
- Sepsis assessment and management. Used with permission and endorsed by the Paediatric Improvement Collaborative

https://www.rch.org.au/clinicalguide/guideline_index/SEPSIS_assessment_and_management/

APLS: Illness Scenario 2

This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs.

History {initial candidate briefing prior to arrival of child}

A 6 year old girl is known to be allergic to peanuts and her parents normally ensure that she avoids all nuts. Today she attended a friend's birthday party and after eating part of a chocolate bar she vomited once and developed a wide spread urticarial rash.
Estimated weight 25 kg

Initial impression {provide information as candidate assesses child and applies monitoring}

She has swollen eyes and lips and a widespread urticarial rash. The respiratory rate is 30 and there is a soft inspiratory stridor. Her SpO_2 is 96% in air. The pulse rate is 120 with a good volume and the blood pressure remains at 100/65.

Clinical Course {to be given to candidate as they progress}

After a few minutes, if she doesn't receive IM adrenaline, her breathing increases to 40, she progresses to a marked inspiratory stridor, pulse rate rises to 190, she looks pale, CRT 4 sec, and systolic blood pressure remains around 100/65 mmHg.
The airway obstruction markedly improves, tachycardia resolves and the rash fades after being given intramuscular adrenaline. **Note:** If only nebulised adrenaline is given (i.e. no IM adrenaline) then there is no resolution of the stridor or tachycardia.
About 5 minutes after the improvement, the heart rate again rises and the stridor returns. With further IM adrenaline and a fluid bolus both the stridor and the tachycardia resolve.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

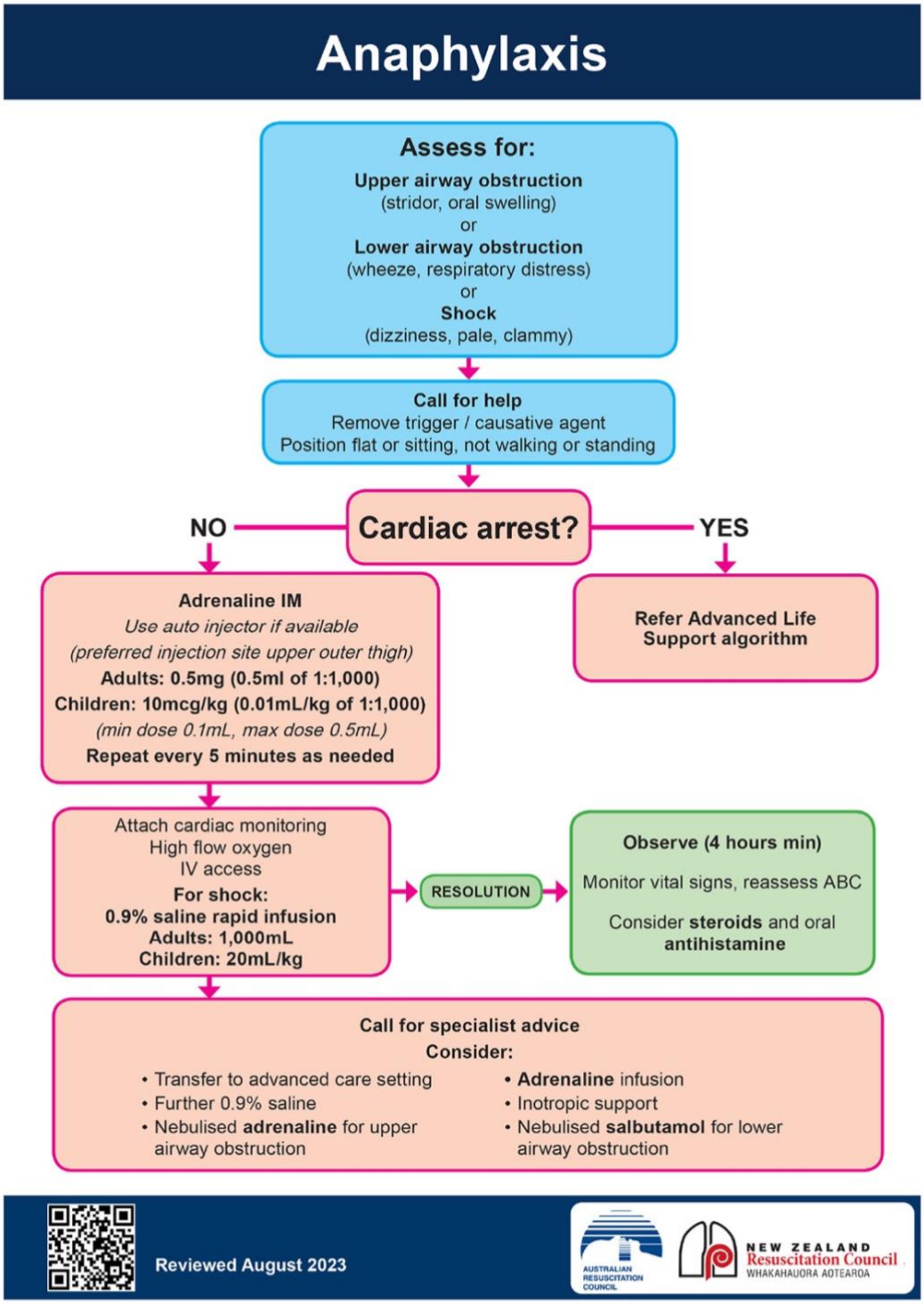
Airway & Breathing	Establish airway patency High flow O_2 via face mask commenced early Titrate O_2 therapy to SpO_2 94-98% when stable	
Circulation	IV access Fluid bolus	
Specific Therapy	Intramuscular adrenaline 10 microg/kg x 2 Lie flat +/- legs elevated	

Diagnosis; Anaphylaxis

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management, and diagnosis of anaphylaxis
- Recall and apply the principles of management of anaphylaxis in their own practice



APLS Guidelines: drugs in anaphylaxis

Drugs in anaphylaxis	Dosage by age			
	Less than 6 months	6 months to 6 years	6–12 years	More than 12 years
Adrenaline IM – pre-hospital practitioners	150 micrograms device or 0.15 ml of 1:1000*		300 micrograms device or 0.3 ml of 1:1000*	300/500 microg device or 0.5 ml of 1:1000*
Adrenaline IM – in-hospital practitioners	10 Micrograms / Kg = *0.01 ml/Kg Of 1:1000, Minimum dose 0.1 ml** (**prime needle with adrenaline solution to ensure correct dose with small volumes*)			
Adrenaline IV	Adrenaline infusion 0.1 – 1 micrograms/kg/min according to local guidelines			
Crystalloid	20 ml/kg			

Potential Issues to be Discussed

- See APLS anaphylaxis algorithm (a copy of the algorithm will be available in the simulation station)
- In true anaphylaxis, the key treatment is IM adrenaline. Nebulised adrenaline is commonly given as an adjunct but its additive effectiveness is unclear and should not be given instead of IM adrenaline.
- Multiple doses of IM adrenaline may be necessary, in which case consideration of an adrenaline IV infusion should be considered.
- The use of the EpiPen may be raised. An EpiPen (300 microg, appropriate for 25 kg child) and literature are provided
- Before discharge an EpiPen should be provided with education & training
- It is also customary to give an antihistamine and corticosteroids but the role of these drugs have no proven benefit in management of acute anaphylaxis, but may be considered at a later stage.

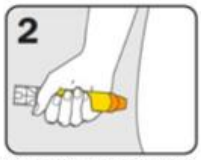
ascia
www.allergy.org.au

Information
FOR PATIENTS, CONSUMERS AND CARERS

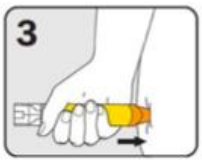
How to give EpiPen®

adrenaline (epinephrine) autoinjectors

1. Form fist around EpiPen® and PULL OFF BLUE SAFETY RELEASE



2. Hold leg still and PLACE ORANGE END against outer mid-thigh (with or without clothing)



3. PUSH DOWN HARD until a click is heard or felt and hold for 3 seconds REMOVE EpiPen®