

# APLS recertification course: demo simulation with skills



## History *{initial candidate briefing prior to arrival of child}*

A 3 year old girl was eating a sausage when she suddenly started coughing, and then stopped breathing. Her mother picked her up and slapped her back but couldn't dislodge the food. She called an ambulance. On its arrival, the child was unconscious. A paramedic performed CPR and dislodged the sausage. Bag mask ventilations with oxygen and chest compressions were continued.

## Initial Impression *{to tell candidate as child arrives}*

Apnoeic and pulseless.

## Clinical Course *{to be given to candidate as he/she progresses through the assessment and treatment of the child}*

The child remains in asystole until satisfactory ventilation is achieved and one cycle of the asystole protocol (one dose of adrenaline) has been completed. She then develops sinus tachycardia on the monitor but there is no pulse or signs of a circulation. She has PEA secondary to a tension pneumothorax. This responds to chest decompression with continued ventilations and chest compressions. Guide weight 14kg.

## INSTRUCTORS INFORMATION

### Key Treatment Points

|                  |  | <input checked="" type="checkbox"/> |
|------------------|--|-------------------------------------|
| Airway           | Establish airway patency               |                                     |
|                  | Oral tracheal intubation               |                                     |
| Breathing        | Bag and mask with added O <sub>2</sub> |                                     |
|                  | Bag with TT with added O <sub>2</sub>  |                                     |
| Circulation      | IV/IO access                           |                                     |
|                  | Asystole/PEA protocol                  |                                     |
| General Therapy  | Uninterrupted BLS                      |                                     |
| Specific Therapy | Needle Thoracocentesis                 |                                     |

## Diagnosis

*Primary respiratory arrest secondary to choking, leading to cardiopulmonary arrest. Rhythm asystole then PEA*

Certain skills in each simulation will be highlighted for careful real-time performance by the candidate; this is indicated by instructors slowing the simulation down if necessary and asking candidates to show clearly how they are doing the skill.

Following the closure of the simulation with any teaching points clarified as necessary, all candidates should perform the skill or skills highlighted only, until competent.

In this demo, satisfactory BVM ventilation and thoracocentesis are the skills to be practised by all candidates. This does not mean that the other skills should not be performed correctly, but some manikins will preclude the actual performance of some skills.

## NEEDLE THORACOCENTESIS

- Identify the second intercostal space in the midclavicular line on the side of the pneumothorax (the *opposite* side to the direction of tracheal deviation).
- Swab the chest wall with surgical prep or an alcohol swab.
- Attach the syringe to the cannula.
- Insert the cannula into the chest wall, just above the rib below, aspirating all the time.
- If air is aspirated remove the needle, leaving the plastic cannula in place.
- Tape the cannula in place and proceed to chest drain insertion as soon as possible.

## BAG AND MASK VENTILATION

Sizing the masks: ensure that the mask adequately covers the nose and mouth, does not extend below the chin and does not cover the eyes.

Ensure that the equipment is properly assembled and functioning, that there is oxygen tubing connected to the in port and that a reservoir bag is in place to ensure high oxygen concentration.

- Apply the mask to the face, using either of the manoeuvres described below  
*Chin lift manoeuvre:* Place the thumb over upper margin of the mask (over the bridge of the nose), the middle finger under the tip of the chin, and the index finger around the lower margin of the mask. In this position the middle finger and thumb are apposed using a pincer movement. This opens the airway and secures the position of the mask allowing the other hand to be used to ventilate using the self-inflating bag.  
*Jaw thrust manoeuvre:* both hands are used to pull the jaw forward and secure the mask, whilst avoiding a rotating movement of the neck. Place the appropriate sized mask gently in its correct position on the face. Place the thumbs over the upper rim of the mask overlying the zygomatic arch on both sides. Place the 3rd or 4th fingers (depending on hand size) behind the angle of the mandible, while the index fingers

are placed over the lower rim of the mask. If the fingers behind the mandible and the thumbs are now pulled towards each other, the jaw is pulled forward and the mask is firmly secured to the face without rotating the neck. Place the palms of the hands against the sides of the head to the head and neck (particularly if the elbows can rest on a firm surface). This is a two-person technique. One rescuer should maintain the mask seal with both hands, while the second person squeezes the self-inflating bag.

- Ensure an adequate seal.
- Squeeze the bag observing the resulting chest movement. Avoid excessive volumes or very rapid inflations as these will tend to inflate the stomach and increase the risk of regurgitation. If, despite a good seal, the chest is not inflating, the airway position should be adjusted without removing the mask from the patient's face.
- Ventilate at 15-30 breaths/minute depending on the age of the child.

*It should be emphasised that bag and mask ventilation is the key skill for non-anaesthetists.*