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BRONCHOSPASM / ASTHMA

Signs and symptoms

Dyspnea, wheezing or stridor, laboured / prolonged expiration. Known history of asthma, COPD, or reactive airways disease

Check ABC (Airway, Breathing, Circulation)

Put passenger in sitting position

Oxygen 100% by mask

Salbutamol inhaler (Ventolin ®)

Adult: 3-4 puffs every 15-20 minutes
Children: 1-2 puffs every 15-20 minutes (max. 10 puffs per trial)

Methylprednisolone (Solumedrol ®)

Adult: 125 mg intravenously (IV) may be given intramuscular (IM) if IV not accessible
Children: 1-2 mg/kg intravenously (IV) may be given intramuscular (IM) if IV not accessible

If the passenger has laboured breathing and/or decreased level of consciousness

Epinephrine (Adrenaline) 1:1000

Adult: 0.3 ml subcutaneous (S/C) or IM (max. 0.5 ml/dose)
Children: 0.01 ml/kg S/C or IM (max. 0.3 ml/dose)

May be repeated every 15-20 minutes if near death
Symptoms

Sudden shortness of breath, sudden chest pain and/or breathing difficulties.

Signs

- Trachea deviated to one side.
- Absence of breath sounds on one side.
- Low blood pressure often present.

Suspect a tension pneumothorax in a passenger exhibiting the previously mentioned signs and who has a history of asthma, emphysema, previous pneumothorax or recent chest trauma.

Check ABC (Airway, Breathing, Circulation)

Oxygen 100% by mask

If diagnosis highly suspected, passenger needs needle decompression

1- Take a # 16 angiocatheter (cathlon®)
2- Clean & Disinfect the area
3- Insert needle in second or third anterior intercostal space at the midclavicular line of suspicious side.
4- Remove needle and leave plastic catheter in the chest.

Mid-Clavicular insertion site
CONGESTIVE HEART FAILURE/ PULMONARY EDEMA

Signs and symptoms

Dyspnea, wheezing, crackles on auscultation
Known history of congestive heart failure or pulmonary edema

Check ABC (Airway, Breathing, Circulation)

Put passenger is sitting position

Oxygen 100% by mask

Spray Nitroglycerin under the tongue

Ensure no Viagra® (Sildenafil) in last 24 hours and systolic BP > 100 mmHg
Adult: 1 spray (0.4 mg) every 5 minutes as hemodynamics permit, up to a maximum of 3 sprays

Furosemide (Lasix ®)

Adult: 40 mg intravenous (IV)
If passenger already takes furosemide orally, double the dose IV
Signs and symptoms

Wheezing, dyspnea, urticaria, sudden skin rash, pruritus, angioedema, vomiting, vascular collapse within seconds or minutes after contact with an allergen.

**Check ABC** (Airway, Breathing, Circulation)

Put passenger in a comfortable position; lie flat with legs raised if hypotensive

Oxygen 100% by mask

**Epinephrine** (Adrenaline) 1:1000

Adult: 0.3 ml subcutaneous (S/C) or intramuscular (IM) (max. 0.5 ml/dose)

Children: 0.01 ml/kg S/C or IM (max. 0.3 ml/dose)

*May be repeated every 3-5 minutes*

Adult: 250 ml bolus of Normal Saline (NS)  
Children: 20 ml/kg NS bolus

**Diphenhydramine** *(Benadryl ®)*

Adult: 50 mg intravenous (IV) or IM

Children: 1-2 mg/kg intravenous (IV) or IM

*May be repeated every 4-6 hours*

**Methylprednisolone** *(Solumedrol ®)*

Adult: 125 mg intravenously (IV) *may be given Intramuscular (IM) if IV not accessible*

Children: 1-2 mg/kg intravenously (IV) *may be given Intramuscular (IM) if IV not accessible*

**Salbutamol inhaler** *(Ventolin ®)*

Adult: 3-4 puffs every 15-20 minutes

Children: 1-2 puffs every 15-20 minutes (max. 10 puffs per trial)
**ANGINA PECTORIS / MYOCARDIAL INFARCTION**

**Signs and symptoms**

Chest pain or chest pressure, can radiate to left arm or neck/jaw, diaphoresis. Known history of coronary artery disease, previous myocardial infarction.

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**Check ABC (Airway, Breathing, Circulation)**

Put passenger in a comfortable position

Oxygen 100% by mask

---

Spray **Nitroglycerin under the tongue**

*Ensure no Viagra® (Sildenafil) in last 24 hours and systolic BP > 100 mmHg*

**Adult:** 1 spray (0.4 mg) every 5 minutes as hemodynamics permit, until pain free or a maximum of 3 sprays

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**ASA** *(Acetylsalicylic Acid; Aspirin ®)*

**Adult:** 325 mg orally, chew & swallow *(if not known allergic to ASA)*

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If passenger becomes unresponsive:

Attach **Automatic External Defibrillator (AED)**

---

If no pulse:

Start CPR, follow **Cardiac Arrest** algorithm *(page 7)*
CAR DiAC AR EST  ADULT

Assess consciousness
Lie passenger flat
Call for Automatic External Defibrillator (AED) & Ambubag

Check CAB:
A – Open airway (jaw thrust, chin lift)
B – Give 2 slow breaths with Pocket Mask or Ambubag (attach to oxygen tank)
C – Start 30 chest compressions if passenger is NOT breathing or only gasping

If NO definite pulse:
Attach AED
Give shock if instructed
Continue CPR (30 compressions/2 breaths)

If pulse:
Continue Ventilation
Check glucose &
Ask for possible Diversion

Epinephrine (Adrenaline) 1:1000
Adult: 1 mg (1 ml) intravenously (IV), flush with 10 ml Normal saline
every 3-5 minutes

If SHOCK GIVEN by AED
CPR & Lidocaine
Adult: 1-1.5 mg/kg IV first dose,
Repeat 0.5-0.75 mg/kg IV every 5 minutes (maximum 3

If NO SHOCK GIVEN
No pulse present

CPR & Epinephrine (Adrenaline) 1:1000
Adult: 1 mg intravenously (IV),
flush with 10 ml Normal saline
every 3-5 minutes

Continue CPR, Ventilation
&
Ask for Diversion

2013/03/01
CAR DiAC AR Rest CHILDREN

Assess consciousness
Lie child flat
Call for Automatic External Defibrillator (AED) & Ambubag

Check CAB:
C – Start 30 compressions if child is NOT breathing or only gasping
A – Open airway (jaw thrust, chin lift)
B – Give 2 slow breaths with Pocket Mask or Ambubag (attach to oxygen tank)

If NO definite pulse:
Attach AED (if child > 1 year old)
Give shock if instructed
Continue CPR (30 compressions/2 breaths)

If pulse:
Continue Ventilation
Check glucose &
Ask for possible Diversion

Epinephrine (Adrenaline) 1:1000
Child: 0.01 ml/kg intravenously (IV), flush with 10 ml Normal saline
every 3-5 minutes

If SHOCK GIVEN by AED
CPR & Lidocaine
Child: 1 mg/kg IV

Continue CPR, Ventilation
&
Ask for Diversion

If NO SHOCK GIVEN
No pulse present

CPR & Epinephrine (Adrenaline) 1:1000
Child: 0.01 ml/kg intravenously (IV), flush with 10 ml Normal saline
every 3-5 minutes
If caused by hot liquids or chemical

Remove wet clothing quickly
Irrigate with cold water thoroughly
Apply burn dressing “Water Jel”

**Acetaminophen / Paracetamol** *(Tylenol®)*

**Adult:** 1000 mg orally every 4-6 hours (maximum 4000 mg/24 hours)

**Children:** 10-15 mg/kg every 4-6 hours (maximum 50-75 mg/kg/24 hours)

If pain is severe

**Ketorolac** *(Toradol ®)*
*(if not known allergic to ASA)*

**Adult:** 30 mg intravenously (IV) or intramuscular (IM) every 6 hours (maximum of 120 mg/24 hours)

**Children:** not recommended

If passenger is very anxious

**Lorazepam** *(Ativan ®)*

**Adult:** 1 mg orally
Ask for: blankets, pillows, gloves

**EMERGENCY DELIVERY**

Lie passenger flat
Oxygen 100% by mask

If regular contractions and **full cervical dilatation**:
1. Ask passenger to push during contractions
2. Maintain a hand on the baby’s head for a controlled delivery
3. When the head is out, feel around baby’s neck to make sure no umbilical cord is around his neck (if so, pass it over his head)
4. Continue to deliver the baby
5. Once delivered, place the baby on his back, head slightly down & turned on one side (to drain mucus and water out of baby’s nose & mouth)

After the baby delivery

Place the umbilical clips on the cord:
- **1st clip** 15-30 cm away from the baby umbilicus & **2nd clip** 10 cm further away from first clip
- Cut the cord between these two clips

Wrap the baby in a clean blanket to keep him warm or
Place him directly on mother’s chest and cover them with blankets

Deliver the placenta (**never pull on it**) *might take 10-20 minutes*
- Place placenta in a bag
- Uterine fundus massage if there is bleeding

Monitor mother’s and baby’s vital signs
Lie passenger on his side & protect him from injuries

Check ABC (Airway, Breathing, Circulation)

Oxygen 100% by mask

Check blood glucose

If low or < 4 mmol/L, give Dextrose

Adult: 50 ml slow intravenously (IV) of Dextrose 50%

Children: 0.5 g/kg (1 ml/kg) slow IV of Dextrose 25% (see dilution below)

In a large 60 ml syringe provided, take 25 ml of Dextrose 50% & withdraw 25 ml of Normal saline (NS 0.9%) into the same syringe. This will form a Dextrose 25% solution.

Diazepam (Valium ®)

Adult: 5 mg intravenously (IV) slow push
repeat every 5 minutes if still seizing (maximum of 20 mg)

Children: 0.3 mg/kg IV slow push or 0.5 mg/kg rectally
repeat every 5 minutes if still seizing (maximum of 10 mg)

For rectal route (if no IV access): use a syringe with a 14 gauge catheter without the needle, lubricate well, insert in rectum past the sphincter and inject the medication.
HYPOGLYCEMIA / HYPERGLYCEMIA

Check ABC (Airway, Breathing, Circulation)

Put passenger in a comfortable position

Oxygen 100% by mask

Check blood glucose

If low or < 4 mmol/L

Dextrose

Adult: 50 ml slow intravenously (IV) of Dextrose 50%

Children: 0.5 g/kg (1 ml/kg) slow IV of Dextrose 25% (see dilution below)

In a large 60 ml syringe provided, take 25 ml of Dextrose 50% into the syringe & withdraw 25 ml of Normal saline (NS 0.9%) in the same syringe. This will form a Dextrose 25% solution.

Normal Saline

Adult: 250 ml bolus intravenously (IV)

Children: 20 ml/kg bolus IV

Repeat glucose check every 30 minutes

Feed passenger with carbohydrates (bread, cookies) when awake

If high or > 18 mmol/L

Normal Saline

Adult: 500 ml bolus intravenously (IV)

Children: 20 ml/kg bolus IV

Repeat glucose check every 30 minutes
SEVERE PAIN  (renal colic, fracture, etc...)  

Check ABC (Airway, Breathing, Circulation)  
Put passenger in a comfortable position  

Acetaminophen / Paracetamol (Tylenol®)  
**Adult:** 1000 mg orally every 4-6 hours (maximum 4000mg/24 hours)  
**Children:** 10-15 mg/kg every 4-6 hours (maximum 50-75 mg/kg/24 hours)  

Ketorolac (Toradol®)  
*(if not known allergic to ASA)*  
**Adult:** 30 mg intravenously (IV) or intramuscular (IM) every 6 hours (maximum of 120 mg/24 hours)  
**Children:** not recommended  

If passenger is very anxious  

Lorazepam (Ativan®)  
**Adult:** 1 mg orally
Note:

These Guidelines/Algorithms do not define the only way that treatment/resuscitation should be achieved; they merely represent a widely accepted view of how treatment/resuscitation can be undertaken both safely and effectively.

For any treatment/resuscitation, the Medical Ground Support Link should always be contacted with the help of the cabin crew.