management of medical emergencies and first aid
Aims & Objectives

At the end of the session the students will be able to:

• identify medical emergencies
• Understand resuscitation procedures
• provide immediate management of anaphylactic reaction, hypoglycaemia, upper respiratory obstruction, cardiac arrest, fits, vasovagal attack, inhalation or ingestion of foreign bodies
• apply the principles of first aid
First Aid

- Burns
- Nose bleed
- Cuts
- Foreign object in the eye
Asthma

Clinical features of acute severe asthma include:

• Inability to complete sentences in one breath.
• Raised respiratory rate
• Increased heart rate
Management of Asthma

Acute asthma
• Most attacks will respond to a few ‘activations’ of the patient’s own inhaler such as salbutamol
• Repeat doses may be necessary.
• Reassure and calm patient

Severe / life threatening
• Call emergency service
• Call for help and when available give oxygen
• 4–6 activations from the salbutamol inhaler should be given using a large-volume spacer device and repeated every 10 minutes if necessary until an ambulance arrives.
Common medical emergencies in dental practice

Signs and symptoms

**Anaphylaxis**

- Urticaria, erythema, rhinitis, conjunctivitis.
- Abdominal pain, vomiting, diarrhoea.
- Flushing and swelling of the face, especially of the eyelids and lips.
- Difficulty in breathing
- Vasodilation leading to low blood pressure and collapse.
- Respiratory arrest
- Cardiac arrest.
Common medical emergencies in dental practice
Management

- Call for emergency service
- Lay the patient flat & raise the feet (restoration of blood pressure)
- administer oxygen (10 litres per minute).

Severe reactions
- adrenaline should be given intramuscularly

1 Life-threatening problems:
Airway: swelling, hoarseness, stridor
Breathing: rapid breathing, wheeze, fatigue, cyanosis, confusion
Circulation: pale, clammy, faintness, drowsy/coma

2 Intramuscular Adrenaline
IM doses of 1:1000 adrenaline (repeat after 5 min if no better)
- Adult: 500 micrograms IM (0.5 mL)
- Child more than 12 years: 500 micrograms IM (0.5 mL)
- Child 6-12 years: 300 micrograms IM (0.3 mL)
- Child less than 6 years: 150 micrograms IM (0.15 mL)
Common medical emergencies in dental practice

Signs and symptoms

Cardiac emergencies
- chest pain
- shortness of breath
- fast and slow heart rates
- increased respiratory rate
- low blood pressure
- poor peripheral perfusion
- altered mental state

Myocardial infarction
- Progressive onset of severe, central crushing chest pain.
- May radiate to the shoulders, arms and into the neck, jaw or through to the back.
- Pale & clammy skin
- Nausea and vomiting
- Weak pulse
- Shortness of breath.
Common medical emergencies in dental practice
Management

Cardiac Emergencies

• Angina
  - Give sublingual GTN spray if this has not already been used.

Myocardial Infarction
  - Call immediately for an ambulance.
  - Give high flow oxygen (10 litres per minute).
  - Give sublingual GTN spray
  - Reassure the patient
  - Give aspirin in a single dose of 300 mg orally, crushed or chewed.
Common medical emergencies in dental practice
Signs and symptoms

Epilepsy

• Aura phase
• Tonic phase
• Clonic phase
Common medical emergencies in dental practice
Management

- Call for help
- High flow oxygen
- Do not attempt to restrain
- Protect the patient from accidental injury.
- When safe place the patient in the recovery position
- Check for ‘signs of life’
- Seek medical support

Epilepsy
Common medical emergencies in dental practice Signs and symptoms

Hypoglycaemia

- **Symptoms and signs:**
  - Shaking & trembling
  - Sweating
  - Headache & difficulty in concentration
  - Slurring of speech
  - Aggression and confusion
  - Fitting
  - Unconsciousness
Common medical emergencies in dental practice
Management

<table>
<thead>
<tr>
<th>Hypoglycaemia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confirm the diagnosis by measuring the blood glucose</strong></td>
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<tr>
<td><strong>Early stages</strong></td>
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<tr>
<td>• Oral glucose (repeated after 10 minutes)</td>
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<tr>
<td><strong>Severe cases</strong></td>
</tr>
<tr>
<td>• Call for Emergency Assistance</td>
</tr>
<tr>
<td>• IM Glucagon should be given</td>
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<tr>
<td>• Re-check blood glucose after 10 minutes</td>
</tr>
<tr>
<td>• Once alert give a drink and food high in glucose</td>
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<tr>
<td>• If patient becomes unconscious, always check for ‘signs of life’</td>
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</tbody>
</table>
Common medical emergencies in dental practice

Signs and symptoms

**Syncope**
(vasovagal attack, simple faint)

- Patient feels:
  - faint / dizzy / light headed;

- Signs:
  - slow pulse rate
  - pallor and sweating
  - nausea and vomiting

- Patient may lose consciousness.
Common medical emergencies in dental practice
Signs and symptoms

Syncope

- Lay the patient flat
- Give oxygen, loosen any tight clothing around the neck
- Expect rapid recovery
- Unresponsive - always check for ‘signs of life’
Common medical emergencies in dental practice
Signs and symptoms

Choking

The patient may:
- cough and splutter.
- complain of difficulty breathing.
- wheeze
- stridor

They may develop ‘paradoxical’ chest or abdominal movements.

They may become cyanosed and lose consciousness.
Common medical emergencies in dental practice
Management

Choking

- Encourage to cough vigorously
- If can’t cough, sharp back blows/abdominal thrusts should be delivered.
- Remove any visible foreign bodies from the mouth and pharynx.
- Treat wheeze with a salbutamol inhaler
- If foreign material aspirated or patient symptomatic refer to hospital as an emergency
- If the patient becomes unconscious, start BLS
Adult and Child Choking Algorithm

Assess severity

Severe airway obstruction (Ineffective cough)
- Unconscious: Start CPR
- Conscious: 5 back blows, 5 abdominal thrusts

Mild airway obstruction (Effective cough)
- Encourage cough
  - Continue to check for deterioration to ineffective cough or relief of obstruction
The **ABC** of medical emergencies

**Airway**

Partial obstruction
- air entry is reduced and noisy
  - stridor
  - wheeze
  - snoring
- ‘see-saw’ respirations

Complete obstruction
- blue lips and tongue
- no breath sounds

**What to do!**
- airway clearance
  - head tilt/ chin lift
  - jaw thrust
- remove visible foreign bodies, debris
- simple airway adjuncts
  - oropharyngeal
  - nasopharyngeal
- give oxygen
The ABC of medical emergencies

**Breathing**

- Look, listen and feel
- Count the respiratory rate
- Assess the
  - depth of each breath
  - pattern of respiration
- Listen to breath sounds
  - gurgling
  - stridor
  - wheeze
The **ABC** of medical emergencies

**Circulation**
- Look at the colour of the hands and fingers
- Assess the limb temperature
- Assess capillary refill time
- What is the pulse rate
- Is the pulse strong or weak
Adult Basic Life Support Algorithm

Based on the Resuscitation Council (UK)
Adult BLS

• Unresponsive adult
• Check safe environment
• Shout for help
• Shake to rouse
• Check airway
• Check breathing
• If not breathing send for an ambulance
Adult BLS

• Start chest compression, do 30 compressions
• Give 2 breaths
• Follow by 30 compressions
• Continue until ambulance arrives
  – Avoid interruptions
  – Avoid provider fatigue
Adult BLS

Other considerations

• Airway adjuncts
• Pocket masks
• Oxygen
• Bag valve mask
Child and Infant BLS

Child – one year old up to puberty
Infant – less than one year

Procedure
• Unresponsive child
• Check safe environment
• Shout for help
• Shake to rouse
• Check airway
• Check breathing
• If not breathing give 5 rescue breaths
Child and Infant BLS

When to send for an ambulance

• When in a team – send as soon as you know the patient is not breathing

• If alone – perform CPR for one minute then call for an ambulance
Child and Infant BLS

• No obvious sign of circulation
• Start chest compression
  - rate of 15 compressions to 2 breaths
• For infant use two finger pressure
• For young child use the heel of one hand
• For an older child use two hands