Emergency Equipment, Medical Emergencies and Basic Life Support

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Training Objectives

- Recognise current guidelines and requirements
- Emergency Equipment and Emergency Drugs that must be available in the Dental Practice
- How to recognise and treat a medical emergency
- Assess an acutely sick patient using (DR) ABCDE approach
- The Recovery Position
- How to carry out Basic Life Support with and without the use of emergency equipment – children and adults
- The use of an AED
Quality standards for cardiopulmonary resuscitation practice and training

• Published by the Resuscitation Council Guidelines November 2013

• Now a separate document for emergency equipment requirement – Minimum equipment list for cardiopulmonary resuscitation in Primary Dental care

• Medical Emergencies in General Dental Practice’ which will no longer be supported or available on the RC (UK) website. Those requiring information on medical emergencies encountered in dental practice (other than cardio respiratory arrest) are referred to the relevant section in the British National Formulary

• All clinical areas should have immediate access to an automated external defibrillator (AED).
Quality standards for cardiopulmonary resuscitation practice and training

• Primary dental care providers & dental healthcare professionals should **undergo training** in **cardiopulmonary resuscitation** (CPR) including **basic airway management** and the use of an AED.

• Dental practitioners and other dental care professionals who work with children should learn the differences in CPR (from CPR in adults) **for use in children** and practise these on paediatric manikins.

• **Transfer of patient** - Written documentation containing details of the **dental procedure** (if any), **medical emergency**, any **treatment given** and the **name of the Dental Practitioner** should all accompany the patient to hospital.
Minimum equipment list for cardiopulmonary resuscitation in Primary Dental care

• All clinical dental areas should have **immediate access** (within the first minutes of a cardiorespiratory arrest) to **oxygen, resuscitation equipment for airway management including suction**, and an automated external defibrillator (AED)

• For emergency drugs list – now refer to the latest edition of the **British National Formulary (BNF)**
GDC Guidance

- Regular **scenario based exercises** within the practice
- All staff members must know **their role** in the event of an emergency
- All staff members need to be **trained** in dealing with such an emergency
- **Annual** updates required
Medical Risk Assessment

• Assess patients using a risk stratification scoring system. A medical and drug history will help to identify patients at particular risk and measures to adopt to reduce the chance of a problem arising:

• Low, Medium, High Risk – Mark on Medical History

• Asthmatic patient – frequency? Hospitalised? Medication used?

• Epileptic Patient – Frequency? Medication? Their own signs/symptom's?
Emergency Protocol

• A Medical emergency protocol must be in place

• The protocol must be specific and relevant to YOUR practice

• All staff members must be aware of the practices protocol

• Review the protocol regularly

• Carry out practice based scenarios in relation to the protocol
Emergency Drugs

- Glyceryl Trinitrate Spray (400mg dose)
Emergency Drugs

- Salbutamol aerosol inhaler (100mg/actuation)
Emergency Drugs

- Adrenaline injection (1:1000, 1mg/ml)
Emergency Drugs

- Glucagon injection (1mg)
Emergency Drugs

- Aspirin dispersible (300mg)
Emergency Drugs

- Oral glucose solution/tablet/gel or powder
Emergency Drugs

• Midazolam (5mg/ml or 10mg/ml buccal)
Emergency Drugs

- Oxygen 340-400 litres
Emergency Equipment

• The following is the **MINIMUM** recommended:

• Portable suction with appropriate suction catheters and tubing
Emergency Equipment

- Single use sterile syringes and needles
Emergency Equipment

• Spacer device
Emergency Equipment

- Automated blood glucose measurement device
Emergency Equipment

- Child and adult oxygen face mask with tubing
Emergency Equipment

- Face mask (pocket mask) to assist with BLS, with oxygen valve
Emergency Equipment

- Bag mask valve (ambu bag) with oxygen reservoir and tubing (1ltr bag), adult and child complete with a range of clear masks to attach (sizes 1-4)
Emergency Equipment

- Basic set of oropharyngeal airways (sizes 0, 1, 2, 3, and 4)
Emergency Equipment

- Automated External Defibrillator
Emergency Drugs & Equipment

- Emergency Drugs & Equipment are to be checked each week and evidence recorded

- **Batch numbers** and **expiry dates** of each emergency drug/equipment is to be logged

- Procedures must be in place for replacing emergency drugs/equipment due to expire

- Procedures must be in place for the disposal of expired emergency drugs

- Store emergency drugs/equipment in an area where they are secure from any unauthorised access (manned area) but are readily available and easy to retrieve (not locked away during surgery opening times)

- **All staff members** must be aware of the location of emergency equipment
Medical Emergencies within the Dental Practice
Myocardial Infarction

Signs and Symptoms

• Local Chest pain

• Pain can radiate into the jawline and left arm

• Pale cold clammy skin

• Difficulty erratic breathing

• Nausea, sometimes vomiting
Myocardial Infarction - Treatment

- Call 999
- Give high flow oxygen (15 litres/min)
- Administer sublingual GTN spray (may not be effective)
- Administer aspirin 300mg orally crushed or chewed (inform Ambulance crew if given)
- Reassure and allow to rest where comfortable
- If patient becomes unconscious and their breathing stops – Commence CPR
Asthma

• Signs and Symptoms

• Inability to complete sentences in one breath

• Respiratory rate > 25 per minute

• Tachycardia (heart rate > 110/min)

• Life Threatening Asthma - Exhaustion, confusion, decreased conscious level
Asthma - Treatment

• Administer high flow Oxygen

• Administer Salbutamol Inhaler (practices or patients own if available), up to 10 activations, using spacer if patient requires

• No improvement after 10mins, another 10 activations

• Call 999 if no improvement

• Place the patient in a comfortable position

• Monitor the patient and reassure

• If the patient becomes unconscious and the breathing stops – commence CPR
Diabetes - Hypoglycaemia

- Signs and Symptoms
  - Shaking and trembling
  - Sweating
  - Headache
  - Difficulty concentrating/vagueness

- Slurring of speech
  - Aggression and confusion
  - Fitting
  - Unconsciousness
Hypoglycaemia - Treatment

• Check blood glucose levels < 3 mmol/litre

• **Early stage** (patient is cooperative/conscious/intact gag reflex)

• Oral glucose – powder/tablet/sugary drink

• **Less cooperative** – may be easier to administer the glucose gel, buccally, whole tube

• **Later Stage** (patient is not cooperative/unconscious/no gag reflex in tact)

• Glucagen Injection
Glucagon Injection
Glucagon Injection

- Mix the two water with the tablet and administer intra muscularly

- Adults = 1mg, Children (< 8 years) = 0.5mg

- May take 5-10 minutes to work, sometimes this can be longer

- May be ineffective if patient is anorexic or an alcoholic

- Once the patient is alert and responsive, give them a glucose tablet/drink and, if possible, a high carbohydrate food

- Arrange for someone to collect the patient and accompany home
Syncope (Faint)

- **Signs and Symptoms**
  - Patient feels faint/dizzy/light headed
  - Slow pulse rate
  - Pallor and sweating
  - Nausea and vomiting
  - Loss of consciousness
Syncope - Treatment

- Lay the patient flat on the floor – legs above head or adjust the dental chair
- Loosen any tight clothing
- Ensure the room is well ventilated and the patient is kept cool
- Monitor the patients breathing, if at any point this stops – Commence CPR
Epileptic Seizure

• **Signs and Symptoms**

• Brief warning or “aura”

• Sudden loss of consciousness, patient becomes rigid, falls and becomes cyanosed

• Jerking movements of the limbs, tongue may be bitten

• Seizure lasts a few minutes, patient can become floppy but remains unconscious

• Generally regain consciousness after variable time but may remain in a confused state
Epileptic Seizure - Treatment

- Ensure patient is safe from danger

- Make a note of the time

- Once the convulsive movements have stopped, check for signs of life, if breathing place in the recovery position and continue to monitor

- Prolonged recovery – call 999
Epileptic Seizure - Treatment

• If the seizure is prolonged (> 5mins) or recurrent ;

• Call 999

• Administer Buccal Midazolam

  Adult = 10mg  Child 1 to 5yrs = 5mg / 5 to 10 yrs = 7.5mg
Epileptic Seizure – Home Or Hospital?

• If the patient has a history of epilepsy and fully recovers, call for a relative to collect the patient

• Patients first seizure – hospital

• Prolonged or repeated - call 999 – hospital

• Prolonged recovery – call 999 – hospital

• The patient is difficult to monitor – call 999 - hospital

• Injury has occurred – hospital
Choking

Signs and Symptoms

• Coughing and spluttering
• Complaint of difficulty breathing
• Noisy breathing with wheezing
• ‘Paradoxical’ chest /abdominal movements
• Cyanosis (blue/purple colouration) and loss of consciousness
Choking – Treatment

• Encourage the patient to cough

• Deliver 5 sharp heavy back blows, if unsuccessful

• Abdominal Thrusts – 5

• Repeat – 5 back blows, 5 abdominal thrusts

• If the patient becomes unconscious and the breathing stops, commence CPR
Choking - Treatment

Breastbone
Anaphylaxis

- Signs and Symptoms
  - Abdominal pain
  - Vomiting/diarrhoea
  - Sense of impending doom
  - Flushing or may become very pale

- Swelling of the soft tissues – eyelids, airway
- Wheezing, difficulty in breathing, airway obstruction
- Rash, blotchy skin
Anaphylaxis
Anaphylaxis - Treatment

• Call 999

• Administer Adrenaline 1:1000 – intramuscular, 90 degree angle

• Adult = 0.5ml

• Child 6-12 yrs = 0.3ml

• Child < 6 yrs = 0.15ml

• Repeat if no improvement after 5 mins
Anaphylaxis - Treatment

- Administer high flow Oxygen

- Place patient in a comfortable position – lie flat and raise the legs if breathing not compromised

- Monitor, if the patient becomes unconscious and the breathing stops – Commence CPR
A,B,C,D,E Approach

• Always use when assessing a patient

• A = Airway, maintain, check for any obstruction

• B = Breathing, assess, look, listen, feel

• C = Circulation, a further check that can be complete (conscious patient)

• D = Disability, check medical history, Examine pupils (Pupils Equal And Reactive to Light)

• E = Exposure, loosen tight clothing, check for rash
Collapsed Patient, Unconscious, Breathing
Danger

Before approaching the patient check for Danger;

• Liquids – Slip Hazard
• Objects – Trip Hazard
• Traffic
• Sharps
• Overhead light
• X-ray arm
Response

- **A** = Alert, are they?
- **V** = Voice, call their name, ask them a question, loud/clear
- **P** = Pain, tap the patient
- **U** = Unresponsive, are they still unresponsive?
No Response - CALL FOR HELP
Open the Patients Airway

- Check inside the patients mouth – NO blind finger swoop
- Open the patients airway, head tilt chin lift
- Maintain the airway
Check the Patients Breathing

- Listen, feel and look – no longer than 10 seconds
- Adult 12-20 breaths per minute = Normal
- Child 20-30 breaths per minute = Normal
- Ignore agonal gasps, occasional gasps
Patient is breathing, call 999, unconscious patient that IS breathing
Recovery Position
Recovery Position - Child

- > The age of 1 year
- Same position as an adult
- Maintain airway
- Monitor
Recovery Position - Baby

- Child < 1 years of age
- Maintain airway
- Monitor Breathing
Recovery Position in the Dental Chair

• Do NOT lift the patient from the chair

• Put the dental chair flat

• Raise one shoulder up off the back of the chair and place something underneath it to keep in that position (cushion, blanket, glove box)

• Turn the head and lift the chin
Recovery Position

Once in the recovery position

• A – Airway

• B – Breathing

• C – Circulation

• D – Disability

• E – Exposure

• If the patients breathing stops at any time, place on their back and commence CPR
Basic Life Support
Danger

Before approaching the patient check for Danger;

- Liquids – Slip Hazard
- Objects – Trip Hazard
- Traffic
- Sharps
- Overhead light
- X-ray arm
Response

- **A** = Alert, are they?
- **V** = Voice, call their name, ask them a question, loud/clear
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Open the Patients Airway

- Check inside the patients mouth – **NO** blind finger swoop
- Open the patients airway, head tilt chin lift
- Maintain the airway
Check the Patients Breathing

- Listen, feel and look – no longer than 10 seconds
- Adult 12-20 breaths per minute = Normal
- Child 20-30 breaths per minute = Normal
- Ignore agonal gasps, occasional gasps
Patient is NOT breathing, call 999, unconscious patient that is NOT breathing
Commence Basic Life Support - Compressions

- Kneel next to the patient
- Place hands centre of the chest
- Lean over the patient keeping your arms straight
- 30 compression, rate of 120 per minute, depth of 5-6cm
Mouth to Mouth

- Head tilt chin lift
- Form a good tight seal around the patient's mouth with your mouth
- Two breaths ONLY whether effective or not
- Continue 30:2
Compression Only CPR

- For lay people who have received no training
- If protective barriers are not available
Using Emergency Equipment

• Patient NOT breathing

• Call 999 and get a staff member to collect the emergency kit

• Commence CPR whilst awaiting the emergency Equipment
Pocket Mask
Ambu Bag/Bag Mask Valve
CPR – Children > 1 year

- 5 initial rescue breaths
- Still no breathing – commence CPR
- 30 compressions
- 2 breaths
CPR – Infant < 1 year

- Open the airway using one finger, do not tilt the head too far
- 5 initial 1 second rescue breaths, covering the nose and mouth with your mouth
- Still no breathing, commence CPR
- 30 compressions, two fingers centre of the nipple line
- 2 breaths
Automated External Defibrillator

- Early AED increases the survival rate:
  - 1 minute = 10% increase
  - 1 minute delay = 10% reduction
AED Pad Position
AED Pad Position – Child < 8 years
Automated External Defibrillator
Training Outcomes

• Understand current guidance

• Aware of emergency equipment/drugs that need to be available in the dental practice

• How to recognise and treat a medical emergency

• How to assess an acutely sick patient using (DR) ABCDE approach

• How to carry out the Recovery Position

• How to carry out Basic Life Support with and without the use of emergency equipment – children and adults

• The use of an AED