

**Dental Council of New Zealand**

**Code of Practice**

**Medical Emergencies in Dental  
Practice**

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**Primarily based on the NZDA Code of Practice: Medical Emergencies in  
Dental Practice**

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# CODE OF PRACTICE

## 1. INTRODUCTION

Studies have shown that medical emergencies do occur in the practice of dentistry. Oral health professionals and their staff need to have appropriate skills, training and equipment available to deal with potentially life-threatening conditions.

The New Zealand Resuscitation Council has published national guidelines with graduated levels for training and management of common life threatening conditions. These guidelines are for all health professionals.

- **Oral health professionals must be adequately prepared and equipped to deal with these common life threatening conditions.** Dental Therapists, Dental Hygienists and Clinical Dental Technicians must have completed training in the areas articulated in this Code, to a level equivalent to the NZRC Certificate of Resuscitation and Emergency Care (CORE) Level 3.<sup>1</sup>

CORE Level 1 is suitable for Dental Technicians as they have little direct contact with public and little or no access to emergency equipment or drugs. This training must be revalidated every four years.

## 2. PREPARATION FOR EMERGENCIES

### 2.1 Prevention

**A comprehensive medical history must be recorded for all patients.** This medical history form must be updated regularly. An assessment should be undertaken for patients with unstable or severe medical conditions as to their suitability for management the oral health professional's practice. Patients with severe or unstable medical conditions should be referred for treatment in an appropriate-level health care facility.

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<sup>1</sup> Note that the NZRC CORE 3 course is four days long and contains material, which is not necessarily relevant to dental practice. Dental therapists, dental hygienists and clinical dental technicians can therefore best meet the training requirements by undertaking either:

- the NZRC CORE Level 4 (modular) course or equivalent; or
- a course provided by a trainer certified to at least NZRC Level 3 which includes practical skills of resuscitation (with emphasis on the emergency situations set out in this code), ABC, adult collapse, childhood collapse, airway management (health professional level) and AED.

## 2.2 Training

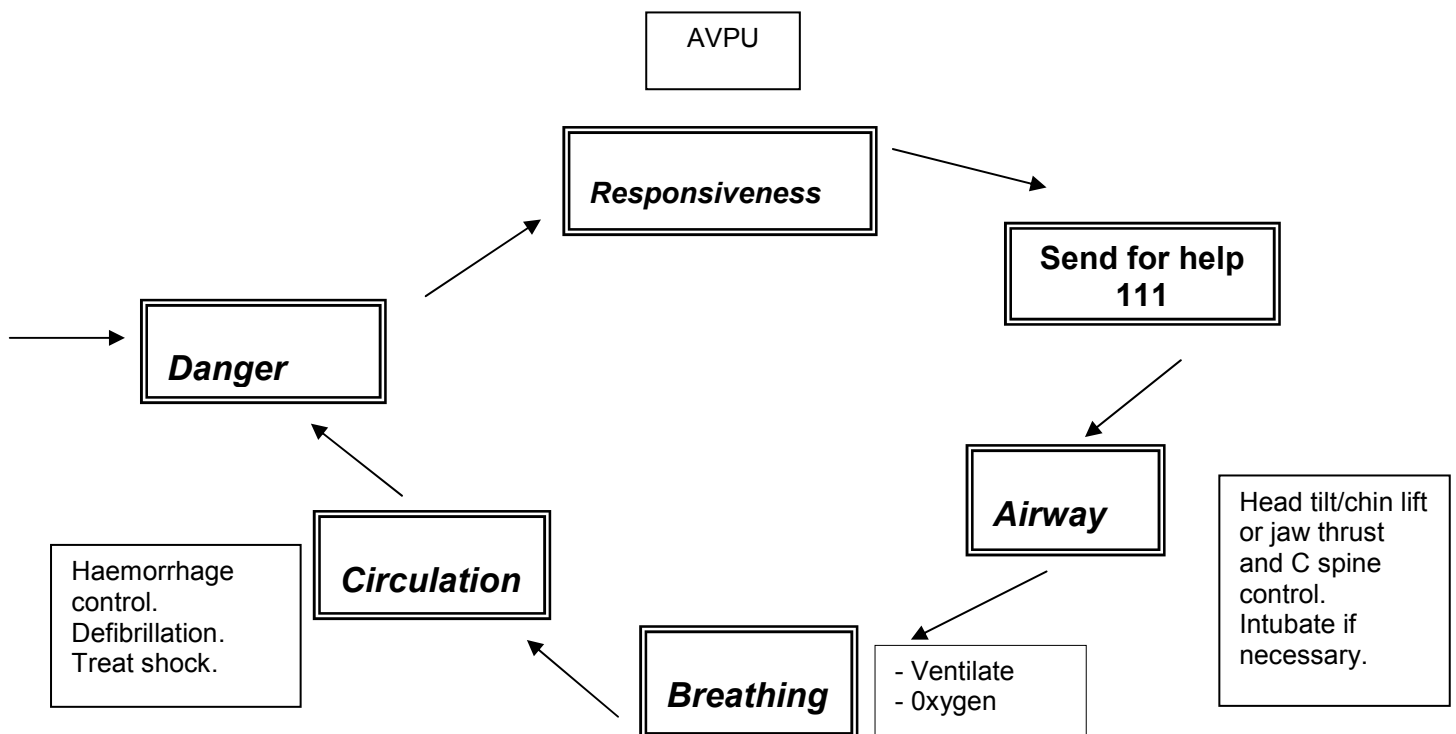
All staff in a dental practice should have appropriate training. A team approach to management of medical emergencies should be developed. Protocols should be in place so that all staff members know their role in managing emergency situations. The dental team should regularly practise scenarios within the practice setting.

## MEDICAL EMERGENCIES – INFORMATION

### 1. GENERIC RESPONSE TO THE UNCONSCIOUS PATIENT

Initial assessment and management of an unconscious/collapsed patient follows a similar pattern despite the diversity of possible causes. Unconsciousness can be caused by deterioration of medical conditions, drug administration or trauma. The following algorithm is a guide which can be followed in clinical practice and community settings. The oral health professional may be called upon to assist or manage resuscitation in the community e.g. cardiac arrest, motor vehicle accident. Whenever you recognise that a serious medical emergency exists, always go through six steps of DRS-ABC. No other aspect of emergency care is as important.

### DRS-ABC



**Danger** - Ensure your safety and then the safety of the patient. The patient/victim may need to be moved out of danger.

**Responsiveness** - The most important assessment that decides much of your following actions is a simple tap or shake and a command “**are you okay?**” This will quickly tell you whether the person’s life is in immediate danger. A casualty who can respond with a few words has an airway, can breath and has a circulation. A person who is unresponsive may have none and is at risk of aspiration and airway obstruction. Keep in mind a simple assessment of level of consciousness.

#### **AVPU**

**A**=Alert,  
**V**=response to verbal stimulus,  
**P**=response to pain,  
**U**=unresponsive.

**Send** - someone else for help (dial 111), with instructions to return and confirm that the ambulance is on its way.

**Airway** – Open the airway by head tilt and chin lift. If the casualty is a victim of trauma the cervical spine may be damaged, therefore use jaw thrust to open the airway and hold the head to keep the head and neck still and in alignment with the rest of the body.

**Breathing** - The breathing must be assessed quickly. If there is no breathing, start rescue breathing. Consider intubation to protect the airway. If the breathing is inadequate, the rescuer may need to give assisted rescue breathing. The breathing check will also indicate any difficulty with breathing from asthma, heart disease, anaphylaxis.

**Circulation** – Assess quickly, and if there is no circulation, start chest compressions immediately. If there is bleeding use direct compression to stop further blood loss. Once **DRS ABC** has been assessed and secured, give consideration to other aspects of emergency care and positioning of the patient/victim. Some patients may deteriorate after the initial assessment. It is therefore best to **CONSIDER DRS-ABC as a cycle**, performed regularly while awaiting the ambulance.

## 2. ADULT COLLAPSE

Many conditions present an immediate threat to life. Almost all of these conditions do so by preventing circulation and/or oxygenation. The practice of resuscitation is focused on the restoration and maintenance of circulation and oxygenation.

The sequence of actions for the New Zealand Resuscitation Guidelines for Adult Collapse is summarised as follows:

1. Ensure your own safety and then ensure the victim is out of further danger.
2. Check responsiveness. Gently stimulate the victim and shout, "Are you all right?"
3. **Send or shout for help.**
4. Open the airway with chin lift, head tilt or jaw thrust. Remove obvious causes of airway obstruction.
5. Within 20 seconds check for breathing and assess for signs of circulation. Feel the carotid pulse while looking for other signs of life, movement or breathing.
6. If circulation is absent, the onset of arrest occurred within two minutes, a defibrillator is not immediately available and chest compressions have not already been started, give a single precordial thump.
7. **Go for help if no help is available.**
8. Give two effective breaths, sufficient to make the chest rise and fall. Make up to five attempts to deliver these breaths.
9. Position hands over the junction of the lower and middle third of the sternum. **Compress the chest at a rate of 100 per minute.** Depth of compression is 4-5cm. Both single and double rescuers should deliver cycles of 30 compressions, followed by two attempted breaths.
10. **Ratio of compressions to breaths 30:2.**

## 3. CHILDHOOD COLLAPSE

Whereas in adults the focus is on early defibrillation, in children the focus is on early ventilation.

The sequence of actions for the New Zealand Resuscitation Council Guidelines for Infant and Child Collapse is summarised as follows:

1. Ensure your own safety and ensure the victim is not in further danger.

2. Assess responsiveness by speaking loudly or pinching gently. Do not shake a baby. If unresponsive, shout or send for help.
3. Open the airway with head tilt (but avoid excessive extension) and chin lift. Use the jaw thrust manoeuvre if you suspect cervical trauma. Keep the mouth slightly open and remove any obvious cause of airway obstruction.
4. If the chest or abdomen moves but there is no breathing at the mouth, reattempt airway opening and consider foreign body obstruction.
5. If the breathing is absent or inadequate, give five breaths each lasting 1-1.5 seconds (for an infant, give a mouthful of air at a time).
6. Taking no more than 10 seconds, check for the presence of circulation.
7. If no circulation is present, or if you are unsure, or if in an infant the pulse rate is less than 60 per minute, **start external chest compressions at the rate of 100 compressions per minute.**
8. For a child aged 1-8 years, press down on the breastbone with the heel of one hand only. For an infant, press down on the breastbone using 2-3 fingers of one hand only.
9. **Ratio of compressions to breaths for CPR in child, 30:2.**
10. After one minute of CPR, if you are alone and have not already done so, shout or go briefly for help.
11. Resume CPR as soon as possible.
12. After every three minutes of CPR, reassess the circulation.

#### 4. EMERGENCY SITUATIONS – SPECIFIC RESPONSES

**Note: Oral health professionals should manage the following emergencies within the level of their competence, but ensure that ambulance services are summoned (111) promptly when indicated.**

##### 4.1 Anaphylaxis

###### *Definition*

A potentially life-threatening immune reaction to foreign material.

###### *Presentation*

Urticaria, angioedema, hypotension, tachycardia, bronchospasm.

###### *Management*

Dependent on severity of presentation.

Assess the degree of cardiovascular collapse (pulse and blood pressure).

Assess the degree of airway obstruction (upper - angioedema, lower – bronchospasm).

- Stop administration of drug.
- Call for help (111).
- Put the patient supine.
- Check pulse and blood pressure.
- Assess breathing difficulty (stridor, wheeze, can't speak).
- Give oxygen.
- Monitor consciousness, airway, breathing, circulation, pulse.
- If shocked, with angioedema or bronchospasm:
  - Raise patient's legs if low blood pressure while waiting for ambulance.

#### 4.2 Asthma

Most asthma-related deaths occur outside the hospital.

##### *Management.*

Assess severity.

- **Acute severe** - patient unable to speak in complete sentences, pulse rate greater than 110 per minute, respiratory rate greater than 45 per minute.
- **Life threatening asthma** – “Silent chest”, cyanosis, sweating, hypercarbic flush, bradycardia/hypertension, confusion, agitation.
  - If more than one feature is severe, or if any feature is life-threatening, arrange hospital transfer.

#### 4.3 Diabetes

The most common diabetic emergencies are:

- Low blood sugar – **hypoglycaemia** in patients on anti-diabetic medications.
- High blood sugar – **hyperglycaemia**, particularly diabetic ketoacidosis.

##### Hyperglycaemia

Clinical symptoms include thirst, increased urine output and dehydration. A progressive reduction in conscious level ensues, with hypotension, and coma and cessation of urine output in severe cases.

##### *Management*

Primary assessment and resuscitation (**DRS-ABC**) to secure the airway, breathing and circulation.

Transport to a hospital facility.

### Hypoglycaemia

Clinical symptoms of hypoglycaemia include: sweating, hunger, tremor, agitation. With progression: drowsiness, confusion and coma.

Assume that any diabetic with impaired consciousness has hypoglycaemia until proven otherwise.

### *Management*

Conscious patients can usually be treated with rapid acting oral carbohydrates, e.g. fruit juice, packets of granulated sugar, glucose powder neat or dissolved in water. After ten minutes this short acting carbohydrate should be followed up with food which contains longer acting carbohydrate. It is important that the victim is not left alone until all danger of hypoglycaemia has passed. If the patient is unconscious, attend to the airway, breathing and circulation. Protect the victim from injury and call an ambulance (dial 111).

## 4.4 Epilepsy

There are several types of epilepsy. In a major seizure there is a sudden spasm of muscles producing rigidity (or tonus). Jerking movements of the head, arms and legs may occur (tonus-clonus). The victim becomes unconscious and may have noisy or spasmodic breathing, with excessive salivation and urinary incontinence.

Status epilepticus occurs when a seizure lasts longer than 30 minutes or when tonic-clonic seizures occur repeatedly.

### *Management*

Remove dangerous objects from the mouth and around the patient, e.g. dental cart.

- Loosen tight clothing.
- Avoid restraining the patient.
- Do not force the mouth open, or attempt to insert any object into the mouth.
- Turn the patient into a stable side-on position, such as the recovery position, as soon as the seizure stops, and open and maintain a clear airway, avoiding the use of aspiration.
- Check for breathing. If absent, follow the guidelines for collapse.
- Allow the patient to sleep under supervision at the end of the seizure.
- On recovery, give reassurance.
- Transfer to hospital if:
  - (i) This was the patient's first fit.

- (ii) Tonic phase lasts longer than five minutes.
- (iii) This was a repeat seizure.
- (iv) Any post-seizure respiratory difficulty.
- (v) Patient has suffered an injury.
- (vi) Post-seizure confusion lasts more than five minutes.

#### 4.5 Chest Pain / Myocardial Infarction

Victims usually begin with varying degrees of atheromatous coronary occlusion. Myocardial infarction is usually initiated by rupture or erosion of a thin cap which overlies these atheromatous plaques. Platelet adhesion and aggregation then occurs over the ruptured surface. The haemodynamic effects of this thrombus formation may lead to prolonged ischaemic symptoms and pain at rest. If the clot occludes the coronary artery a myocardial infarction occurs.

##### *Symptoms and Signs*

Persisting central chest pain, with possible radiation to the left or right arms, jaw, or neck.

- Pain is no longer improved with Glyceryl Trinitrate.
- Nausea, vomiting.
- A sense of impending doom.
- Restlessness.
- Shortness of breath.
- Pallor, cold sweaty skin.
- Pump failure: hypotension, raised venous pressure, tachycardia and possibly pulmonary oedema.

##### *Management*

If acute MI is suspected:

- Give reassurance, and keep the patient warm.
- Sit the patient up if breathless.
- Lay the patient flat if he or she feels faint.
- If the patient has GTN tablets or spray, give one tablet to be chewed or one spray under the tongue.
- Repeat in five minutes; if pain is unrelieved, call an ambulance (dial 111).
- If the patient is not allergic to aspirin, give 300mg aspirin chewed or sucked.
- Continue monitoring level of consciousness and be prepared to initiate adult collapse guidelines if patient becomes unconscious.

#### 4.6 Foreign Body – Upper Airway Obstruction

Severe or complete upper airway obstruction due to a foreign body rapidly progresses to unconsciousness and cardiac arrest within minutes.

##### *Presentation*

- Distress.
- Choking, coughing.
- Cessation of breathing.
- Cyanosis.
- Loss of consciousness.

##### *Management*

###### i. Partial obstruction.

- Encourage patient to cough up or spit out. Initially do nothing else.
- If poor air entry, increasing high pitched stridor, or increased respiratory distress, manage as for complete airway obstruction.

###### ii. Complete obstruction

- Patient cannot speak, breathe or cough.
- If patient is in the dental chair, sit them up, turned side-on in chair. Support chest with one hand and deliver five sharp back blows between the shoulder blades with the heel of the other hand.
- If back blows fail, give five abdominal thrusts (Heimlich manoeuvre).

###### iii. Unconscious obstruction

- Start CPR, with a finger sweep between each cycle.
- Call for medical help promptly.

#### 4.7 Vasovagal Syncope

Usually defined as a transient loss of consciousness due to cerebral ischaemia caused by a reduction in blood supply to the brain. Vasodilatation causes pooling of blood in the peripheries and vagal stimulation causes slowing of the heart. This combination causes a dramatic fall in blood pressure.

##### *Presentation*

Patient feels light headed or dizzy, possibly nauseous, uncomfortable or agitated. Appears pale and sweaty with a thready, slow pulse and hypotension.

##### *Management*

Vasovagal syncope in a fit, healthy young patient:

- Lay the patient flat.

- Relieve any compression on the neck and maintain an airway.
- Raise patient's legs.
- Ensure the patient has access to fresh air.
- When consciousness is regained, patient should be kept supine, and reassured.
- Once pulse and blood pressure recover, slowly raise patient to seated position.

Patients with significant medical problems, or when syncope is prolonged or complicated by seizure activity, should be transferred to a hospital environment for further assessment as indicated.

#### 4.8 Hyperventilation

Prolonged rapid deep breathing often in very anxious patients can lead to profound metabolic changes that may result in loss of consciousness. A fall in arterial carbon dioxide concentration causes cerebral vasoconstriction and respiratory alkalosis.

##### *Presentation*

The patient may notice tingling of the fingers or lips, tetanic spasm of the peripheries, and dizziness. These symptoms tend to increase an anxiety and respiratory rate and depth. Eventually the patient will become unconscious due to a relative cerebral hypoxia. The patient is apnoeic for a period due to reduced respiratory drive with low arterial carbon dioxide concentration. As the arterial carbon dioxide level rises and cerebral vasoconstriction reverses, the patient starts breathing again and regains consciousness. Hyperventilation recommences, and the cycle continues with further loss of consciousness.

##### *Management*

- Reassure patient.
- If patient is conscious, encourage re-breathing into a paper bag to increase inspired carbon dioxide.
- If patient is unconscious, maintain airway until consciousness is regained.
- Place in the recovery position and give reassurance, while the patient continues re-breathing into paper bag.