

Medical Emergencies in Dental Practice – Practice Standard

December 2016

Dental Council
Te Kaunihera Tiaki Niho

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This practice standard was last reviewed in September 2014. This version incorporates updates made in December 2016 to reflect the NZRC CORE course changes, and the new sedation practice standard resuscitation training requirements approved in October 2016.

1. Purpose

- 1.1. Oral health practitioners have a responsibility to put their patients' interests first, and to protect those interests by practising safely and providing good care. The practitioner's ability to deal with medical emergencies that arise in practice is a significant aspect of meeting their responsibility to, and the expectations of, their patients.
- 1.2. Medical emergencies can and do occur in dental practice¹. The early and effective management of a medical emergency significantly improves the outcomes and reduces the adverse effects of such an occurrence. Oral health practitioners need to have appropriate skills, training and equipment available to deal with potentially life threatening conditions^{2, 3}.
- 1.3. The purpose of the Dental Council Medical Emergencies in Dental Practice - Practice Standard ('practice standard') is to set the minimum standards for registered oral health practitioners for the level of resuscitation training; the recertification intervals; and the equipment and drugs that need to be available in the case of a medical emergency. The standards include recommendations for implementation in the practice of dentistry, including subset scopes of practice defined for oral health practitioners.
- 1.4. The minimum standard requirements in relation to equipment and drugs specified in the practice standard apply in environments where scope of practice activities of a clinical nature are undertaken by a registered oral health practitioner. These include preventive care and care delivered at "off-site" facilities such as mobile units, domiciliary care or rest homes.

2. Interpretation of requirements

Must – A requirement expressed as "must" is a minimum standard that all oral health practitioners must adhere to and comply with.

Should – A requirement expressed as "should" is a strong recommendation, but compliance will not be monitored.

¹ Broadbent, J.M., Thomson, W.M. The readiness of New Zealand General Dental Practitioners for Medical Emergencies. NZDJ 97: 82-86; 2001.

² Zacharias, M., Hunter, K.MacD. Cardiopulmonary Resuscitation in Dental Practice – an update. NZDJ 90: 60-65; 1994.

³ New Zealand Resuscitation Council. Basic Resuscitation 2002 Resuscitation 2000

3. Practitioners' legal and ethical responsibility

- 3.1. It is an oral health practitioner's ethical and legal obligation to attend to a medical emergency. Further, it is the public's expectation that a health professional will be in a position to assist them in a medical emergency situation.
- 3.2. Oral health practitioners have a legal and ethical responsibility to provide good care to the public within their level of competence and to put patient safety first at all times.
- 3.3. The Code of Health and Disability Services Consumers' Rights provides that every consumer has the right to have services provided with reasonable care and skill (Right 4(1)) and that comply with legal, professional, ethical, and other relevant standards (Right 4(2)).
- 3.4. Council expects oral health practitioners to attend to a medical emergency within their competence and skill levels, supported by their current training to the level prescribed in the practice standard.
- 3.5. Failure to respond to a medical emergency is a significant departure from the standard of care expected of oral health practitioners.
- 3.6. Instant decisions may have to be made in an emergency situation, and would be taken into account when deciding whether there had been a failure to meet the appropriate professional standard.

4. Preparation for medical emergencies

- 4.1. The New Zealand Resuscitation Council (NZRC), as the guideline and standard setting body for resuscitation in New Zealand, publishes national guidelines and policy statements to provide all those involved in resuscitation education and practice with treatment recommendations based, where possible, on scientific evidence. These documents are reviewed and amended as new evidence comes to hand.
- 4.2. The guidelines and policy statements are available on the NZRC website at the following link: www.nzrc.org.nz/guidelines
- 4.3. The management of some medical emergencies prevalent in the clinical practice of oral health practitioners, are not specifically covered in the resuscitation training that oral health practitioners undertake. To assist practitioners keeping up to date with guidelines on specific responses for these medical emergencies, the New Zealand Dental Association's *Medical Emergency Situations: Specific Responses* is included as Appendix A in the practice standard. A *Quick Reaction Guide* for medical emergencies is provided as Appendix B.
- 4.4. Practitioners must read the *Medical Emergency Situations: Specific Responses* information, provided as Appendix A, prior to attending resuscitation training. It is anticipated that oral-health practitioner specific CORE Immediate or equivalent courses would reinforce this information.

Medical History

- 4.5. A comprehensive medical history is fundamental in the prevention and management of a medical emergency, and must be recorded and regularly updated for all patients.
- 4.6. Patients who have a severe medical condition/s or an increased risk of a medical problem arising should be identified. An assessment should be made to determine if any additional precautions should be taken, or if referral is required to a more suitably qualified practitioner or a more appropriate medical environment, such as a hospital-based dental practice. The detailed requirements of practitioners undertaking a medical history are contained in the Dental Council *Patient Information and Records Practice Standard*.

Resuscitation training

- 4.7. The NZRC provides graduated levels of resuscitation training. CORE Immediate has been developed as the foundation level of resuscitation training appropriate for New Zealand's health professionals.
- 4.8. Oral health practitioners must successfully complete the following minimum levels of resuscitation training:

Professions	Resuscitation Training Levels
Dentists/Dental Specialists - not performing sedation	CORE ⁴ Immediate or equivalent
Dentists/Dental Specialists performing ANY form of sedation, with the exception of relative analgesia (RA)	NZRC CORE Advanced From 1 October 2019 onwards this course must include in the scenario training one or more scenarios relevant to the management of sedation-related complications.
Dental Therapists, Dental Hygienists, Oral Health Therapists, Orthodontic Auxiliaries, Clinical Dental Technicians	CORE Immediate or equivalent
Dental Technicians undertaking restricted activities	CORE Immediate or equivalent
Dental Technicians	Basic Life Support Skills

⁴ Certificate of Resuscitation and Emergency Care

4.9. The Certificate of Resuscitation and Emergency Care (CORE) Immediate or equivalent course must contain the following modules to meet the minimum standards:

Airway management	Adult collapse	Childhood collapse
Manual airway opening	Adult collapse management plan	Childhood collapse management plan
Airway suction	Team scenario practice for adult collapse	Team scenario practice for childhood collapse
Oropharyngeal airway insertion	Use of Automatic External Defibrillation	Use of Automatic External Defibrillation
Mouth to mask ventilation	<i>Choking/ Airway obstruction</i>	<i>Choking/ Airway obstruction</i>
One person bag-mask ventilation	<i>Management of anaphylaxis</i>	<i>Management of anaphylaxis</i>
Two person bag-mask ventilation	<i>Syncope</i>	<i>Asthma</i>
Oxygen delivery	<i>Maternal collapse</i>	

- 4.10. Childhood collapse is **not required** for clinical dental technicians and dental technicians undertaking restricted activities, because of the low prevalence of treating children.
- 4.11. The italicised modules in the above table may not be covered in full in NZRC CORE Immediate or equivalent courses, and the *Medical Emergencies – Information and Specific responses* must be read prior to attending the resuscitation course.
- 4.12. Practitioners requiring NZRC CORE Immediate resuscitation training can still attend a course equivalent to the NZRC CORE Immediate course.
- 4.13. All practitioners providing sedation, with the exception of RA, must successfully complete a NZRC CORE Advanced course. From 1 October 2019, the scenario training included in the course must include one or more scenarios relevant to the management of sedation-related complications; for dentists/dental specialists providing sedation.
- 4.14. The resuscitation training must be revalidated every two years, and evidence of this must be available for verification, if requested by Council, from time to time.
- 4.15. Council does not have any legal jurisdiction over non-registered practice staff (such as dental assistants and administrative staff). However, it strongly recommends that all non-registered practice staff should be trained in Basic Life Support Skills.

- 4.16. A team approach to management of medical emergencies must be developed. Written protocols must be in place in the dental practice so that all staff members know their role in managing emergency situations.
- 4.17. Council recommends a six monthly practice review, involving all staff, of the management of medical emergencies through:
- discussion of the practice policy – including staff members' particular roles, specific response procedures and algorithms developed and/or adopted; and their continuing suitability for the practice, and
 - checking the availability and expiry dates of medical emergency equipment and drugs.
- 4.18. This approach aims to reinforce the particular role of each staff member in the management of a medical emergency and ensure an appropriate and co-ordinated emergency response.

International training courses

- 4.19. Practitioners practising and completing their emergency training in Australia must successfully complete courses provided by Australian Resuscitation Council accredited course centres:
- Courses equivalent to NZRC CORE⁵ Immediate : Advanced Life Support Level 1 - Immediate Life Support (ALS1/ILS)
 - Courses equivalent to NZRC CORE Advanced: Advanced Life Support Level 2 - Advanced Life Support (ALS2/ALS)
 - Courses for Basic Life Support Skills course by a credible provider.
- 4.20. The Australian Resuscitation Council maintains the list of accredited course centres in Australia, and this can be accessed on their website⁶.
- 4.21. Practitioners practising and completing their emergency training in other overseas jurisdictions must successfully complete their emergency training at an accredited emergency training provider/course centre, where applicable. If providers/courses are not accredited or approved, the practitioner must complete their emergency training at a credible provider.
- 4.22. Training courses equivalent to NZRC CORE Immediate must contain the relevant training modules, specified in section 4.9.
- 4.23. The practice standard's training requirements do not replace any additional requirements of other regulatory authorities.

⁵ Certificate of Resuscitation and Emergency Care

⁶ <http://www.resus.org.au/>

Equipment

- 4.24. The following age appropriate equipment must be readily available for dentists, dental specialists, dental therapists, dental hygienists, oral health therapists, orthodontic auxiliaries, and clinical dental technicians:
- Oxygen cylinder, regulator and associated equipment suitable for delivering high flow oxygen
 - Bag mask device with oxygen reservoir
 - Basic airway adjuncts (oropharyngeal airways)
- 4.25. The following age appropriate equipment must *additionally* be readily available for dentists and dental specialists:
- Syringes and needles for drawing up and administering drugs
 - Spacer device to deliver Salbutamol.
- 4.26. The equipment must be checked monthly to ensure it is fully operational. Staff must have training in the use of the equipment in their respective roles.
- 4.27. Early defibrillation of casualties who are in ventricular fibrillation/tachycardia dramatically improves prospects of survival. An AED must be available when administering sedation, with the exception of relative analgesia (RA). An automated external defibrillator (AED) is not mandatory for all oral health practitioners. Where an AED is not available, on-site practitioners should familiarise themselves with the location of the nearest available AED as part of their management of medical emergencies protocol.

Drugs

- 4.28. Drugs must be readily available and not be beyond their expiry date.
- 4.29. They must be stored to facilitate easy access, identification, and in dosages that are easy to administer in an emergency situation.
- 4.30. Oxygen must be available for dentists, dental specialists, dental therapists, dental hygienists, oral health therapists, orthodontic auxiliaries, and clinical dental technicians.
- 4.31. The following drugs must be available for dentists and dental specialists:
- Glyceryl trinitrate
 - Aspirin
 - Adrenaline (1:1000)
 - Salbutamol.
- 4.32. Adrenaline must also be available for oral health therapists and dental therapists.⁷

⁷ This change comes into effect for oral health therapists by no later than end of 2017, and for dental therapists on 1 November 2018, to allow for training on the safe use of adrenaline.

4.33. In settings where there is a reliance on crash response units, such as hospitals and Universities, factors such as accessibility to these emergency services and response time will determine the appropriate emergency equipment and drugs to be held at dental department level.

Additional training, equipment and drugs required for dentists/ dental specialists administering sedation (excluding RA)

4.34. Practitioners administering sedation (excluding RA) must undertake a higher level (NZRC CORE Advanced) of resuscitation training, due to the higher risks of a medical emergency associated with the activity.

4.35. A more complete range of equipment and drugs is required when sedation is performed. Further information regarding the safe use of sedation within dental practice is contained within the Dental Council Sedation practice standard.

4.36. The following *additional*, age appropriate equipment must be readily available when sedation (excluding RA) is performed:

- Advanced airway adjuncts - oropharyngeal and supraglottic airway devices
- Associated equipment for gaining and securing IV access and administering IV fluids and medication
- Automated external defibrillator (AED)

4.37. The following drugs must be readily available when sedation (excluding RA) is performed:

- Appropriate antagonists for sedative drugs being administered, where required
- Dextrose 10%
- Glucagon
- Normal saline 1000ml
- Hydrocortisone injection.

Scheduling of appointments

4.38. Scheduling of appointments should be made to ensure that two staff members are immediately available, with the appropriate level of training, to assist in a medical emergency.

Checklist

For all oral health practitioners -

- Do you record and regularly update the medical history of all patients?
- Do you have current resuscitation training to the minimum prescribed level?
- Does your CORE Immediate or equivalent course contain the following modules:
 - Airway management?
 - Adult collapse?
 - Childhood collapse (not required for clinical dental technicians and dental technicians undertaking restricted activities)?
- Do you revalidate your resuscitation training every two years, and have the necessary documentation to support this, if requested?
- Does your practice have written protocols describing the staff members' roles in management of a medical emergency?

For dentists, dental specialists, dental therapists, dental hygienists, oral health therapists, orthodontic auxiliaries, and clinical dental technicians -

- Do you have the following age appropriate equipment readily available where you practice:
 - Oxygen cylinder, regulator and associated equipment suitable for delivering high flow oxygen?
 - Bag mask device with oxygen reservoir?
 - Oro-pharyngeal airways?
- Additionally for dentists and dental specialists:
- Syringes and needles?
 - Spacer device?
- Is the equipment checked monthly to ensure its operations?
 - Are staff in the practice trained how to use the equipment in an emergency?
 - Is oxygen readily available where you practise?

For dental therapists and oral health therapists -

- Do you have Adrenaline (1:1000) readily available to you?
- Is the Adrenaline easily accessible and identifiable, and not beyond its expiry date?
- Is the Adrenaline available in dosages that are easy to administer?

For dentists and dental specialists -

- Are the following emergency drugs readily available to you?
 - Adrenaline (1:1000)?
 - Salbutamol?
 - Glyceryl trinitrate?
 - Aspirin?
- Are the emergency drugs not beyond their expiry date?
- Are the emergency drugs easily accessible?

- Are the emergency drugs easily identifiable?
- Are the emergency drugs available in dosages that are easy to administer?

For dentists and dental specialists performing sedation (excluding RA) -

- Do you have the following equipment readily available where you practice:
 - advanced airway adjuncts - oropharyngeal and supraglottic airway devices?
 - associated equipment for gaining and securing IV access and administering IV fluids and medication?
 - automated external defibrillator (AED)?
- If you are performing intravenous sedation - do you have the following emergency drugs readily available where you practice:
 - Appropriate antagonists for the sedative drugs being administered?
 - Dextrose 10%?
 - Glucagon?
 - Normal saline 1000ml?
 - Hydrocortisone injection?

This checklist act as a guide only, and can be further developed for the specific drugs, equipment and associated expiry dates of the stock.

Medical emergency situations: specific responses

New Zealand Dental Association Code of Practice – Medical Emergencies in Dental Practice 2012

Anaphylaxis (See Appendix B for a Quick Reaction Guide)

Anaphylaxis is a severe potentially life threatening hypersensitivity reaction to AN ANTIGEN. In the dental setting anaphylaxis may follow administration of a drug or contact with substances used during care.

Presentation: Upper airway (laryngeal) oedema and bronchospasm and low blood pressure may develop. Symptoms may be severe leading to in collapse and cardiac arrest. There are a wide range of potential presenting symptoms which may include:

General	A sense of impending doom
Skin / mucosa	Wheals and itching (urticaria), flushing (erythema), runny nose (rhinitis), conjunctivitis
Breathing	Difficulty with breathing, noisy breaths (stridor), wheezing and/or hoarse voice, respiratory arrest
Cardiovascular	Low blood pressure (vasodilation mediated hypovolaemia), rapid pulse (tachycardia), cardiac arrest
Gastrointestinal	Abdominal pain, vomiting, diarrhoea

Management If an anaphylactic reaction is suspected the administration of any intravenous medications should cease and Basic Life Support procedures (Drs ABCD) should commence immediately. The airway, breathing and the maintenance of blood pressure are crucial. The patient should be laid flat, feet / legs elevated and oxygen administered at a rate of 8-10 litres per minute delivered via a mask and reservoir bag. If available administer isotonic saline intravenously.

If there are marked airway, breathing or circulation symptoms such as rapid breathing, stridor, wheezing, hoarseness, cyanosis, and/or confusion, pallor, clammy skin, drowsy, confused OR coma then 1:1000 adrenaline should be administered intramuscularly (anteriolateral aspect of the centre of the thigh):

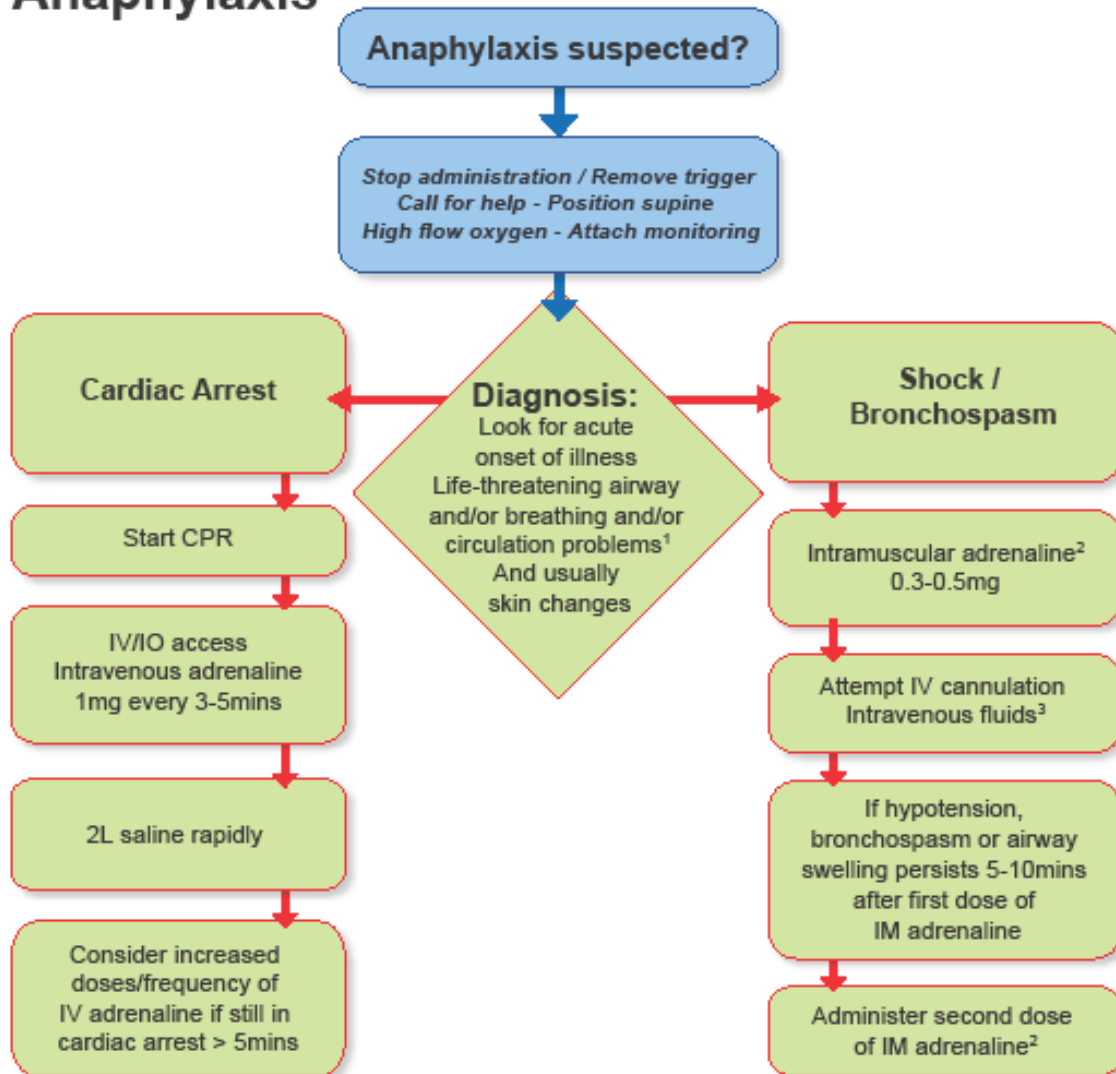
1:1000 Adrenaline emergency doses¹:

Adult and children over 12 years of age:	0.5 mL (500 micrograms)
Child 6 to 12 years of age	0.3mL (300 micrograms)
Child less than 6 years of age	0.15mL (150 micrograms)

Repeat adrenaline administration if there has been no improvement in the symptoms (hypotension, airway swelling or bronchospasm), at 5 minute intervals depending on respiratory function, pulse and blood pressure.

Maintain Basic Life Support procedures (Drs ABCD) until help arrives.

Adult Anaphylaxis



¹Life-threatening problems

Airway (swelling, hoarseness, stridor)
Breathing (rapid breathing, wheeze, fatigue, cyanosis, SpO₂<92%)
Circulation (pale, clammy, low blood pressure, faintness)

²Intramuscular adrenaline

Use 1:1,000 adrenaline / 0.3-0.5mg (0.3-0.5mL). Preferred injection site: upper outer thigh
 Check route and dose before administration (to ensure adrenaline is given IM)

³Intravenous fluids

0.9% Sodium Chloride: 1000mL. Rapid infusion then titrate according to requirements

August 2011

From: NZ Resuscitation Council – Policies and Guidelines. Adult Anaphylaxis

Angina and myocardial infarction

See Appendix B for a Quick Reaction Guide

Presentation Symptoms vary depending on the cause and severity and may include; pallor, 'cold sweat', chest pain, shortness of breath, changes in heart rate (slow or fast), increased respiratory rate, low blood pressure, confusion, loss of consciousness.

Severe symptoms (indicative of a myocardial infarction) may include severe, crushing pain in the centre and across the front of the chest, pain may radiate into shoulders, arms, neck and jaw. Shortness of breath, weak pulse, falling blood pressure and nausea and vomiting may also be observed.

Management: **For undiagnosed chest pain seek urgent medical assistance**

For mild symptoms in patients previously diagnosed with angina administer *glyceryl trinitrate*, 400 micrograms (spray or tablet). If there is no (or only partial) resolution of symptoms repeat glyceryl trinitrate, 400 micrograms (spray or tablet), after 5 minutes. If symptoms persist treat as for 'severe symptoms'.

If symptoms are severe assume myocardial infarction and call for medical help immediately. Position the patient for their comfort, keep warm and provide reassurance and support. Administer glyceryl trinitrate, 400 micrograms (spray or tablet) and if possible administer aspirin 300 milligrams orally. Administer oxygen (15 litres per minute) if the patient is cyanosed or if their level of consciousness deteriorates. If the patient loses consciousness commence Basic Life Support procedures (Drs ABCD).

When medical assistance arrives advise them of the drugs you have administered.

Asthma

See Appendix B for a Quick Reaction Guide

Asthma is a chronic inflammatory disease of the airways with spasm and narrowing leading to obstruction to air flow.

Presentation: The patient will usually have a history of asthma. Symptoms depend on the severity of the attack and include rapid breathing (> 25 breaths per minute), shortness of breath (unable to complete a sentence in a single breath), racing pulse (tachycardia) rate over 110 beats per minute. In severe asthma attacks the breathing rate slows (less than 8 breaths per minute), heart rate slows (less than 50 beats per minute) and the patient may be cyanosed, may be confused, and may have a decreased level consciousness.

Management: The patient should administer their own asthma bronchodilator medication usually a few 'puffs'. If the patient does not have their inhaler or is unable to deliver their own medication a dose (up to 10 activations) of salbutamol should be given using a large volume spacer device.

If the patient does not respond rapidly or if the symptoms worsen (breathing rate slow (<10), heart rate slows (<50), cyanosis develops, patient only able to speak 2-3 words without taking a breath etc) help should be summoned, a further dose of salbutamol administered (10 activations) from the salbutamol inhaler through the large volume spacer device and oxygen (8-10 litres per minute delivered via a mask and reservoir bag.) given. The salbutamol should be repeated at 10 minute intervals until assistance arrives. If the patient becomes unresponsive Basic Life Support procedures (Drs ABCD) should commence immediately.

Choking and aspiration

See Appendix B for a Quick Reaction Guide

Presentation depends on the location and extent of the obstruction. Symptoms include; difficulty breathing, breathing may be noisy (wheeze or high pitch 'crowing' sounds), coughing and/or spluttering, may be unable to breath, speak or cough, cyanosis, loss of consciousness.

Management: Remove any visible obstruction. Allow the patient to cough or spit out the obstruction. If the object remains and/or the symptoms persist the patient should be referred to a hospital as an emergency for a chest x-ray and further care. If there is uncertainty regarding a possible aspiration or not the patient should be referred for further investigations as a priority.

Where coughing in a conscious patient fails to dislodge the obstruction back blows (5 sharp blows between the shoulder blades) should be delivered. If back-blows fail to dislodge the obstruction five chest thrusts should be delivered. And these measures repeated until the obstruction is cleared.

If the patient loses consciousness CPR should commence.

Diabetes

See hypoglycaemia and hyperglycaemia. Assume any diabetic patient with impaired consciousness has hypoglycaemia until proven otherwise.

Epilepsy

See Appendix B for a Quick Reaction Guide

A group of syndromes characterized by disturbance of the electrical activity of the brain that may manifest as episodic impairment or loss of consciousness, abnormal motor phenomena or psychic or sensory disturbances.

Presentation: Symptoms can vary dramatically and may include; sudden muscle spasm and rigidity, jerking movements of the limbs, jaw and tongue, sudden loss of consciousness, frothing from the mouth, urinary incontinence. Seizures can last several minutes and may be followed by unconsciousness.

Management: During any seizures ensure that the patient is protected from harming themselves by falling to the floor or impacting on objects around them. Do not attempt to restrain them and do not attempt to place anything between their teeth. If possible administer oxygen at 8-10 litres per minute delivered via a mask and reservoir bag. When seizures cease, check that the patient is breathing before placing the patient in the recovery position and actively monitor them. If the patient is unconscious commence Basic Life Support procedures (Drs ABCD).

As the patient recovers they may be confused and will need active supervision and support. Additional medical assistance should be sought if this is a 'first episode', if seizures last more than 5 minutes, if the individual is in a constant or near-constant state of having seizures (status epilepticus), if they remain confused after five minutes or if it is difficult to monitor the patient's condition.

Note: Seizure activity can be a sign of other conditions and these (as follows) should be considered even in known epileptics.

- Seizures can occur in the early stages of cardiac arrest
- Seizures can occur as a symptom of hypoglycaemia
- Seizures can occur as a symptom of a faint (through a drop in blood pressure and transient cerebral hypoxia).

Faint (Syncope) See Appendix B for a Quick Reaction Guide

Transient loss of consciousness due to inadequate cerebral oxygenation (perfusion).

Presentation Feeling of light headedness or dizziness, pallor, 'cold sweat', slowing of pulse, low blood pressure, nausea and vomiting, loss of consciousness.

Management: Lay the patient down flat and elevate the legs. Loosen tight clothing around the neck. Administer oxygen (8-10 litres per minute delivered via a mask and reservoir bag.). Reassure patient when they regain consciousness. If the patient does not regain consciousness promptly commence Basic Life Support procedures (Drs ABCD).

Hypoglycaemia See Appendix B for a Quick Reaction Guide

Blood glucose concentrations below levels satisfactory to support the body's need for energy usually defined a blood glucose levels below 3.0mmol per litre. Acute hypoglycaemia may clinically occur in patients who have diabetes and who fail to eat after taking insulin.

Presentation: Symptoms can be non-specific and include; hunger, trembling, sweating, slurring of speech, difficulty concentrating, agitation and confusion, headache, with progressive drowsiness, seizures and unconsciousness.

Management: Hypoglycaemia in conscious patients can usually be reversed with rapid acting oral glucose (eg. glucose powder dissolved in water, sugar – sucrose) which can be repeated after 10 minutes. The oral glucose should be followed by food high in carbohydrate as the patient recovers. The patient should be actively supervised until fully recovered, they should not drive and they should be accompanied home.

If the patient is unable to take oral glucose due to depressed consciousness or lack of cooperation, glucagon (if available can be given via the IM route – 1mg for adults and children over 8 years of age of who weigh more than 25kg or 0.5mg for children under 8 years or weighing less than 25kg.) should be administered. If glucose cannot be administered or if the administration of glucose is ineffective then Basic Life Support procedures (Drs ABCD) should commence immediately.

Hyperglycaemia

Blood glucose concentrations higher than normal. Hyperglycaemia may occur in patients. In what situations?

Presentation: Symptoms include thirst, increased urine output and dehydration. As glucose levels rise hypotension, a progressive reduction in consciousness and coma may result.

Management: Basic Life Support procedures (Drs ABCD) should commence immediately with a view to getting the patient to a medical facility.

Hyperventilation (anxiety associated) See Appendix B for a Quick Reaction Guide

Prolonged rapid breathing resulting in a fall in arterial carbon dioxide leading to acute respiratory alkalosis and potentially cerebral vasoconstriction and loss of consciousness. High respiration rates can indicate more serious illness (eg. acute myocardial infarction, pulmonary embolism etc), it is therefore essential that an accurate diagnosis as to the cause of the rapid breathing is made and this may require medical assistance.

Presentation: Tingling in fingers or lips, involuntary spasm of peripheral musculature, dizziness, loss of consciousness.

Management: Reassure and calm the patient. For conscious patients with clinical signs of or actual low oxygen saturations administer oxygen at 8-10 litres per minute delivered via a mask and reservoir bag. If the patient loses consciousness commence Basic Life Support procedures (DRS ABCD).

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Emergency situations – Quick reaction guide

New Zealand Dental Association Code of Practice – Medical Emergencies in Dental Practice 2012

Anaphylaxis

Cease intravenous drug administration

Commence Basic Life Support procedures (Drs ABCD)

Patient laid flat, feet / legs elevated

Oxygen administered at a rate of 8-10 litres per minute delivered via a mask and reservoir bag.

Administer 1:1000 adrenaline intramuscularly

Adult and children over 12 years of age:	0.5 mL (500 micrograms)
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Child 6 to 12 years of age	0.3mL (300 micrograms)
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Child less than 6 years of age	0.15mL (150 micrograms)
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Repeat adrenaline if no improvement of hypotension, airway swelling or bronchospasm, as necessary at 5 minute intervals depending on respiratory function, pulse and blood pressure.

Maintain Basic Life Support procedures (Drs ABCD) until help arrives.

Asthma

Patient administered bronchodilator medication

If the patient is unable to deliver their own medication give salbutamol through a large volume spacer.

No response to medications or symptoms worsen (breathing rate slowed, heart rate slowed, cyanosis developed etc)

Summon help

Administer salbutamol (10 activations) through the large volume spacer device, repeat at 10 minute intervals as necessary

Give oxygen (8-10 litres per minute delivered via a mask and reservoir bag). The salbutamol should be repeated at 10 minutes until assistance arrives.

If the patient becomes unresponsive commence Basic Life Support procedures (Drs ABCD)

Cardiac conditions

Mild symptoms

Administer glyceryl trinitrate, 400 micrograms (spray or tablet). Repeat glyceryl trinitrate, 400 micrograms (spray or tablet) after 5 minutes if there is no (or only partial) resolution of symptoms

If symptoms persist treat as for 'severe symptoms'.

Severe symptoms

Call for medical help immediately.

Position the patient for their comfort and reassure

Administer glyceryl trinitrate, 400 micrograms (spray or tablet)

Administer aspirin 300 milligrams orally.

Administer oxygen (8-10 litres per minute delivered via a mask and reservoir bag.) if the patient is cyanosed or if level of consciousness deteriorates.

If loss of consciousness commence Basic Life Support procedures (Drs ABCD).

When medical assistance arrives advise them of the drugs you have administered.

Choking and aspiration

Remove any visible obstruction.

Encourage patient to cough

Hospital referral if the object remains and/or the symptoms persist.

Failure to dislodge object - conscious patient back-blows / chest thrust

Unconscious CPR and call for help.

Epilepsy

Protect patient

Do not attempt to restrain them or attempt to place anything between their teeth.

Administer oxygen at 8-10 litres per minute delivered via a mask and reservoir bag per minute.

Post-seizure place in the recovery position and monitor

If unconscious commence Basic Life Support procedures (Drs ABCD).

During recovery active supervision and support.

Seek additional medical assistance if:

- this is a 'first episode',
- seizures lasts more than 5 minutes,
- the individual is in a constant or near-constant state of having seizures (status epilepticus),
- they remain confused after five minutes
- it is difficult to monitor the patient's condition, or
- you are uncertain

Note: Fitting can be a sign of hypoglycaemia so this should be considered even in know epileptics. A faint (through a drop in blood pressure and transient cerebral hypoxia) can also lead to a seizure which tend to be short in duration.

Faint (Syncope)

Lay the patient down flat and elevate the legs.

Administer oxygen (8-10 litres per minute delivered via a mask and reservoir bag.).

Reassure patient when they regain consciousness.

If the patient does not regain consciousness promptly commence Basic Life Support procedures (Drs ABCD).

Hypoglycaemia

Conscious patients administer oral glucose

Provide food high in carbohydrate as the patient recovers.

Actively supervise patient during recovery

Depressed consciousness or lack of cooperation administer glucagon via the IM route

1mg for adults and children over 8 years of age of who weigh more than 25kg

0.5mg for children under 8 years or weighing less than 25kg.)

If glucose cannot be administered or if patient is unresponsive to administration of glucose Basic Life Support procedures (Drs ABCD) should commence immediately.

Hyperventilation

Reassure and calm the patient.

For conscious patients with clinical signs of or actual low oxygen saturations administer oxygen

If the patient loses consciousness commence Basic Life Support procedures (DRS ABCD).