19 May 2014

Dear practitioner

Follow-up consultation on the draft Medical Emergencies in Dental Practice Code of Practice

Following consultation on the draft Medical Emergencies in Dental Practice Code of Practice last year, Council established a submissions review team to consider the submissions’ comments and submit any recommended changes to Council.

Consequently, an amended draft Medical Emergencies in Dental Practice Code was recommended to Council for consideration at its April 2014 meeting, and the amendments were approved for consultation.

Consultation points

Council invites all stakeholders to comment on the amended draft Medical Emergencies Code of Practice, in the attached consultation document, by responding to the following question:

Q: Do you agree with Council’s proposed changes in the amended draft Medical Emergencies in Dental Practice Code of Practice? If not, please detail the areas of disagreement, reasons for disagreement and, where relevant, alternative suggestions.

The objective of the consultation is to gather views from the sector to inform Council’s decision on the proposed Medical Emergencies Code of Practice. The consultation document will also be published on Council’s website, with a similar invitation to comment.

Council seeks any comments on the proposal by the close of business on 14 July 2014.

Responses should be sent to:

Dental Council
PO Box 10-448
Wellington 6143
Fax: 04 499 1668
Email: consultations@dcnz.org.nz

Yours sincerely

Marie Warner
Chief Executive
Medical Emergencies in Dental Practice Code of Practice

RELEASED: 19 MAY 2014
SUBMISSIONS DUE: 14 JULY 2014

1. INTRODUCTION

Council consulted on a draft Medical Emergencies in Dental Practice Code of Practice last year. The majority of submissions supported the draft code of practice in principle, however a large number of submissions were in disagreement with specific proposals and/or requested changes to previous provisions.

Due to the large number of detailed comments received, a submissions review team\(^1\) was established to consider the submissions’ comments and make recommended changes, where relevant, to the draft Medical Emergencies in Dental Practice Code of Practice, to Council.

This team met in January 2014 to consider the submissions and the accompanying detailed analysis undertaken by Council secretariat.

The areas of most concern and/or disagreement related to the following proposed changes:

- the removal of the current provision for CORE equivalent courses to NZRC CORE courses
- the level of training for dentists/dental specialists performing intravenous sedation, and the differentiation between intravenous sedation and other routes of administration
- the recommendation for role-play training in the practice on a six monthly basis
- the removal of Medical Emergencies – Information and Specific responses section from the Code
- the changes to the lists of equipment and emergency drugs required
- the two year recertification period of training instead of the current four years.

Council considered the recommendations of the submissions review team at its March 2014 meeting, with further consideration at its April meeting. An amended draft Medical Emergencies in Dental Practice Code of Practice was approved for consultation.

\(^1\) Robin Whyman (Chair), Penny Ingram, Don Macalister, Carrie Philliskirk, Graham Symes, Darryl Tong
2. PROPOSED AMENDMENTS

The following amendments to the earlier draft Medical Emergencies in Dental Practice Code of Practice are proposed:

2.1 CORE equivalent courses

The first draft code required the completion of a NZRC\(^2\) CORE Level course for all practitioners at varying, appropriate levels; currently CORE equivalent courses are acceptable. The proposed change, to accept only NZRC CORE courses, was aimed to ensure consistency of content delivered to all oral health professionals.

However, a substantial number of submissions expressed concern about access to NZRC CORE Modular Level 4 courses.

The number of NZRC trained instructors is limited; the majority are employed by District Health Boards and provide training to all healthcare professionals.

The concern expressed was that current providers would be unable to meet the increased demand for NZRC CORE Modular Level 4 courses if it became mandatory. Oral health professionals would compete with other health professionals for training places, and from a risk perspective might not be considered the highest priority for training.

In the amended draft code it is proposed that the successful completion of a CORE Level 4 equivalent course is required.

To achieve a minimum level of quality assurance for the resuscitation training of oral health professionals, a proposed oral health practitioner-specific CORE Level 4 equivalent training curriculum, specifying the minimum training skills, is proposed.

The proposed modules which must be delivered in an oral health practitioner-specific CORE Level 4 equivalent course are tabulated within the amended draft code (p15).

Practitioners may refer to this table to assist them in identifying a CORE Level 4 equivalent course.

A policy for the approval of training courses delivering an oral health practitioner-specific CORE Level 4 equivalent course will be developed, if the principle is accepted as part of the consultation.

Practitioners who are required to successfully complete Level 4 resuscitation training may still choose to complete a NZRC CORE Modular Level 4 course; or a NZRC CORE course at a higher level.

For practitioners required to undertake a level of resuscitation training higher than Level 4, a NZRC CORE course is still required.

\(^2\) New Zealand Resuscitation Council
2.2 Sedation

2.2.1 Different routes of sedation
A number of submissions commented about the differentiation between intravenous sedation and other routes of administration, with the first draft code proposing that NZRC CORE Level 6 was the appropriate training level for dentists/ dental specialists performing intravenous sedation only.

The various routes of sedation potentially used in dental practice include: oral, RA\(^3\)/inhalation, intra-muscular, rectal, nasal and intravenous.

The submissions review team agreed there were potentially increased risks of a medical emergency associated with the oral administration of sedation because of: the duration of the response; lack of easily reversibility; the inability to accurately monitor the plasma drug levels and the uncontrolled environments where the drug was taken (sometimes at home).

The team was of the view that there is potentially greater control of the risks of associated medical emergency when single drug IV sedation with midazolam is administered, compared to oral midazolam, due to the factors identified above.

The team further agreed that RA sedation, provided through an appropriate device for inhalation sedation in dental practice, was the only form of sedation that was easily reversible and had a fast offset. These features, along with close monitoring, substantially decrease the potential risk of collapse or other medical emergency with this form of sedation.

Council agreed with the team’s recommendations, accordingly the amended draft code proposes that practitioners administering any form of sedation, with the exception of RA, are required to complete the same level of resuscitation training.

2.2.2 Training levels for dentists/ dental specialists administering sedation
In the first draft code Council proposed NZRC CORE Level 6 as the appropriate training level for dentists/ dental specialists performing intravenous sedation.

Council is of the view that there are increased risks associated with administering any form of sedation (with the exception of RA). Council is proposing that a level of medical emergency training higher than CORE Level 4 (or equivalent) is required for all practitioners performing sedation, with the exception of RA.

The reason for the exclusion of RA sedation has been provided in section 2.2.1.

Most training providers offer NZRC CORE levels 5 – 7 as combined sessions, with specific assessments for each individual level. A large number of submission comments related to the applicability of NZRC CORE level 6 training within dental practice, especially the focus on cardiac rhythms and intubation.

Council is of the view that there is value in the theoretical knowledge gained through these combined course sessions, however the content and assessment related to Levels 6 and above is not wholly relevant to management of medical emergencies by dentists and dental specialists in dental practice.

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\(^3\) Relative analgesia
At CORE Level 6 emphasis is given to extensive interpretation of ECG cardiac rhythms and intubation; most dental practices predictably do not have an ECG machine and internationally intubation is increasingly considered to be a specialist skill. Occasional rescuers attempting intubation pose a higher risk of failed intubation or complications.

At CORE Level 5 use of supraglottic airway devices, manual defibrillation, shockable and non-shockable rhythms is taught and assessed.

Following Council’s consideration of the recommendations of the submissions review team, Council proposes the appropriate training level for dentists/ dental specialists administering any form of sedation (with the exception of RA) is NZRC CORE Level 5 (no equivalent course).

Additionally, it is proposed all practices where any form of sedation is performed, (with the exception of RA), must have an automated external defibrillator (AED).4

2.3 Role-play training in practice

The first draft code required the dental team to practice the management of an emergency on a six-monthly basis within the dental practice setting, through simulation and role play of various emergency scenarios.

Council recognises this could be very intensive, particularly with simulation and scenario role plays. The primary intent is 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 in the practice.

To achieve this, the amended draft recommends a six monthly review of the management of medical emergencies through:

- discussion of the practice policy, 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.

2.4 Specific medical emergency responses

Council proposed the removal of the Medical Emergencies – Information and Specific Responses section, present in the current codes, from the draft Medical Emergencies in Dental Practice Code of Practice. At the time it was felt that this material should form part of the training material, and should not be included in a minimum practice standard.

However, it became clear through the submissions that recognition and management of medical emergencies such as syncope, anaphylaxis etc., were not covered comprehensively in existing NZRC CORE Modular Level 4 or equivalent courses. As this knowledge may prevent a collapse requiring resuscitation; and in the absence of guaranteed inclusion of this information in the resuscitation course or other training; Council proposes to retain this information within the amended draft code.

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4 See rationale in section 2.5.3
2.5 Minimum requirements for emergency equipment and drugs

2.5.1 Emergency equipment

Council is proposing the following changes to the equipment:

(Key: blue text = added text, scratched text = removed text)

<table>
<thead>
<tr>
<th>The following age appropriate equipment must be readily available in all dental practices:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oxygen cylinder, regulator and associated equipment suitable for delivering high flow oxygen</td>
</tr>
<tr>
<td>• Bag mask device with oxygen reservoir</td>
</tr>
<tr>
<td>• Basic airway adjuncts (oropharyngeal and laryngeal mask airways)</td>
</tr>
</tbody>
</table>

In addition, the following equipment must be readily available to dentists and dental specialists:

• Syringes and needles for drawing up and administering drugs
• Spacer device to deliver Salbutamol or Adrenaline.

2.5.2 Emergency drugs

Council is proposing the following changes to the drugs:

(Key: blue text = added text, scratched text = removed text)

<table>
<thead>
<tr>
<th>Oxygen must be available in all dental practices:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adrenaline (1:1000 and 1:10000)</td>
</tr>
</tbody>
</table>

The following drugs should must be available for dentists and dental specialists:

• Glyceryl trinitrate
• Aspirin
• Adrenaline (1:1000)
• Salbutamol

The following points were accepted by Council as reasoning for the proposed above changes:

• Emergency equipment must be age appropriate, where applicable.
• Additional equipment for delivery of oxygen – clarification.
• In relation to basic airway adjuncts; the confident and competent insertion of an oropharyngeal airway is recommended as the appropriate minimum standard for oral health practitioners.

Currently training in the use of Laryngeal Mask Airway (LMAs) may be included in NZRC CORE Modular Level 4 or equivalent courses. The
submission review team believed that insertion of an LMA device was not a minimum training requirement for all oral health professionals.

- Adrenaline is a prescription medicine, and therefore can only be administered by a prescribing oral health practitioner, i.e. dentist or dental specialist, or administered or used by a non-prescribing practitioner under standing orders. Council reconsidered the requirement for more than half of registered oral health practitioners (dental hygienists, dental therapists, orthodontic auxiliaries, clinical dental technicians and dental technicians) to stock and administer Adrenaline under standing orders, and concluded to remove this requirement for the following reasons:
  
  o The administration and pharmacological knowledge of Adrenaline is not part of the undergraduate training for these practitioners;
  o Prescribing is not within the above mentioned oral health practitioners’ core skillset;
  o There is no training that is currently readily available to the above mentioned oral health practitioners about the drugs; how, when, and when not to administer them – including in the CORE training courses available.
  o Concern about practitioners’ limited understanding of standing orders, particularly those in private sector.

- Council resolved to explore the establishment of appropriate training courses in the future to enable the use of Adrenaline and Salbutamol in emergency situations by non-prescribing oral health practitioners. Council noted that alongside appropriate training, practitioners’ understanding on both sides of standing orders may need to be enhanced.

- The recommended route of administration for adrenaline in the management of anaphylactic shock/ bronchospasm is usually intra-muscular injection\(^8\), not inhalation.

- It was considered unnecessary to have Adrenaline in concentrations of both 1:1,000 and 1:10,000 available. 1:10,000 is therefore removed.

In New Zealand, one in six adults and one in four children experience asthma symptoms. Asthma is one of the most common cause of admission to hospital for New Zealand children.\(^9\) Having Salbutamol available for dentists and dental specialists is responsible and safe practice. It is recommended that availability of Salbutamol be changed from a “should” to a “must”, along with Adrenaline, Glycerol trinitrate and Aspirin.

### 2.5.3 Emergency equipment and drugs in dental practices where sedation is performed (excluding RA)

Council is proposing the following changes to the additional equipment and drugs which must be available in all dental practices where sedation is performed, with the exception of RA:

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\(^8\) NZRC guidelines for management of adult anaphylaxis

The following additional, age appropriate equipment must be readily available in dental practices where sedation is performed: ¹⁰

- Advanced airway adjuncts – endotracheal tubes oropharyngeal and supraglottic airway devices
- IV Cannulae (including large bore 14g and 16g)
- Tourniquet
- Alcohol swabs and wipes
- Associated equipment for gaining and securing IV access and administering IV fluids and medication
- Automated external defibrillator (AED)

The following additional drugs must be readily available in dental practices where sedation is performed:

- Nalaxone
- Flumazenil
- Appropriate antagonists for sedative drugs being administered, where required.
- Dextrose 20% 10%
- Glucagon
- Normal saline 1000ml
- Salbutamol
- Hydrocortisone injection

The following points were accepted by Council as reasoning for the proposed above changes:

- Emergency equipment must be age appropriate.
- Endotracheal tubes would not be required with the proposed change in training level for practitioners administering sedation to CORE Level 5. Use of the term “supraglottic airways” includes LMA’s, but also allows for use of preferred alternative supraglottic devices.
- IV cannulae, tourniquet and alcohol swabs and tape were thought to be too specific. The description “Associated equipment for gaining and securing IV access and administering IV fluids and medication” was thought to be more generic and encompassing.
- An AED recognises “shockable” rhythms: Ventricular Fibrillation and Pulseless Ventricular Tachycardia. In adults the most common rhythm at the time of cardiac arrest is Ventricular Fibrillation. Evidence suggests that time to defibrillation is the most critical factor in promoting recovery from cardiac arrest, with chance of survival decreasing by 10% for every minute that passes without defibrillation.¹¹

Having an AED readily available in dental practices administering sedation, where there is an increased risk of cardiopulmonary complications, with possible cardiac arrest is recommended as a minimum standard of patient care.

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¹⁰ With the exception of RA
¹¹ http://www.sca-aware.org/about-sca
• Antagonists such as Naloxone and Flumazenil are specific antagonists. Recommend replacing these with a more generic provision: “Appropriate antagonists for sedative drugs being administered, where required” is recommended.

• Recommend 20% Dextrose to be replaced with 10% Dextrose, consistent with guidelines for management of hypoglycaemia.

• Salbutamol listed in the list of drugs required by dentists and dental specialists.

• Recommend “injection” specified in relation to hydrocortisone, to avoid confusion.

2.6 Re – Certification Period of Training

Council proposes the requirement for all practitioners related to the re-certification period for training to remain as in the draft Code:

“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.”

Council acknowledged in the first consultation document that there is no international consensus on a specific period of recertification training. However, evidence shows there is skill decay from as early as 3 to 6 months following resuscitation training.12

The objective in shortening the re-certification period to two years is to ensure up-to-date skills and knowledge. Council understands this two year period of re-certification is well aligned with the requirements for other health professionals in New Zealand.

3. CONCLUSION

Council is proposing various changes to the draft Medical Emergencies in Dental Practice Codes of Practice, reflected in the amended draft Code in Appendix 1.

The draft Medical Emergencies in Dental Practice Code of Practice distributed for initial consultation can be accessed for comparison, if required, on Council’s website at www.dcnz.org.nz/ecConsultation

4. CONSULTATION POINTS

The Dental Council invites all stakeholders to comment on the revised draft Medical Emergencies in Dental Practice Code of Practice by responding to the following question:

Q. Do you agree with Council’s proposed changes in the revised draft Medical Emergencies in Dental Practice Code of Practice? If not, please detail the areas of disagreement, reasons for disagreement and, where relevant, alternative suggestions.

12 http://circ.ahajournals.org/content/122/16_suppl_2/S539.full.pdf+html%20as%20on%2015%20January%202013.
Appendix 1

Amended Draft Code of Practice for Medical Emergencies in Dental Practice

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Previous versions:
This document replaces all previous versions of the Medical Emergencies in Dental Practice Code of Practice for Dentists/Dental Specialists [March 2005] and the Generic Medical Emergencies in Dental Practice Code of Practice for the other oral health professions [December 2006; updated January 2008].
1. **PURPOSE**

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 their practice is a significant aspect of meeting their responsibility to, and the expectations of, their patients.

Medical emergencies can and do occur in dental practices\(^1\). 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\(^2,3\).

The purpose of the Dental Council Code of Practice for Medical Emergencies (‘code’) 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 dental practices.

2. **INTERPRETATION OF REQUIREMENTS**

<table>
<thead>
<tr>
<th>Must</th>
<th>A requirement expressed as “must” is a minimum standard that all oral health practitioners must adhere to and comply with.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should</td>
<td>A requirement expressed as “should” is a strong recommendation, but compliance will not be monitored.</td>
</tr>
</tbody>
</table>

3. **PRACTITIONERS’ LEGAL AND ETHICAL RESPONSIBILITY**

*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.*

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.

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)).

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 code.

Failure to respond to a medical emergency is a significant departure from the standard of care expected of oral health practitioners.

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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

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.

The guidelines and policy statements are available on the NZRC website at the following link: http://www.nzrc.org.nz/policies-and-guidelines/.

The management of some medical emergencies prevalent in dental practices, 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 of the code.

♦ 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 Level 4 equivalent courses would reinforce this information.

A. MEDICAL HISTORY

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.

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 Code of Practice.

B. RESUSCITATION TRAINING

The NZRC developed graduated rescuer levels for resuscitation training. The NZRC CORE Level 4 was developed as the first health professional level.

The NZRC description of this level is4:

These rescuers should have a practical working knowledge of automated external defibrillator as for level 3 but they may also have practical skills including airway control using a laryngeal mask airway, precordial thump, IV insertion and the preparation of emergency drugs for administration by higher level rescuers. They should have an understanding of the principles of manual defibrillation and advanced airway methods (such as endotracheal intubation) in order that they may assist higher level rescuers with these procedures.

4 http://www.nzrc.org.nz/training/nzrc-rescuer-levels/
Oral health practitioners must successfully complete the following minimum levels of resuscitation training:

<table>
<thead>
<tr>
<th>Professions</th>
<th>Resuscitation Training Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentists/Dental Specialists - not performing sedation</td>
<td>CORE(^5) Level 4 equivalent</td>
</tr>
<tr>
<td>Dentists/Dental Specialists performing ANY form of sedation, with the exception of relative analgesia (RA)</td>
<td>NZRC CORE Level 5</td>
</tr>
<tr>
<td>Dental Therapists, Dental Hygienists, Orthodontic Auxiliaries, Clinical Dental Technicians</td>
<td>CORE Level 4 equivalent</td>
</tr>
<tr>
<td>Dental Technicians undertaking restricted activities</td>
<td>CORE Level 4 equivalent</td>
</tr>
<tr>
<td>Dental Technicians</td>
<td>Level 2</td>
</tr>
</tbody>
</table>

The Certificate of Resuscitation and Emergency Care (CORE) Level 4 equivalent course must contain the following modules to meet minimum standards:

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

*Please note the following exclusion:* childhood collapse is not required for clinical dental technicians and dental technicians undertaking restricted activities, because of the low prevalence of treating children.

The italicised modules in the above table may not be covered in full in NZRC CORE Modular 4 courses, and the Medical Emergencies – Information and Specific responses must be read prior to attending the resuscitation course.

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\(^5\) Certificate of Resuscitation and Emergency Care
Practitioners requiring Level 4 resuscitation training can still attend a NZRC CORE Modular Level 4 course.

All practitioners providing sedation, with the exception of RA, must successfully complete a NZRC CORE Level 5 course.

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.

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 to Level 2 - Basic Life Support Skills.

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.

Council recommends a six monthly practice review, involving all staff, of the management of medical emergencies through:

- discussion of the practice policy, 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.

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**

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 CORE\(^6\) Modular Level 4: Advanced Life Support Level 1 - Immediate Life Support (ALS1/ILS)
- Courses equivalent to NZRC CORE Level 5 Advanced Life Support Level 2 - Advanced Life Support (ALS2/ALS)
- Courses equivalent to NZRC Level 2: Any Basic Life Support Skills course by a credible provider.

The Australian Resuscitation Council maintains the list of accredited course centres in Australia, and this can be accessed on their website\(^7\).

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.

Training courses equivalent to NZRC CORE Modular Level 4 must contain the relevant training modules, specified earlier.

The code’s training requirements do not replace any additional requirements of other regulatory authorities.

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\(^6\) Certificate of Resuscitation and Emergency Care

\(^7\) [http://www.resus.org.au/](http://www.resus.org.au/)
C. EQUIPMENT

The following age appropriate equipment must be readily available in all dental practices\(^8\):

- Oxygen cylinder, regulator and associated equipment suitable for delivering high flow oxygen
- Bag mask device with oxygen reservoir
- Basic airway adjuncts (oropharyngeal airways)

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

- 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.
- Early defibrillation of casualties who are in ventricular fibrillation/tachycardia dramatically improves prospects of survival. An AED must be available in all practices administering sedation, with the exception of relative analgesia (RA). An automated external defibrillator (AED) is not mandatory for all dental practices. Practices where an AED is not available on site should, as part of their management of medical emergencies protocols, familiarise themselves with the location of the nearest available AED.

D. DRUGS

- Drugs must be readily available and not be beyond their expiry date.
- They must be stored to facilitate easy access, identification and in dosages that are easy to administer in an emergency situation.

**Oxygen must be available in all dental practices\(^9\)**

The following drugs must be available for dentists and dental specialists:

- Glyceryl trinitrate
- Aspirin
- Adrenaline (1:1000)
- Salbutamol

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.

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\(^8\) Except in dental laboratories of dental technicians not undertaking restricted activities.

\(^9\) Except in dental laboratories of dental technicians not undertaking restricted activities.
Additional equipment and drugs required for dentists/ dental specialists administering sedation (excluding RA)

Practitioners administering sedation (excluding RA) must undertake a higher level (NZRC CORE Level 5) of resuscitation training, due to the higher risks of a medical emergency associated with the activity.

A more complete range of equipment and drugs is required in practices where sedation is performed. Further information regarding the safe use of sedation within dental practice is contained within the Dental Council Conscious Sedation for Dental Procedures Code of Practice.

The following additional, age appropriate equipment must be readily available in dental practices where 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)

The following drugs must be readily available in dental practices where sedation (excluding RA) is performed:
- Appropriate antagonists for sedative drugs being administered, where required
- Dextrose 10%
- Glucagon
- Normal saline 1000ml
- Hydrocortisone injection

E. SCHEDULING OF APPOINTMENTS

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.
5. CHECKLIST

- Do you record and regularly update the medical history of all patients?
- Do you have current resuscitation training to the minimum prescribed CORE level?
- Does your CORE Level 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?
- 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 in your practice?
- If you are a dentist or dental specialist - 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?
- If you are 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?
Anaphylaxis

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 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 doses:

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

Anaphylaxis suspected?

Stop administration / Remove trigger
Call for help - Position supine
High flow oxygen - Attach monitoring

Cardiac Arrest

Start CPR

IV/IO access
Intravenous adrenaline
1mg every 3-5mins

2L saline rapidly

Consider increased doses/frequency of IV adrenaline if still in cardiac arrest > 5mins

Diagnosis:
Look for acute onset of illness
Life-threatening airway and/or breathing and/or circulation problems\(^1\)
And usually skin changes

Shock / Bronchospasm

Intramuscular adrenaline\(^2\)
0.3-0.5mg

Attempt IV cannulation
Intravenous fluids\(^3\)

If hypotension, bronchospasm or airway swelling persists 5-10mins after first dose of IM adrenaline

Administer second dose of IM adrenaline\(^2\)

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\(^1\)Life-threatening problems
Airway (swelling, hoarseness, stridor)
Breathing (rapid breathing, wheeze, fatigue, cyanosis, SpO2<92%)
Circulation (pale, clammy, low blood pressure, faintness)

\(^2\)Intramuscular 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)

\(^3\)Intravenous fluids
0.9% Sodium Chloride: 1000mL. Rapid infusion then titrate according to requirements


August 2011
**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 of 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 compete 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 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. What about the role of adrenaline and prednisone.
**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 place 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.

**Hypoventilation** See Appendix B for a Quick Reaction Guide

Prolonged rapid deep breathing leading to a fall in arterial carbon dioxide concentration a cerebral vasoconstriction and respiratory alkalosis which may result in loss in consciousness.

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

**Management:** Reassure the patient. If conscious get the patient to ‘re-breathe’ air in a paper bag. Unconscious patient place in recovery position until they regain consciousness then re-breathe into a paper bag.
References


Bibliography and further reading


Emergency situations – Quick reaction guide

Anaphylaxis – Quick reaction guide

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)
  - Child 6 to 12 years of age: 0.3 mL (300 micrograms)
  - Child less than 6 years of age: 0.15 mL (150 micrograms)
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 - Quick Reaction Guide

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 - Quick Reaction Guide

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 - Quick Reaction Guide**

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 / abdominal thrust.

Unconscious CPR and call for help.

**Epilepsy - Quick Reaction Guide**

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) - Quick Reaction Guide**

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 – Quick Reaction Guide**

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 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.

**Hypoventilation - Quick Reaction Guide**

Reassure the patient.

Patient to ‘re-breath’ air in a paper bag.

If unconscious patient place in recovery position until they regain consciousness then re-breath into a paper bag.