

AUSTRALIAN SOCIETY OF ENDODONTOLOGY Inc.**REVISED GUIDELINES FOR EDUCATIONAL REQUIREMENTS FOR
UNDERGRADUATE TRAINING IN ENDODONTICS**

NOVEMBER 2007

NOTE: The original "ASE Guidelines for Educational Requirements for Undergraduate Training in Endodontics" were published in 1982 in the October issue (p.11-13) of the *Australian Endodontic Newsletter*. These guidelines were revised by the ASE Sub-committee on Endodontic Education in 1991 and published in the *Aust Endod Newsletter* 1991; 17(2): 10-2. They were further revised in November 2007 during a meeting held in Melbourne of the teachers of Endodontics from all Australian University Dental Schools.

These guidelines will be circulated to all Dental Schools in Australia and New Zealand and they are published below for members' information. Any comments regarding these guidelines would be welcomed and can be addressed to the Federal President of the ASE Inc .

INTRODUCTION

In framing guidelines for undergraduate education in endodontics, it should be borne in mind that Australia is a large continent, with high concentrations of population in the major cities and large towns but with other parts of the continent being sparsely populated. The ability to provide endodontic treatment is expected of all dentists regardless of where they may practise. Hence, the education and training of all undergraduate dental students in Endodontics should be of a high standard to enable a newly graduated dentist to deal with the most commonly encountered clinical problems.

The discipline of Endodontics is now so established, its content of such a magnitude and its place in the modern practice of dentistry so crucial, that it should be designated formal and separate subject status within the undergraduate curriculum.

DEFINITION OF ENDODONTICS

Endodontics is that branch of Dentistry concerned with the morphology, physiology and pathology of the dental pulp and the peri-radicular tissues. The study and practice of Endodontics encompasses the basic clinical sciences including the

biology of the normal pulp, root and periradicular tissues. It also includes the aetiology, prevention, diagnosis and treatment of diseases and injuries that affect the pulp and the peri-radicular tissues.

SCOPE OF ENDODONTICS

Clinical undergraduate endodontics should encompass the following areas:

- Diagnosis of pulp and periapical conditions.
- Endodontic radiography.
- Emergency treatment procedures - including the relief of pain and management of infections.
- Pulp therapy - including dentine desensitisation and protection; direct pulp capping; indirect pulp capping; partial pulpotomy; pulpotomy; and partial pulpectomy.
- Pulpectomy and associated endodontic procedures - including consideration of:
 - ✓ Indications and contra-indications for treatment
 - ✓ Diagnosis and management of orofacial pain
 - ✓ Microbiological and immunological aspects of endodontics
 - ✓ Materials and instruments
 - ✓ Instrumentation of root canals
 - ✓ Irrigation of root canals
 - ✓ Intra-canal medication
 - ✓ Root filling techniques.
- Treatment of pulpless teeth with or without associated periapical pathosis.
- The role and scope of periapical surgery.
- The management of traumatic injuries to the teeth and mouth - including crown fractures, crown/root fractures, root fractures, concussion, subluxations, luxations, avulsions, alveolar bone fractures, abrasions, contusions and lacerations.
- Apexification and apexogenesis.
- Management of combined endodontic/periodontal lesions.
- Recognition and treatment of resorptive defects.
- Bleaching of teeth.
- Treatment of medically compromised patients.
- Assessment of treatment outcomes following endodontic management of teeth.
- Restoration of endodontically treated teeth.
- Alternatives to endodontic therapy - including the role of endodontics in preserving bone for potential implant therapy.

BASIC SCIENCES

The need for a high standard of teaching in the basic sciences is fundamental to the study and clinical practice of Endodontics. The courses in dental anatomy and histology should include the anatomy and histology of the pulp and peri-radicular tissues. These courses should relate to the clinical practice of endodontics (eg. access cavities). Similarly, the teaching in physiology should include the study of the mechanisms of pain.

PRE-CLINICAL AND CLINICAL SCIENCES

The endodontic aspects of the various pre-clinical and clinical sciences (eg. microbiology, oral pathology, immunology, pharmacology, anaesthesiology, oral diagnosis, radiology, operative dentistry, periodontology, paedodontics, oral surgery and dental materials science) should be adequately covered. It is important that an accord is established with the teachers in these disciplines and that they are aware of the role and scope of endodontics within the framework of modern conservative dentistry.

ENDODONTIC TEACHING

THEORETICAL

This may be done through a series of lectures, videos, seminars and tutorials, or a combination of these, to cover the entire scope of endodontics as outlined above. Ideally, the teaching program should include up to 24 one-hour lectures (spread over 2-3 years of the dental course) with approximately 8-10 seminars or tutorials. It is desirable that these be supplemented by an extensive library of audio-visual and/or computer-based teaching aids that are freely available to students. The material should be specifically designed for self-instruction and should enable students to revise the material learnt in the lectures and to review clinical procedures before actually undertaking them. Suitable subjects for self-education could include:

1. Rubber dam in endodontics.
2. Endodontic instruments - their designs and their uses.
3. Access cavities.
4. Chemo-mechanical canal preparation.
5. Root canal filling techniques.
6. Management of traumatised teeth.
7. Bleaching of pulpless teeth.
8. Endodontic radiography.

PRACTICAL

Dental courses at Australian Universities typically extend over four or five years. The practical pre-clinical teaching of Endodontics should ideally be completed in such time as to allow for approximately two years or more of clinical experience in providing endodontic treatment to patients, during which time the didactic endodontic teaching can be continued.

PRE-CLINICAL

Endodontic techniques should ideally be taught under conditions which simulate the clinical situation. A mixture of plastic tooth models for introductory techniques followed by extracted human teeth may be used for pre-clinical technique exercises. Ideally, human extracted teeth should be mounted in arch forms that can be treated in phantom heads to allow the use of rubber dam (which should be mandatory) and radiographic procedures. Exercises could involve the preparation of access cavities in a variety of tooth types (i.e. incisors, premolars, molars from both maxillary and mandibular arches), followed by the determination of working length, chemo-mechanical debridement and preparation of the root canals and subsequent root canal filling of at least five teeth (maxillary incisor, mandibular incisor, maxillary premolar, maxillary and mandibular multi-canal molars).

The teaching of endodontic techniques can be enhanced by having recorded or live visual demonstrations on patients to illustrate the techniques being taught. Before

students proceed to clinical work, they should be proficient at rubber dam application both on manikins and fellow students.

CLINICAL

The clinical practice of Endodontics should extend over at least two years. Although endodontics should be taught as a separate subject, in the clinical situation it should be practised as an integral part of the overall management of the patient. Ideally, a minimum of 12 teeth should be treated – this should include at least two molars and a two-rooted premolar tooth. Where possible, students should provide suitable restorations for the teeth that they have treated endodontically. The patient's clinical record should include provision for the recording and marking of all relevant stages and details of the root canal treatment.

SUPERVISION

To ensure consistent, sound and effective teaching, members of an endodontic teaching unit should be in attendance whenever clinical endodontic treatment is being undertaken by undergraduate students. Such personnel should be chosen or appointed on the basis of advanced endodontic training or a significant commitment to achieving an above average expertise in endodontics.

ADDITIONAL REQUIREMENTS

In addition to the above requirements, students should be rostered to attend clinical sessions in the related fields listed below (although it is recognised that physical conditions, nomenclature and circumstances may vary between different institutions):

1. **Admissions Department** – Examination and initial diagnosis of patients.
2. **Emergency Clinics** – Emergency treatment for patients in acute pain. This should include some experience in the treatment of traumatic injuries including fractured and avulsed teeth.
3. **Pain Clinics** – Diagnosis and treatment of chronic orofacial pain.
4. **Surgical Endodontics** – Didactic teaching and video demonstrations of surgical procedures should be provided within the Endodontic Teaching Unit by Endodontists.
5. **Radiological Techniques and Interpretation** – The specific problems and techniques for endodontic radiography should be emphasised and seminars in this

field should be held in conjunction with the staff involved in teaching Radiology and Oral Pathology.

CLINICAL CONFERENCES

Students ideally should be exposed to a multi-disciplinary approach to clinical problems. This can best be achieved by the presentation of problem patients during the clinical years of their course. The process of arriving at a satisfactory treatment plan can be enhanced by involving representatives of different clinical disciplines and specialties in the discussion of the problem and in formulating the treatment plan.

TEACHING PERSONNEL

Whenever possible, practising endodontic specialists and/or practitioners with particular endodontic expertise or training should be utilised to supervise the clinical component of the course. Students should be encouraged to appoint their endodontic patients at the times when this more specialised supervision is available. Merit is seen in designating a particular area of the clinical facilities for endodontics.

Where pre-clinical and clinical teaching is being carried out by staff other than those referred to above, periodic staff refresher seminars should be held to ensure that all teaching is effective, soundly based, appropriate and up-to-date.

ELECTIVES AND RESEARCH PROJECTS

In Dental Schools where students are able to carry out a research project, endodontics should be included in the lists of projects available. Similarly, in Schools where electives are available, students should have the opportunity of obtaining additional endodontic expertise by engaging in an endodontic elective.

SURVEYS OF THE LITERATURE

In order to familiarise students with the relevant and important endodontic literature, assignments on specific subjects may be given during the course (e.g. a major essay on a specified endodontic topic could be prescribed). Such an assignment could form part of the requirements of the course and could contribute to the overall assessment. Students could be encouraged to submit an entry to the ASE Inc.'s

Annual Essay Competition or the Competition topic could be used as the topic for all students to research. Problem-based learning exercises could also be utilised as a means of encouraging students to use the literature.

LIMITATIONS

It is realised that a new graduate cannot be expected to cope with every endodontic problem that may arise. Students should however be fully acquainted with the scope of the subject and be able to distinguish between those cases which are within his/her capabilities and those which require referral to an Endodontist for management.

EXAMINATIONS AND ASSESSMENTS

It is desirable that Endodontics should be examined as a separate subject. However, where endodontics forms part of a larger unit (by being combined with other related subjects), then students should be required to successfully pass each subject/section of the course. Examinations should be held at the end of each semester or year in which endodontics is taught. Progressive assessments and minor tests at regular intervals are also desirable - these can include both formative and summative assessments.

CONCLUSION

It is recognised that most Dental Schools in Australian Universities do not have specific Departments of Endodontology. Hence, these guidelines are tantamount to having an endodontic stream running through the dental curriculum. It should be formally identified as such and regularly reviewed by each School.

The Australian Society of Endodontology Inc. believes that these Guidelines, if followed by teaching institutions, will equip graduating dentists with an adequate standard of endodontic education and the clinical skills to enable them to fulfil their obligations in general dental practice.

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