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Introduction

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During the past decade in particular, dental education and clinical practice in contemporary prosthodontics have progressively embraced biological principles and evidence-based decision-making. They have distanced themselves from prosthodontics' mechanical beginnings. This emphasis on the biological basis of case assessment, including an empathetic history, a patient-centred treatment plan and emphasis on explicit and judicious patient consent to support clinical decision-making, allows the careful and meticulous delivery of treatment as a confident and predictable process. Each patient is entitled to, expects and depends on such an approach.

These fundamental changes in philosophy arose as a function of interprofessional dialogue and were influenced significantly by a comprehensive review of dental education presented in *Dental Education at the Crossroads – Challenges and Change* (Field 1995). There has also been a recognition of the importance of evidence-based dentistry. These factors have stimulated a review of core values in education and practice, as has been the case in medical education and practice (Sackett *et al.* 2000).

In recognition of these changes, the authors aim to provide the reader with a contemporary approach based on available evidence to define prosthodontic treatment planning and clinical application. The authors recognise that this is a requirement of educational programmes and are mindful of the need for applying this knowledge in clinical practice.

Restorative dentistry and prosthodontics involve tooth restoration and recognition of the importance of occlusal form to provide improved aesthetics as well as stable tooth contacts at an appropriate occlusal vertical dimension for optimising jaw function. This has a significant bearing on tooth mobility, is relevant for orthodontic treatment and is an important consideration in treatment planning for maxillofacial reconstruction. Enhancing jaw function, defining lower face height and satisfying aesthetic needs, are key issues in optimising oral health. This needs to be appreciated as a global construct, where

crucial elements of psychosocial well-being and self-confidence are facial appearance and orofacial integrity as a patient-specific need.

Clinical studies in dentistry are now addressing long-term outcomes which represent major advances in evidence to support clinical decision-making. It is recognised that in the past there was no uniformity in clinical study design to allow meaningful data comparison. Study design has not consistently addressed issues of patient numbers, long-term follow-up, blinding of clinical treatment options, bias and critical assessment of outcome measures. In the absence of appropriate clinical trials and long-term studies on outcomes, clinical practice continues to be primarily based on clinical experience and may be tempered by clinical convenience (operator bias). However, more carefully designed clinical trials of an expected standardised and validated design are now emerging, which are beginning to provide treatment guidelines based on biological research and long-term outcomes of treatment.

An Oral Health Group has been established within the Cochrane Collaboration to coordinate the production of systematic reviews of the literature on interventions in dental and oral health care. The Cochrane Collaboration website provides access to training and resources for authors, such as a glossary and the *Cochrane Handbook for Systematic Reviews of Interventions*. It is possible to browse and search online for completed systematic reviews, reviews in progress (known as *Protocols*) and clinical trials in the *Cochrane Library*. The website of the Centre for Evidence-Based Medicine provides documents on levels of evidence and other training tools. Within the dental literature we find periodical articles on the topic (e.g. see in the serial publications *Evidence-based Dentistry* and the *Journal of Evidence-based Dental Practice*). For monographs on evidence-based dentistry, see Clarkson *et al.* (2002), Hackshaw *et al.* (2006), Chiappelli (2007), Richards *et al.* (2007) and Forrest *et al.* (2009).

Evidence-based practice is important for medicine and dentistry to provide a standardised approach to optimise treatment outcomes as the cornerstone of best practice. Although it may sometimes appear to be conceptually difficult to implement, it is important to recognise that evidence-based practice includes several components:

- high-quality scientific and long-term clinical trials that provide objective evidence to support a particular clinical decision;
- clinical experience to ensure a full understanding of each patient's needs and to meet those expectations in the care delivered;
- the ability to ask specific questions in searching for the information required in the assessment and preparation of each case;
- the ability to search for and interpret the information so that it may be applied to each patient's particular clinical situation and explicit needs.

In the past, clinical experience exclusively directed the path of clinical treatment. The acknowledgement of a patient-centred and evidence-based approach is a welcome development for advancing both the clinical science and psychosocial foundation of successful clinical management.

This book arose from a desire to share the philosophy of case assessment, treatment planning and case delivery for a range of patient treatments offered by representative postgraduate students in the specialty programme in prosthodontics at the University of Sydney. It is written to provide a structured approach to decision-making for treatment planning and restoration in oral rehabilitation as an evidence-based process; there is a focus on interdisciplinary interaction to support prosthodontics.

This approach is targeted at those students wishing to advance their learning through a formal approach to clinical decision-making, whether they are beginning their learning or are at an advanced level.

The programme has matured progressively since its commencement by the Faculty of Dentistry at the University of Sydney in 1980. It includes formal coursework and supervised clinical practice in removable, fixed and maxillofacial prosthodontics, involving the use of implants as an integral part of prosthodontic care. It also includes diagnosis and management of orofacial pain and temporomandibular disorders.

The programme is offered as a 3-year full-time coursework programme with the academic and clinical component representing 60–70% and the research component 30–40%. Clinical coursework is primarily based at the Westmead Hospital Centre for Oral Health, a teaching hospital of the University of Sydney and the majority of the postgraduates are full-time in the hospital as Prosthodontic Registrars. Since 2005, provision has been made for selected candidates with extended clinical practice experience and an additional qualification to com-

plete aspects of the clinical requirements in practice with clinical mentor guidance.

The programme is accredited by the Australian Dental Council. Since 2008, the qualification of Doctor of Clinical Dentistry (Prosthodontics), formerly Master of Dental Science (Prosthodontics), has been recognised for specialist description of Prosthodontist by the Australian State Dental Registration Boards and by the Australian Registration Board since 2010. The programme is designed for international equivalence. Postgraduates undertake teaching of undergraduate (predoctoral) students as an educational requirement, and many prosthodontic graduates contribute to the undergraduate and sometimes the postgraduate programme as clinical tutors. They make uniquely important contributions to prosthodontic education and gain significant personal benefits in the process. The strength of the undergraduate programme depends on there being a well-structured postgraduate programme to provide the necessary teaching support.

This book presents cases varying from less complex to more advanced and is designed for undergraduate and postgraduate students and prosthodontic educators. The cases represent the range of complexity presented to a tertiary referral centre as a specialist clinic of a teaching hospital. This demographic may be different from that of a specialist prosthodontic practice but the varied degree of complexity of cases managed ensures that graduates are well prepared for the requirements of specialist practice. Undergraduates will appreciate what is possible in oral rehabilitation and may be encouraged to consider postgraduate education, while postgraduates will become more aware of management options.

Case reports have a regular format and, although each presentation is not identical, they follow an approach that has been developed from evidence-based data to guide clinical decisions: they have a patient-centred focus. The latter defines the uniquely individual nature of each case and recognises that there is a range of treatment options that needs to be considered for each patient's specific needs.

The cases selected are from more recent graduates but are representative of the types of cases that have characterised the programme since its beginning. The cases are from those graduates who wished to contribute and their willingness to share this information is gratefully acknowledged.

Websites

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