Implant education at the crossroads

By Professor Laurence J. Walsh

"We have been working for some time with the Global Association for the Standardization of Implant Dentistry, an international group of leading academic clinicians and researchers in the field of implant dentistry, to develop a new model of implant education..."

Implant dentistry is a rapidly expanding area of clinical practice which offers a high quality, long term outcome with low biological costs when compared with traditional treatment approaches, provided there is appropriate case selection and careful attention to technique.

Because of the initial setup costs of implant dentistry and the possibility of failure, many general practitioners have not offered single tooth implant treatments in their practice, but have referred patients to other practitioners or to dental specialists for placement and restoration, whilst others have undertaken restorative phases of single tooth implants in their practice after having the fixture placed by another colleague.

We live in a culture which has become more adverse to risk, and particularly to "medical misadventure". At the same time, there is greater emphasis on working in teams, on having a sound evidence base to support clinical practice, and on aesthetics as well as function for any rehabilitative treatments in dentistry. How can these four opposing forces which form the "crossroads" be dealt with and kept in balance? In my view, the cohesive element which can hold the forces in balance is *education.*

A range of short and medium length courses already exist. Some of these are university based, others use a preceptorship model, and some are short programs sponsored by the dental industry. It is challenging to gain an adequate and balanced coverage of such a large field. Educational design and development of the syllabus are essential aspects which may not always be given sufficient attention. Some courses offer little hands-on clinical exposure to implant treatment, and many lack a formal assessment of competency. This aspect is important given a growing number of medico-legal cases regarding inadequate treatment planning or treatment provision.

Undergraduate education

At the University of Queensland, we have been steadily building implant dentistry content in the BDSc program over recent years and in 2008, fourth year students were restoring single tooth implants placed by postgraduates in the School. A summary of the major areas of content is presented in Table 1. The Australian Society of Implant Dentistry (ASID) has been a generous supporter of our undergraduate program, providing level 1 workshops for students in the third year and supporting other activities.

Postgraduate education

In the postgraduate and continuing education arena, we have been working for some time with the Global Association for the Standardization of Implant Dentistry, an international group of leading

academic clinicians and researchers in the field of implant dentistry, to develop a new model of education to suit the contemporary challenge of balancing clinical practice with time for further education. GASID was formed to develop by consensus, best-practice, evidence-based approaches to patient treatment using dental implants.

Working in collaboration with GASID, the University of Queensland has developed a new approach to implant dentistry post-graduate education for general practitioners. This educational model, which will be formally launched later in 2009, is unique in several ways. It builds upon many years of experience of the School in blended learning, which combines distance learning with intensive clinical blocks, to reduce time spent away from everyday clinical practice. It also takes on board past experience with the curriculum design for programs which use "ladder" models.

The ladder model

The ladder approach to implant dentistry education begins with the knowledge base of a general practitioner and the builds from there, with three exit steps, namely completion of the foundations program, completion of a masters degree, or completion of a professional doctorate (Figure 1). The following section will address key aspects of the "foundations program", the first level of the ladder.

The foundations program has been designed using rigorous curriculum development methods to plan and map a candidate's progress using a mix of formative and summative types of assessment. Formal assessments of knowledge, skills and understanding occur throughout the program, in line with the GASID criteria, using independent examiners, in line with university assessment processes. Formal assessments of learning occur throughout the program, with a major assessment at the end of the two patient treatment blocks by external examiners.

Implant dentistry content will be broad and balanced, and not aligned with any one particular implant system.

The program is based on professional competency principles and is underpinned by a broad base of clinically-relevant biological science and evidence-based clinical practice. The broad goal of the program is

Figure 1. Ladder Model for implant dentistry education

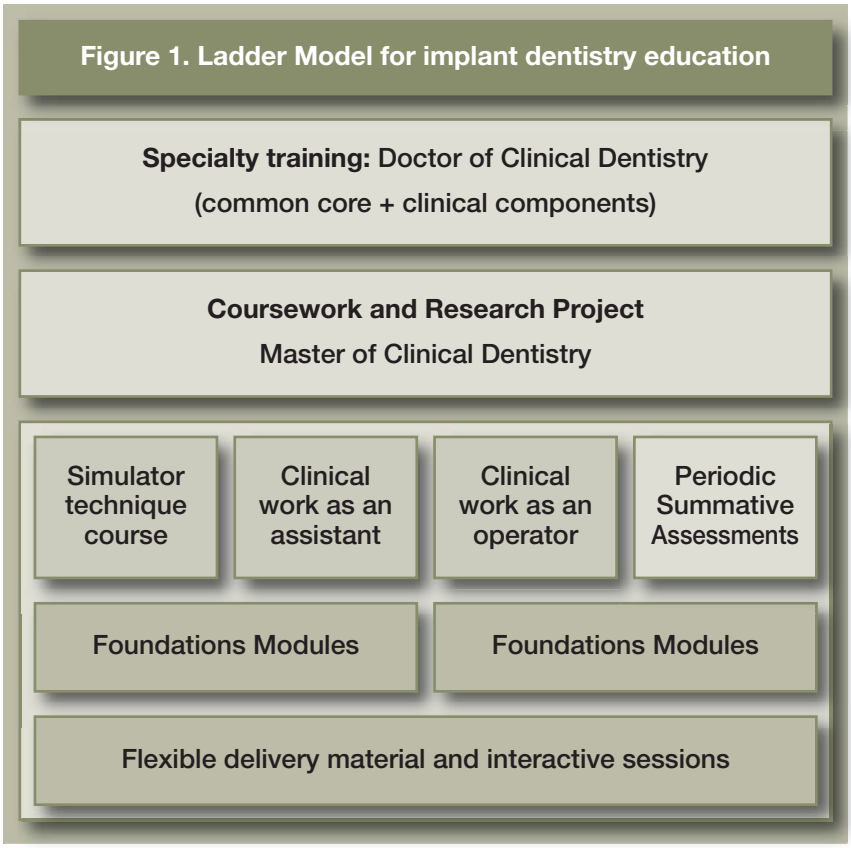

Table 1. Implant content in the 2009 UQ BDSc program

Year 1	Concepts of implant dentistry
	Implants within the stomatognathic system
Year 2	Biology of bone
	Dental biomaterials including titanium and ceramics
	Options for replacement of missing teeth
	Peri-implantitis and peri-implant mucositis
	Implant patient diagnostic workup
Year 3	Systems used in implant dentistry
	Site selection
	Factors affecting success of implants
	Site augmentation methods
	Treatment planning of implant cases
	Factors affecting prognosis
	Identification and management of complications
	Implant stabilised dentures
Year 4	Restoration of single tooth implants
	Maintenance of implants

to provide general practitioners with the knowledge, skills and experience to be able to provide implant dentistry surgery and restorative care in a predictable and safe manner. The program focuses on treatment planning, sequencing of care and long term outcomes, and in so doing goes much further and deeper in terms of content than "weekend" courses focussed on technique. The program stresses case selection and the identification of cases where specialist referral is essential, and has a strong focus on managing clinical and other risks.

Didactic theory components are delivered online using a secure internet learning portal, using a learning portfolio. Content presenters in the program are drawn from across the world, providing a true world-class international flavour to the learning experience. Content is provided by leading international experts in the various facets of implant dentistry, who have drawn upon their own formal published research work and clinical experience, as well as the breadth of the published literature. The program will include moderated interactive sessions as well as digitized lectures and webinars.

A modular design allows stepwise progress through learning and assessment tasks in a fully moderated online environment with a small group flavour rather than in solo mode. Candidates will be drawn from an international audience, and interact in a small group environment on-line before the two intensive clinical blocks.

Clinical training

After completing didactic modules online in a step-by-step manner, candidates come to Brisbane for an intense period of training on simulators, followed by time spent working as a surgical assistant on 25 cases, then in a later block working as an operator, under supervision of experienced clinicians, on another 25 cases. This combination of a solid foundation followed by a "50:1" model of hands-on experience allows for maximum learning during the residential blocks.

Both simulation work and clinical case work in implant dentistry will be undertaken in intensive (block) mode in a custom-built, state of the art facility in Brisbane, the Australian Institute for Dental Education and Research (AIDER), maximizing learning whilst limiting time away from practice.

Articulation

Progress through the foundations program will attract continuing education credits and will also be recognized for credit toward a formal university qualification from UQ. Candidates may step up the ladder after completing the implant dentistry program to articulate into a UQ Master in Clinical Dentistry degree, and then later if they wish from that into a UQ professional doctorate (the Doctor of Clinical Dentistry). This is possible because of the design of the foundation program along university lines.

To complete the requirements for the MClinDent in implant dentistry, candidates will need to undertake specific coursework and a research project supervised by UQ staff. The MClinDent is not a specialist qualification, but rather recognises advanced study in the field. In other words, completion of the MClinDent program will not qualify graduates for specialist registration, but is intended to enhance their clinical skills and knowledge at a postgraduate level, which may in turn generate interest in further postgraduate study in clinical dentistry.

Those wishing to pursue clinical specialization as a career pathway can take a further step up the ladder to the Doctor of Clinical Dentistry program, in which their work will contribute towards the requirements in the specialty training programs in periodontology and prosthodontics, should they later gain entry into these programs.

Modern education is becoming more flexibly delivered, more accessible to the individual and more focussed on safety and effectiveness. This new ladder model of education is one way of meeting the challenges of risk management, quality outcomes, pragmatic treatment planning and evidence-based practice. It will be interesting to see these four branches of the "crossroads" emerge as forces in other areas of dental practice, which like implant dentistry, do not fit neatly into the boundaries of a specialty.

About the author

Professor Laurence J. Walsh is the technology editor of Australasian Dental Practice magazine. He is also a noted commentator on and user of new technologies and is the Head of The University of Queensland School of Dentistry.