Appropriatech: Prosthodontics for the Many, Not Just for the Few

Prosthodontics offers an extraordinary range of treatment possibilities for oral rehabilitation. However, its reliance on the high-technology end of the spectrum of possibilities inevitably limits it to relatively few people. There is nothing wrong with "high-tech" solutions, for it is the research into such solutions that has provided astonishing advances. But it is my contention that by emphasizing such solutions, health professionals risk usurping their professional mandate.

Although global data on tooth loss appear to be somewhat inconsistent and often unreliable, many studies have concluded that partial and even complete tooth loss will continue for several decades. Such partial and complete edentulism are still experienced by millions of people—even in some of the most advanced economies in the world—and although a high percentage of them do receive prostheses, there are many who do not. Tooth loss per se is not necessarily an indicator of oral or other dysfunction: it is the extent of tooth loss as it relates to oral health, and in turn to quality of life, that is meaningful to our patients. Strong evidence indicates that functional masticatory deficiencies will occur when fewer than 20 teeth and 5 posterior occluding pairs exist,[1] and that restoration of masticatory function can have positive effects on oral health–related quality of life as well as reduce morbidity and potential mortality through the relationship between chewing ability, aging, and food intake.[2,3] An holistic approach is of course still required, as tooth replacement without nutrition counseling is only partial rehabilitation.

Evidence of oral health quality improvements is more obvious in the restoration of the edentulous mouth, particularly since the advent of osseointegration. However, accessibility of this high-cost treatment to the majority of the world's population remains a serious concern. The emerging popularity of the two-implant–supported overdenture appears to be an important initiative, but it may remain restricted to the very few high-per-capita-income countries. Hopes for its routine prescription are very far removed from the reality of the rest of the world, and therefore from the majority of edentulous patients.

To provide treatment for the many, cost-effective conventional treatment is required, but with adequate quality control. When this is lacking, patients have to adapt to inadequate prostheses with attendant risks of iatrogenic morbidity. Cost-cutting is often achieved by sacrificing or ignoring sound prosthodontic principles. And thereby lies the rub: the prosthodontic community has not agreed on just what a minimum set of such principles should be. This, I would suggest, is a primary challenge to prosthodontic educators and clinicians internationally, who can provide invaluable guidance to the general practitioner. It ought to be possible to set out, for each procedure, a minimum acceptable protocol (MAP) that will conform to generally accepted prosthodontic principles, and will assist patients in regaining chewing function and esthetic rehabilitation, and thereby significantly improve their quality of life. This will lead to the next challenge, which will be to devise cost-effective treatment strategies that will follow the MAP, with proper quality control.

Given the emerging and profound impact that an evidence-based approach has had on clinical practice, it is now opportune to introduce a philosophy of *appropriatech:* using appropriate technology (both methods and materials) to provide cost-effective treatment without sacrificing biofunctional and prosthodontic principles. Any prosthesis made according to the appropriate MAP should not require unaffordable fiscal commitment, or heroic adaptation by the patient; but would conform to simple and clear criteria. It would also be morally, ethically, and legally defensible because it is constructed according to those criteria. MAPs should have uncontroversial, evidence-based (as opposed to essentially anecdotal) criteria. In the case of complete dentures, this may well exclude any prescription concerning occlusion and articulation, since both topics are only a quicksand of competing controversies rather than compelling determinants of successful outcomes. It would be preferable to consider statements that refer to characteristics likely to provide increased stability during function and more importantly, anticipated parafunction. Individual practitioners could then add their own refinements, but remain within the spirit of appropriatech, while addressing their patients' socioeconomic circumstances. A MAP could also link normative and subjective assessments of outcome success, which generally show no direct correlation and which would at least ensure that principles have not been violated. MAPs could also be reconciled with evidence-based clinical practice guidelines that could be adapted for socioeconomic circumstances.

The current world economic order has shown itself to be no better at eradicating poverty than any previous system. The fact is that in this world, the many are poor, deprived especially in terms of education, and their health

suffers. In oral health this is manifested by succumbing to dental diseases and tooth loss. Modern prosthodontics can effect the most wonderful solutions through oral rehabilitation, but we are in danger of letting our advanced technology block out our vision of our humanistic priorities. I believe that the international prosthodontic community should provide guidance into ways and means of helping the disadvantaged achieve an improved quality of life. This is a compelling challenge for our profession, particularly our specialty, and both national and international specialist constituencies need to accept it.

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References

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Peter Owen is committed to the development and application of innovative teaching and learning methods, and in particular the use of interactive computer-based learning. He believes that it is possible to unite communities and countries to attain local and international consensus to alleviate the plight of the underclasses of the current world order. Having qualified from the Royal Dental Hospital in London, he went on to teach at three of the dental schools in South Africa and is currently professor and head of the Department of Prosthodontics at the University of the Witwatersrand, Johannesburg. He was actively involved in the anti-apartheid struggle within South Africa. He was a member of a World Health Organization Consultation and Technical Working Group to develop regional oral health policy for the AFRO region of WHO, and chaired a task force to develop a South African National Oral Health Policy. Peter Owen is currently an executive member of the Academy of Prosthodontists of South Africa and is treasurer of the International College of Prosthodontists. His area of particular interest in prosthodontics lies in the development of evidence-based clinical practice guidelines for developing countries, and interpretation and transformation of high technology to appropriate primary care technology—so-called "appropriatech."