In Search of Consensus

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On June 13-14, 1978, an NIH-Harvard Consensus Development Conference on "Dental Implants: Benefit and Risk" was held in Boston, Massachusetts. In attendance were approximately 50 participants and guests representing the practice sector, education, research, industry, and federal agencies. Conference results and recommendations have been published in detail elsewhere and will not be repeated here.[1] However, the conference was concerned with the assessment of clinical data retrospectively reported by individuals and grouped by implant design, type, insertion technique, site, function, and opposing dentition.

The data reported were primarily related to implant survival and, to a lesser extent, the quality of survival. Specific implant designs considered included the subperiosteal, staple-transosseous, vitreous carbon, and blade forms commonly used at the time. While some data were obviously conflicting, there emerged an agreement that dental implants could effectively contribute to improved oral health as well as a recommendation that only those implant forms which provided a favorable benefit/risk ratio should be continued in use. *Furthermore, there was consensus that the conference results required future validation with prospective clinical trials before substantive statements on prognosis could be made.*

On June 13-15, 1988, the NIDR, in conjunction with the US National Institutes of Health Office of Medical Applications of Research and the Food and Drug Administration, held a Consensus Development Conference on Dental Implants in Bethesda, Maryland. Convened in response to the ever-increasing interest in this field, the conference was attended by approximately 1,000 clinicians, educators, and researchers in addition to the speakers invited to present current information on selected facets of implant dentistry. A planning committee of some 14 persons and a 12-member Consensus Development Panel formed the organizational and administrative support for the conference. The panel consisted of representatives from dental implantology, anatomy, bone biology, biomaterials and engineering, epidemiology, statistics, behavioral science, the lay public, the specialties of oral surgery and periodontology—but not the specialty of prosthodontics or restorative dentistry. The latter, an oversight? Perhaps.

After hearing 1⁄ days of individual and organizational presentations representative of the dental implant field, the Consensus Development Panel was asked to respond to the following predetermined questions:

1. What is the evidence that dental implants are effective for the long term?
2. What are the indications and contraindications of various types of dental implants?

3. What are the requirements for surgical, restorative, and periodontal management of patients with dental implants?
4. What are the health risks of dental implants?
5. What are the future directions for research on materials and designs of dental implants and on clinical management?

The panel heard and studied the formal invited papers. Between presentations, it also heard, at times ad nauseum, a continuous barrage from audience participants (some repetitively) of anecdotal footnotes, experience based on pseudo-science, and paranoic justification for what seemed to be simply sales and service. Statements of accepted principle, honest report of failure, or fact-based observation also were heard and provided relief from the diatribe. When called upon to present a draft statement,[2] the panel sifted through all of the written word and rhetoric to report what probably was inevitable.

Evidence is accumulating that certain types of implants have remained in service for periods in excess of 10 years. Some types seem more successful than others, but comparisons are difficult because success criteria and use indications vary. As in 1978, the long-term effectiveness of various implant forms cannot be accurately estimated because of inadequate or unreported data from consecutive patient experience series or randomized, controlled clinical trials. Success rates will improve because "the learning curve" says so.

The implant armamentarium has changed somewhat from 1978, when the subperiosteal, staple-transosseous, vitreous carbon, and blade forms were in vogue and more commonly used. In 1988, implant types are categorized as endosseous (root, blade, ramus frame), subperiosteal (complete, unilateral, circumferential), and transosteal (staple, single and multiple pin). A common indicator for use is adequate bone in strategic locations to accommodate the hardware design.

The panel understandably reported that "Unfortunately, there are no data available to the panel that address the surgical, restorative, and periodontal requirements for the individuals managing the implant patient." While specific education and training for those who would treat selected patients for whom implants might be indicated is highly desirable, the question of what kind and how much-remains unanswered. The panel did support the need for a multidisciplinary approach to care, with a preimplant consultation involving all professional participants with the patient recommended.

Three areas of patient risk include: (*1*) surgery and/or anesthesia, (*2*) psychological, and (*3*) medical. The plea is made for more prospective studies using reliable and valid standardized measurements addressing both physical and psychological factors to enhance study comparisons.

What directions should future research take in the areas of materials, design, and patient management? The search for an ideal alloplastic biocompatible material for implantation continues. Studies concerned with material stability, surface preparation, corrosion, and host-implant physiology are all envisioned as necessary to advance the field. Implant and prosthesis design as well as implant-host interfacial characteristics are currently receiving considerable attention, and this emphasis will likely continue.

As in 1978, however, the conference deplored the lack of scientific data on which to base patient treatment decisions and prognosticate success. *"Randomized, controlled, prospective multicenter clinical investigations should be initiated . . . Long-term studies that concurrently compare various types of implants are needed to provide information beyond mere survival rates."*[2] The quality of survival must be improved so as to not jeopardize that which remains.

Except for the Swedish impact on dental implantology in North America, the past decade between Consensus Development Conferences has not witnessed great strides in mandating criteria for the recognition of clinical success . . . so the search for consensus goes on. The fact remains that until there is consensus on what constitutes success or failure, the patient remains hostage to a scientific community which seems reluctant to aggressively take "the bull by the horns."

1. *Dental Implants: Benefit and Risk*. Proceedings of an NIH-Harvard Consensus Development Conference. US Department of Health and Human Services. Public Health Service, National Institutes of Health, Bethesda, Md, December 1980.

2. *Dental Implants*. Draft Consensus Development Conference Statement. National Institutes of Health, Bethesda, Md, June 13-15, 1988