# On Behalf of Valid Research

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Most definitions of success connote the achievement of something desired, planned, or attempted. As the use of the implant-supported prosthesis grows, the drive to quantify success intensifies. Schnitman and Shulmal,[1] Cranin et al,[2] McKinney et al,[3] Albrektsson et al,[4] and Smith and Zarb[5] all have published criteria for clinical success. As these criteria continue to evolve, the focus sharpens on more objective testing and measurement with the exclusion of subjective variables that elude value labels. Perhaps implant predictabiliby has been a stimulus for this shift. With the spectrum of objective criteria diminishing, the trend toward life tables and survival as the endpoint of success has pervaded the scene. Objective data are exacting and scientifically desirable. However, the patient not infrequently speaks to the quality of his or her implant survival.

The march to reduce and ultimately eradicate anecdotal reporting of collective "consecutive" survivals is gathering more and more recruits. Certainly, retrospective analyses of material derived from good data bases are useful to profit from the learning curves of experience. But it is encouraging, indeed, to observe that reports of prospective studies conducted under protocols with controls and reliable statistical data are appearing more frequently. Not many clinicians are recognized statisticians, but most are capable of discerning good and bad statistical information. Advanced education programs all include courses in biostatistics to provide at least a working knowledge of the tools required for data collection and analysis. Methodology characteristic of valid research protocols begins with a hypothesis; background information is then added and followed by methods and materials, results, discussion, summary, and conclusion. The terms chi-square anal*ysis, t* test, analysis of variance, and regression analysis must become as familiar as controls, average, and mean if we are to realize significant progress in implant research. The appropriate reporting of information derived from tests and analyses is equally important to enable lucid interpretation, comparison, and application.

Valid research is produced by skilled and knowledgeable individuals and teams. The implant field has not been endowed with great numbers of qualified research personnel in the past. However, the stimuli of the more successful 1980s have precipitated more activity in the field, as evidenced by symposia, conferences, and publications. The impetus of a premarket approval (PMA) program for endosseous implants used for prosthetic attachment developed by the USPHS, FDA, and Center for Devices and Radiological Health has created a stir in the research and development departments of hardware manufacturers. Finally, premarket testing and product scrutiny will be required and hopefully will provide a new measure of consumer protection.

Institutions, professional organizations, as well as private and governmental agencies have not ignored the increased interest in implant science. Although modest for the most part, grant support programs, monetary awards for meritorious research, research competitions, and research abstract publications have become more widespread and subscribed. In 1990 *The International Journal of Oral & Maxillofacial Implants* will inaugurate an annual science award for meritorious research in implant dentistry and related basic sciences. Its editorial staff and Quintessence Publishing Company are pleased to make $2,000.00 available each year to the IADR Implantology Research Group, which w ill oversee the selection of a deserving recipient. The Academy of Osseointegration will also initiate a research awards program in 1991 to stimulate and recognize high-quality research in dental implants. Young and senior investigator awards of $1,000.00 will be available to successful participants. The Academy has also announced its intention of including research abstract presentations as a regular component of its annual scientific programs, commencing with the 1991 meeting in Boston.

It is anticipated that heightened interest in implant research will result in the recruitment of capable new talent. Opportunities must be created for programs of clinician-scientist development in institutions of higher learning, where clinical and laboratory facilities, qualified faculty, and study populations are available. The podium and current publications suggest that significant research-based data are emanating from institutions where studies in biomechanics, materials science, and hard-soft tissue biology are emphasized. We look to these and other settings for the development of new skilled and knowledgeable researchers who will creatively impact the field in the future.

It would appear that the stage is being set for an era of productive prospective implant research. Now there is the question of what to do with the valid research that has and will be accomplished. Hopefully, the practicing community will avail itself of the opportunity to profit from the investigation and experiences of research colleagues by making prudent treatment decisions, applying proven scientific findings and logic to the provision of the best patient care possible.

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2. Cranin AN, Silverbrand H, Sher J, Salter N: The requirements and clinical performance of dental implants, in Smith DC, Williams DF (eds): *Biocompatibility of Dental Materials, vol 4.* Boca Raton, Fla, CRC Press, 1982, p 198.

3. McKinney R, Koth DL, Steflik DE: Clinical standards for dental implants, in Clark JW (ed): *Clinical Dentistry.* Harperstown, NY. Harper & Row, 1984, pp 1-11.

4. Albrektsson T, Zarb CA, Worthington P, Eriksson AR: The Iong-term efficacy of currently used dental implants: A review and proposed criteria of success. *Int J Oral Maxillofac Implants* 1986;1:11-25.

5. Smith DE, Zarb GA: Criteria for success of osseointegrated endosseous implants. *J Prosthet Dent* 1989;62:567-579.