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GUEST EDITORIAL
Prosthodontic Research: A Call to Action

PROSTHODONTICS is well-defined as a clinical discipline that encompasses the treatment of a wide range of individuals with a spectrum of clinical needs. Are the present and future clinical needs presently being addressed by necessary innovation? When considering this vital and multifaceted question, we Prosthodontists should be able to characterize our present research enterprise in scope, significance, and potential.

Over a decade ago, there was an important emphasis on evidence-based dentistry among Prosthodontists. A simple summary of the various meta-analyses and systematic reviews that emerged from this important activity is that few prospective, comparative clinical studies provided data to guide our clinical decision making. This does not suggest that clinical Prosthodontics is careening out of control with little guidance, but instead this serves to remind the profession that the scientific method is available to support clinical decision making and innovation. When reviewing the recent status of oral health in America, the Surgeon General's report indicated "the need to accelerate the building of the science and evidence base and applying the science effectively." Perhaps it is time to look forward, ask important new questions, and develop new and improved data sets for further evaluation.

If Prosthodontists were to accept this call to action and choose in earnest to pursue novel investigations using contemporary methods in the context of modern translational science, what would we choose to study? A list of topics could emerge from a critical analysis of the current and future problems confronting Prosthodontics. Certainly, there is potential benefit from accurately defining the demographics of our Prosthodontic patients and the epidemiology of the diseases and conditions they present. We must embrace prevention, lifestyle influences on disease, and health disparities among our patients as important aspects of the conditions we treat that merit investigation. Given the impact of aging as well as chronic debilitating disease on the population in general, complex problems and conditions deserve careful scientific investigation at multiple levels. The biological basis of patient treatment outcomes is measurable at the genome, transcriptome, and proteome level. Our historical interest in materials research could be enhanced by recent advances in engineering and nanotechnology. Prosthodontics must be open to broad collaboration among colleagues in emerging scientific fields to more broadly define problems of mutual interest (e.g., idiopathic pain, biofilm formation, or tissue engineering) and to effectively investigate new and existing questions.

And with a list of important problems to address, how would the scientific environment influence our decision making? Prosthodontics is part of a complex and sophisticated biomedical environment that is constantly changing and evolving through assimilation of new information (e.g., the Human Genome Project) and new technology (e.g., novel imaging technologies). Charting a Prosthodontic research program may require inclusion of a wide range of activities that previously were not considered mainstream or traditional "Prosthodontic research," but may actually be more relevant in today's scientific environment.

Prosthodontic research should implicate itself in genetics, bioinformatics, and diagnostic imaging, as well as research programs that move beyond small cohorts and embrace entire populations and can be included among our thriving biomedical research institutions. The National Institutes of Health Roadmap suggests that we may effectively address clinical problems by completing the molecular catalog to complement our knowledge of the human genome, by building research teams that are capable of successfully addressing the complexity of diseases we study, and by building an effective clinical research infrastructure and clinical research enterprise. If this is the future roadmap for scientific success, then Prosthodontics must enable its own participation and support Prosthodontists who are able to follow this professional course.

Prosthodontics is a profession challenged by patient needs resulting from diseases and conditions of complex etiology. We Prosthodontists can bring problems of scientific merit and interest to the forefront of biomedical investigation and in doing so can reinforce Prosthodontics as an academically viable, scientifically meritorious, and socially relevant part of the biomedical landscape. As the new academic year begins, make your own local appraisals of the status of Prosthodontic research at your institution and measure its academic viability, general scientific merit, and relevance in the local biomedical environment. Write these thoughts down and share them with colleagues.

In January 2007, the American College of Prosthodontics Education Foundation and the University of North Carolina School of Dentistry, with generous corporate support, will hold a conference on the state of Prosthodontic research. Graduate program directors, research investigators, and administrators affiliated with Prosthodontics in US Dental Schools should be interested in attending and will be encouraged to attend by generous travel supplements. This conference will be the start of a meaningful dialogue that can lead to identifying and allocating meaningful research support for Prosthodontics.

Support for research should be developed through broadly-based initiatives involving industry, foundation, organization, and government resources. Supporting research that can be acknowledged as part of the greater ongoing scientific enterprise is an important step in affirming the profession of Prosthodontics and its ambition to remain a viable part of the contemporary biomedical environment.

Lyndon F. Cooper, DDS, PhD
Stallings Distinguished Professor of Dentistry
Director, Graduate Prosthodontics
Director, Bone Biology and
Implant Therapy Laboratory
Department of Prosthodontics
University of North Carolina
School of Dentistry
Chapel Hill, North Carolina