

## Remembering Steven Offenbacher, DDS, PhD

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The dental profession lost a giant last summer when Dr. Steven Offenbacher passed away suddenly while on vacation. The editorial below is being reprinted with permission from the *Journal of Dental Research*. It is an excellent tribute to Steve, but I want to add my personal thoughts. First, Steve Offenbacher was a leader in periodontal medicine. Much of what we know today about the relationship between oral and systemic disease can be traced back to his research. He was the author of hundreds of publications on these topics. Everyone should have a passion in life and research was his.

Second, Steve was a great friend to dental hygiene. Many of my graduate dental hygiene students here at the University of North Carolina worked with him on thesis projects, conducted research in his labs and clinics or merely sought him out for advice; I did as well. No matter how difficult the concept, I always felt like Steve could explain it to me and I could understand it...at least until I tried to explain it to someone else! He was a truly brilliant scientist, plus his sense of humor was contagious. Steve was always witty and friendly to everyone he met. I hope you will read the following editorial and pause for a minute to pay tribute to a national treasure and to a life well lived.

### In Memoriam – Dr. Steven Offenbacher<sup>1</sup>



Dr. Steven Offenbacher died unexpectedly on August 9th, 2018 at the age of 67 while on vacation in Norway with his family and friends. He served as the 29th President of the American Association for Dental Research (2000-2001). Steve was born in Zanesville, Ohio, on December 26, 1950 to George and Shirley Offenbacher and completed his undergraduate education in Chemistry at Boston University. He earned a DDS degree from Virginia Commonwealth University (VCU)

in 1976 and in 1977 received his Ph.D. in Biochemistry also from VCU. He then returned to Boston and in 1980 received a certificate in Periodontology and Oral Medicine from Harvard School of Dental Medicine. In addition, he completed a M.MSc. degree in Oral Biology at Harvard Medical School and a Postdoctoral fellowship in Pharmacology at Forsyth Dental Center.

Upon completion of his formal education, Steven accepted an Assistant Professor position at Emory University in Atlanta, Georgia from 1981-91. During those eleven years at Emory, he broadened his research endeavors and served for a period of time as the Department Chair of Periodontology. He had appointments in Periodontology, Oral Biology, Biochemistry, and the Winship Cancer Institute. In addition, he was a guest researcher in Anaerobic Microbiology at the Centers for Disease Control and the Yerkes National Primate Research Center. Even as a junior faculty member, he did not hesitate to seek opportunities to collaborate, grow and think outside-the-box. It was during this time that he began his first study on the associations between periodontal disease in pregnant women and adverse birth outcomes.

Steven and I first met at a Conference on Risk Assessment in Dentistry we held at the University of North Carolina in 1989. The conference was designed to bring more attention to the use of 'risk factors' in dental studies along with the search for 'causes.' It was not long after that meeting that Emory University's dental school closed and Steven came to UNC as an Associate Professor in the Department of Periodontology. This was a fortunate move for both of us. Steven had received grant application reviews suggesting his clinical studies needed larger sample sizes and I had received a review for an epidemiological study recommending more biomarkers. Even though Steven had indicated that as a biochemist, he could be very happy working with one liver, we have had a very productive partnership over the last 25 years.

Steven had an incredibly noteworthy career. He was a brilliant scientist and was considered the father of “periodontal medicine” due to his work on cardiovascular disease and adverse pregnancy outcomes. While he was not the first to publish on the relationship between periodontal disease and cardiovascular disease, he was the first to publish a biological model of how periodontal disease becomes systemic. Knowledge in this area keeps expanding, but it remains supported by the basic model he proposed. He also pioneered the research between periodontal disease and adverse pregnancy outcomes. Since his work in the area of oral and systemic diseases was novel, few appreciated how these associations also led to a better understanding of periodontal disease itself. For example, being a part of a medical study of coronary heart disease that collected a wide variety of biomarkers and along with detailed genotyping provided the opportunity to more completely characterize periodontal disease in large, representative groups of people. Steven believed that we should have the ability, when it was needed, to conduct research on a topic that involves basic, animal, translational, clinical, population-based studies, and most recently, the individual, bringing precision medicine to periodontology. He not only envisioned moving discovery made in animal models eventually to treatment of a patient, but also to take observations from clinical findings back to the laboratory to explore underlying mechanisms in animals. To facilitate this research, he established the Center for Oral and Systemic Disease in the dental school that included a clinical research unit (General and Oral Health Clinic), a laboratory, an animal research arm, a unit to train examiners for clinical studies, and the ability to conduct epidemiology studies.

Steven was honored many times throughout his career, beginning when he was a student. As a faculty member, he was awarded the 1999 International Association for Dental Research (IADR) Basic Science Award in Periodontology; the 1999 William J. Gies Award for Achievements in Periodontology; the 2006 American Dental Association (ADA) Norton M. Ross Award for Excellence in Clinical Research; the 2014 American Academy of Periodontology (AAP) Distinguished Scientist Award; and the 2015 ADA Gold Medal Award for Excellence in Dental Research. He was particularly fond of the 2001 Foundation for Healthy Mothers, Healthy Babies Coalition Special Impact Award as he had testified at a congressional hearing regarding this topic. He also was fond of the 2008 AAP Educator Award for Outstanding Teaching and Mentoring in Periodontics. That fondness was a result of the 104 pre-doctoral, MS, PhD, and

Post-Doctoral students he mentored. Additionally, he won the AAP Clinical Research Award four times (2004, 2006, 2008 and 2009). In 2013, competing with faculty members throughout the University, Steve was awarded a W.R. Kenan Jr. Distinguished Professorship by the University of North Carolina, which represented a rank above Full Professor.

Steven was a bundle of positive energy. Multiple collaborators characterized him as a “kid in a candy store” due to his excitement about research. He was very entrepreneurial and believed strongly in collaboration with others. He was an optimist at heart and while recognizing that something negative had happened, it was something to learn from, but time to move on. He neither dwelled on it nor wanted to talk about it again. Those who knew him knew that he greatly appreciated humor (although his jokes were not always that good) and that he had a quick wit that often resulted in self-deprecating humor. In addition to his research, He served more than two terms as Chair of the Department of Periodontology and taught in the DDS Curriculum. Steven also took time to be a terrific mentor to residents, graduate students, postdocs, and junior faculty. Those who worked with him would tell stories about how he always wanted to see new data and when there were interesting findings he would do a “data dance”. Everyone knew that no matter how busy he was, they could get his attention if they told him they had new data.

Since Steven loved data, it is appropriate to summarize the data that pertain to his career. At the time of his passing, he had published 339 articles in peer reviewed Journals with twelve papers in press. Two of the *in press* papers are Nature Publishing Group publications. During the last five years, his articles were cited 12,801 times (not counting self-citations) and his H-Index was 61. During his career, he had continuous grant support totaling 56 grants from NIH and industry. The subject areas of his research included articles in dentistry, medicine, biochemistry, genetics, microbiology, immunology, pharmacology, toxicology, chemical engineering, social sciences, mathematics, and neuroscience. While his name is most associated with his work in periodontal medicine, his passion for learning led him to help pioneer different areas of expertise. This included work in epigenetics, classification of periodontal disease, and exploration of the role of single nucleotide polymorphisms genetics (GWAS) using multiple approaches to identify and characterize genes potentially involved in the pathogenesis of periodontitis. His research network included more than 200 scientists around the world.

While these data are impressive, they do not tell the whole story. As consumed with work as he was, Steve did have balance in his life. He loved his family and frequently traveled around the world with his wife, Julie. He enjoyed fishing with his son, Cody, as well as taking father-son trips. He was always reading and constantly absorbing new ideas as well as mystery novels. He loved to cook and enjoyed spending time with his dogs, in the outdoors, and at his home. He had a life-long love of music. In fact, Steven paid his way through dental school playing guitar with a lounge act he organized. Music remained a big part of his life and he planned to spend even more time exploring it when he retired.

Steven made impactful contributions to science, especially in the field of Periodontology. His work was important in raising awareness that the mouth, indeed, was linked to the rest of the body in ways we had not anticipated previously. In doing that, he also made contributions to our understanding of periodontal disease and its treatment. As busy as he was, he always scheduled time to see patients and those experiences contributed to his quest for discovery. Steven touched the lives of those he taught, especially mentees ranging from pre-dental students to junior dental and medical faculty. Those of us who knew him well will not be able to replace him in our lives, but the knowledge and excitement about discovery that we gained and experienced with him will keep inspiring us as we move forward.

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1. Beck, J.D. Dr. Steven Offenbacher, 1950-2018. *Journal of Dental Research*, Onlinefirst, pp. 1-2. Copyright© 2018 by International & American Associations for Dental Research. Reprinted by permission of SAGE Publications, Inc.