

## **Feature Article: Focus on Academics – UTHSCA**

### **The University of Texas Health Science Center at San Antonio Dental School Residency Program in Orthodontics**

John D. Rugh, PhD, Professor and Chair of the Department of Orthodontics

#### **Overall Mission**

The mission of the residency at San Antonio is to train excellent clinicians who will be able to obtain the American Board of Orthodontics certification immediately after completion of the program. A broad-based education program is offered which prepares graduates for clinical practice and/or to teach orthodontics, as either part-time or full-time faculty if they choose. The 35-month Residency Program provides an excellent clinical education balanced with a broad array of scholarly activities including didactic and clinical teaching, basic science and clinical research, and preparation of publications.

#### **The History of the Program**

The Dental School at The University of Texas Health Science Center at San Antonio was founded in 1970; however, the Orthodontic Residency Program at San Antonio was not established until thirty years later in July of 2000.

Prior to inception of the residency program, the Orthodontic Department at San Antonio established a nationally recognized undergraduate orthodontic teaching program and a world-class NIH funded research program. Dr. Dan C. Peavy, Jr. was the first Chair of the Orthodontic Department and one of 25 founding faculty of the new Dental School. Dr. Peavy established and taught a 72-hour orthodontic predoctoral curriculum. Dr. H. Perry Hitchcock followed Dr. Peavy as Chair and served until Dr. Arthur T. Storey was appointed chair in the mid 1980s. Dr. John Rugh was appointed Department Chair in 1996 when Dr. Storey retired.

The Department continues to make a substantial commitment to predoctoral orthodontic education. The basic premise is that the more general practitioners and other specialists know about orthodontics, the better it is for the entire dental profession. In an era of increased emphasis on interdisciplinary treatment regimens, orthodontics must be a major player in any undergraduate curriculum. General practitioners must be trained to recognize when orthodontic care can augment dental treatment plans to achieve a new level of treatment excellence. Failure to expend resources for undergraduate orthodontic training in the past has invited proprietary entities to fill in the gap. Our goal is to abolish the image of being a self-serving specialty. It is our experience that our graduates interact more, not less, with the orthodontic specialists in our area to the benefit of all.

At present, we teach three courses in the undergraduate curriculum for a total of 68 class hours. We offer five elective orthodontic courses for students wishing to further their knowledge. The central theme of all of these courses is diagnosis. To be sure, all other aspects of orthodontics are taught, but Profit's admonition, "If you don't know where you are going, it doesn't matter which road you take" is our constant guide. If you are interested in taking a closer look at the specifics of our undergraduate curriculum, please contact the Program Director, Dr. Clarence C. Bryk.

The inspiration to start an Orthodontic Residency Program came from former chairman of the department, Dr. Arthur Storey. The effort was revitalized by the succeeding chairman, Dr. John Rugh, and the faculty in 1997 with the support of the San Antonio orthodontic community. The commitment was to develop a program to educate orthodontists for a career in academics. The goal was to address the serious shortage of academic orthodontists in programs across the nation. Following 4 years of planning, proposal writing and approvals, the program enrolled its first three residents in June of 2000. The new residency program has successfully completed two

ADA accreditation site visits (2002 and 2005), receiving “accommodations” and no “recommendations” on either visit.

The residency at San Antonio has been extremely fortunate to have four individuals, each with unique strengths, involved in shaping the various components of the new program during its formative years. The first program director, Dr. Larry White, laid the foundation for clinical excellence in the program. He was succeeded in 2002 by Dr. C. Lynn Hurst who put a strong emphasis on research and the ABO certification of the residents and faculty. Dr. Hurst was recruited by the University of Nevada at Las Vegas as an Associate Dean in 2005. Dr. Gerome Gibson stepped in as interim program director and significantly enhanced the organizational structure of the new program. Dr. David Gonzales was appointed in October of 2005 and contributed significantly to the clinical didactic components of the program following his leadership (2002-2005) of the Tri-Service Orthodontic Residency Program based at the Wilford Hall military facility in San Antonio. Dr. Dubravko Pavlin, our recently appointed program director will build upon the solid foundations each of these early directors laid. Pavlin has been full-time orthodontic faculty in the department since 1992 and one of the founding faculty of the Orthodontic Residency Program.

During the first 5 years, the Orthodontic Residency Program focused on the primary mission of attempting to identify and train future orthodontic academicians. In addition to providing an excellent clinical education, residents were required to develop their teaching and research skills, which would prepare them for a future academic career. In 2005, the program modified its mission and deemphasized its original focus on training academicians. However, we still provide the opportunity for residents interested in pursuing an academic career to obtain experience in teaching and other scholarly activities.

The program has accepted three residents each year with the exception of a fourth special Prosthodontic/Orthodontic resident in 2005. Starting in July 2008, a fourth resident will be selected from the pool of applicants from the U. S. Armed Services. This fourth position will be targeted for the top candidate selected from the military source.

### **Unique Features of San Antonio Residency Program**

Our Residency Program is committed to producing not only excellent orthodontic clinicians, but also lifelong learners with the highest professional standards. The program provides a balanced, broad-based education, which includes rigorous clinical training, cutting-edge research, hands-on teaching in classroom and clinical settings, and development of scholarly-minded clinicians.

Clinical training of residents is based on a strong didactic curriculum providing a theoretical basis in the areas of growth and development, treatment planning, biomechanics, biomaterials and biological sciences. Full-time and part-time faculty provide lectures and lead clinical seminars before each clinic session. Each resident starts approximately 65 patients and receives an additional 15-20 transfer cases. One of the main driving forces behind excellence in clinical teaching is the part-time faculty.

Our 2,500 sq. ft. clinic is a 5-year old state-of-the-art facility that was planned for efficiency and a pleasing environment. The 16-chair, open flow clinic includes a laboratory, material/model storage and a consultation room. Each operating unit has a computer terminal and screen for easy access of electronic records including patients' treatment plans, photos, radiographs, and cone beam tomograms. In addition, the department has a computer room with three computers. All clinics, offices and classrooms in the Dental School are covered with high-speed wireless Internet connections for access to orthodontic servers from laptop computers. Each resident has an assigned cubicle in a separate work and study room; the university library is in the same building complex.

The residents are evaluated for didactic competency by taking a comprehensive exam during the second year, followed by the ABO written examination at the end of that year. Practical clinical competency is evaluated twice a year using a questionnaire completed by each clinical faculty. In addition, each resident selects six cases that will be presented to the ABO for initial Board Certification. These cases are closely monitored and evaluated by faculty, and one case from each resident is selected as an ABO display case at the annual AAO meeting at the end of the third year. Our class of 2005 was one of 20 orthodontic classes in the US that participating in the Resident Pilot Study comparing the level of clinical competency of the residents to that of certified orthodontists.

Research is another essential component of our Residency Program. Each resident is required to participate in a clinical or basic science research project. Quality is evaluated by submission of a publishable quality manuscript for a peer-review journal. The residents currently have an option of obtaining an MS or a PhD degree in any one of the many clinical and basic science programs offered by our Graduate School of Biomedical Sciences or UTSA. Past residents have obtained masters degrees in Clinical Investigation, Cellular & Structural Biology, Radiology/Diagnostic Science and Business Administration. The diversity of offerings for the Masters and PhD degree allows residents to pursue their individual intellectual interests.

Several residents are currently involved in the area of genetic regulation of bone cells during orthodontic tooth movement and distraction osteogenesis. Dr. Blair Barnett from the class of 2007 received the Guarino Award for his Masters Thesis from the Graduate School of Biomedical Sciences. This is the highest recognition for quality of student research from all programs at The University of Texas Health Science Center—a remarkable recognition for our Dental School, Orthodontic Department, and the Residency Program. Blair's work was in the area of genetic regulation in bone during distraction osteogenesis under the mentorship of Dr. Dubravko Pavlin.

Many of our residents and faculty have participated in our department's national Practice-Based Research Network (see Nov/Dec issue of the 2005 AAO Bulletin). Our department is proud to report that the first study completed in our Practice-Based Research Network dealing with direct vs. indirect bonding was selected as an AJODO "Editor's Choice" (2007, vol. 132, pp. 738-42). Several orthodontic residents and part-time faculty are now focusing on the problem of white spots. Dr. Gakunga is coordinating multiple laboratory and clinical studies focusing on this important clinical problem.

In addition to clinical training and research, each resident actively participates in teaching predoctoral dental students and residents of other programs (Pediatric Dentistry and General Dentistry) in both classroom and clinical settings. Third-year residents lecture in predoctoral orthodontic courses and participate as instructors in small-group case analysis seminars for junior dental students. These unique case-based seminars are the hallmark of our predoctoral orthodontic program and have become a model for patient-based teaching locally and around the country. Each resident serves as a moderator of a group of 10 dental students during the seminar that includes orthodontic case presentations and discussion by students. Some of the residents became very popular instructors among the dental students, which greatly invigorates and positively impacts both predoctoral and residency programs.

Consistent with our commitment to address the shortage of orthodontic educators, in 2003, the department established a 4-year Faculty Transition Program designed to prepare graduating residents for a career in academics (see AAO Bulletin, March 2005). The program provides protected time for the trainee to obtain his/her orthodontic boards, engage in research, obtain grant funding and gain teaching experience. Dr. Peter Gakunga, from our first residency class graduating in 2003, has recently completed the 4-year Faculty Transition Program and has joined our department as a full-time faculty. He has taken course directorships in the predoctoral and residency programs, as well as contributing to school-wide committee service and leadership—clearly documenting his commitment to an academic career.

## **Faculty**

Our part-time clinical faculty are absolutely essential for the high quality of clinical education in the Residency Program. This group represents a unique blend of practitioners trained in some of the finest residency programs in the U. S. and Canada. Many of our clinical faculty are recognized as leaders in the orthodontic community locally and nationwide. For example, Dr. O. B. Vaughan was the recent recipient of the Ketcham Memorial Award by the AAO for excellence in service and Dr. Paul Wiegand is the immediate past President of the Texas Association of Orthodontics. In addition to their dedication and commitment to education, the part-time faculty bring to the program a variety of treatment approaches, providing for the residents an exposure to and understanding of all the most current orthodontic techniques. In addition to the chair side instruction, part-time faculty participate in all other aspects of residents' education, including didactic teaching, mentoring research, evaluation and guidance in practice selection and management.

## **Needs and Plans for Future Development**

The residency at San Antonio is a young program with multiple opportunities for growth and further development. Our program is only eight years old with a relatively small number of graduated residents. Our desire is to strengthen our alumni organization, so that we will be able to collaborate with and receive support from this group in the future. Strong alumni support is essential for any Orthodontic Residency Program. As our alumni establish their careers, we look forward to engaging them more in all aspects of our Residency Program.

We are also looking forward to further enhancing the national and international stature of our new program through faculty and resident scholarship as well as visibility at professional and scientific meetings. The recent appointment of Dr. Pavlin as program Director will move us in that direction. He has demonstrated his commitment to orthodontic education in the past and is determined to lead the Program to the next level of excellence.

Future developments and initiatives will also include:

- Establishment of an MS degree within the department
- Further expansion of the Faculty Transition Program to address the shortage of orthodontic full-time faculty
- Exploring new faculty salary compensation plans that will make full-time academic life more comparable to private practice
- Development of a new program to identify and transition experienced orthodontists into a second career in academia
- Continue to build our department's NIH funded basic and clinical science research programs—an essential requirement for maintaining our independent departmental status within the Health Science Center

## **About the Residency Program Director**

Dr. Pavlin, DMD, MSD, PhD, Associate Professor was appointed acting Director of the UTHSCSA Orthodontic Residency Program in August of 2007 and the permanent Program Director on March 1, 2008. Prior to that, he was an Associate Professor and a full-time faculty in the Department of Orthodontics. In addition to teaching, his academic activities include research in the area of bone biology and treating private patients in the orthodontic faculty practice.

Dr. Pavlin earned his orthodontic specialty certificate in 1986 and his PhD in Biological Sciences in 1992, both from the University of Connecticut Health Center, and was ABO certified in 2005. He obtained his DMD in 1973 and MS in Orthodontics in 1982 from the University of Zagreb, Croatia. He maintained a private practice in Croatia from 1973 to 1982. Prior to his appointment

in the UTHSCSA Orthodontic Department, he was on faculty in the Department of Orthodontics at the University of Connecticut from 1988 to 1992.

Dr. Pavlin's academic activities always included didactic and clinical teaching of orthodontics, as well as research in the area of gene regulation in bone cells during orthodontic tooth movement and distraction osteogenesis. He published numerous papers and book chapters and is recognized as a speaker/lecturer both nationally and internationally in the areas of bone biology and orthodontic biomechanics. He carried NIH-funded research projects and training grants over a period of 25 years and was a mentor and thesis/dissertation committee member for numerous graduate and dental students and residents. He received several awards for his research and served as a reviewer for all major orthodontic journals and most reputable journals in bone biology. As a faculty in the UTHSCSA Orthodontic Department, he served as the Director of the Predoctoral Orthodontic Program in 2003/2004, the Director of Orthodontic Clinic in 2006, and as a member or chair of numerous Dental School and UTHSCSA Committees and grant review boards. Since 1996, he served over several periods as an ad hoc member of the National Institute of Dental Research Scientific Review Boards. With his broad range of academic and clinical activities, Dr. Pavlin has made significant contributions to clinical orthodontics, as well as research in bone biology.

### **About the Department Chair**

John D. Rugh, PhD, Professor and Chair of the Department of Orthodontics, was recruited by the Dental School at San Antonio in 1977. He obtained his PhD in experimental psychology from the University of California at Santa Barbara in 1975. Prior to being appointed Chair of Orthodontics in 1996, Dr. Rugh established a strong history of program development, academic administration, and research within the Health Science Center. He established and directed the multidisciplinary UTHSCSA Facial Pain Clinic for more than 20 years. In the 1980s he developed the Dental School's NIH funded Student Research Program. He established and continues to serve as course director for the 28-hour advanced education Dental Research Methods core course and a 22-hour Evidence-Based Dentistry course for the sophomore dental class. In March of 2008, he received a 4-year, \$648,000 NIH Research Education Grant that involves a school wide education reform initiative to integrate evidence-based practice into 28 predoctoral and advanced education courses.

Dr. Rugh's administrative experience includes serving as Chair of the predoctoral dental curriculum committee, the advanced education (residency) curriculum committee, and 32 other dental and Health Sciences Center committees or special task forces. He served as Acting Chair of the Department of Community Dentistry (1983-1984) and Director of Research for the Dental School (1991-1997).

At the national level, Dr. Rugh has served as President of the Neuroscience Section of the International Association for Dental Research (1987-88) and President of the Biofeedback Society of America (1983). He served as President of the American Association for Dental Research (1994-95). In 1995, he accepted a four-year term on the Scientific Advisory Council of the National Institute for Dental Research. His contributions to the dental profession have been recognized by honorary memberships in the American Dental Association, American Academy of Orofacial Pain and the San Antonio District Dental Society. In 2007, he was awarded Honorary Fellowship in the American College of Dentists.

Dr. Rugh's research accomplishments include 20+ years of NIH support for research and training programs. He has published 111 articles, 18 book chapters, and 4 books. The quality of Dr. Rugh's research accomplishments is documented by his selection for the International Association for Dental Research Distinguished Scientist Award in 2002 for Behavioral Sciences and Health Services Research.

## **Faculty, Residents and Staff**

### *UTHSCSA Orthodontic Clinical Faculty*

#### Full Time Faculty:

John Rugh, PhD, Department Chair  
Dubravko Pavlin, DMD, MSD, PhD, Residency Program Director  
Clarence Bryk, DDS, MS, Undergraduate Program Director  
Peter Gakunga, DDS, MS, PhD

#### Part Time Clinical Faculty:

Bloyce Britton, DDS, MS  
Fidel Del Toro, DDS, PhD  
Jerome Gibson, DDS  
Henry Hammer, DDS, MS  
Lee Harris, DDS, MDS  
David Hime, DDS, MS  
Bryan Jennings, DDS, MS  
Ann Larsen, DDS, MS  
Percy Luecke, DDS, MS  
Robert Lemke, DDS, MD  
Daniel Peavy, DDS, MSD  
Norman Salome, DDS, MSD  
Ray Sprayberry, DDS, MSD  
O. B. Vaughan, DDS, MSD, MS  
Paul Wiegand, DDS, MSD

### *UTHSCSA Orthodontic Research Support Faculty*

Lianrui Chu, MD  
S. Thomas Deahl, DMD, PhD  
John Hatch, PhD  
Jelica Heinrich, PhD  
Robert K. Klepac, PhD

### *Dental Assistants*

Mrs. Rita Cruz, Clinic Coordinator  
Mrs. Georgina Alonzo  
Mrs. Lenet Brinegar  
Mrs. Elva Velez

### *Department Staff*

Mrs. Patricia Nield, Department Administrator  
Ms. Patti Lairsey Residency, Academic Coordinator  
Ms. Jennifer Rodriguez, Administrative Assistant II

### *UTHSCSA Orthodontic Residents*

#### 3rd Year - May 2008 graduates:

Ravikumar Anthony, BDS, DMS  
Kresimir Lackovic, MSc, DMD  
Wendell Neeley, DMD, MD

#### 2nd Year – May 2009 graduates:

Danielle Cao, DDS  
Elaheh Mohebzad, DDS  
Marjorie Tsutsui, DDS

#### 1st Year – May 2010 graduates:

Jonathon Kimes, DDS  
Brandon McGarrell, DMD  
Benjamin Richards, DMD