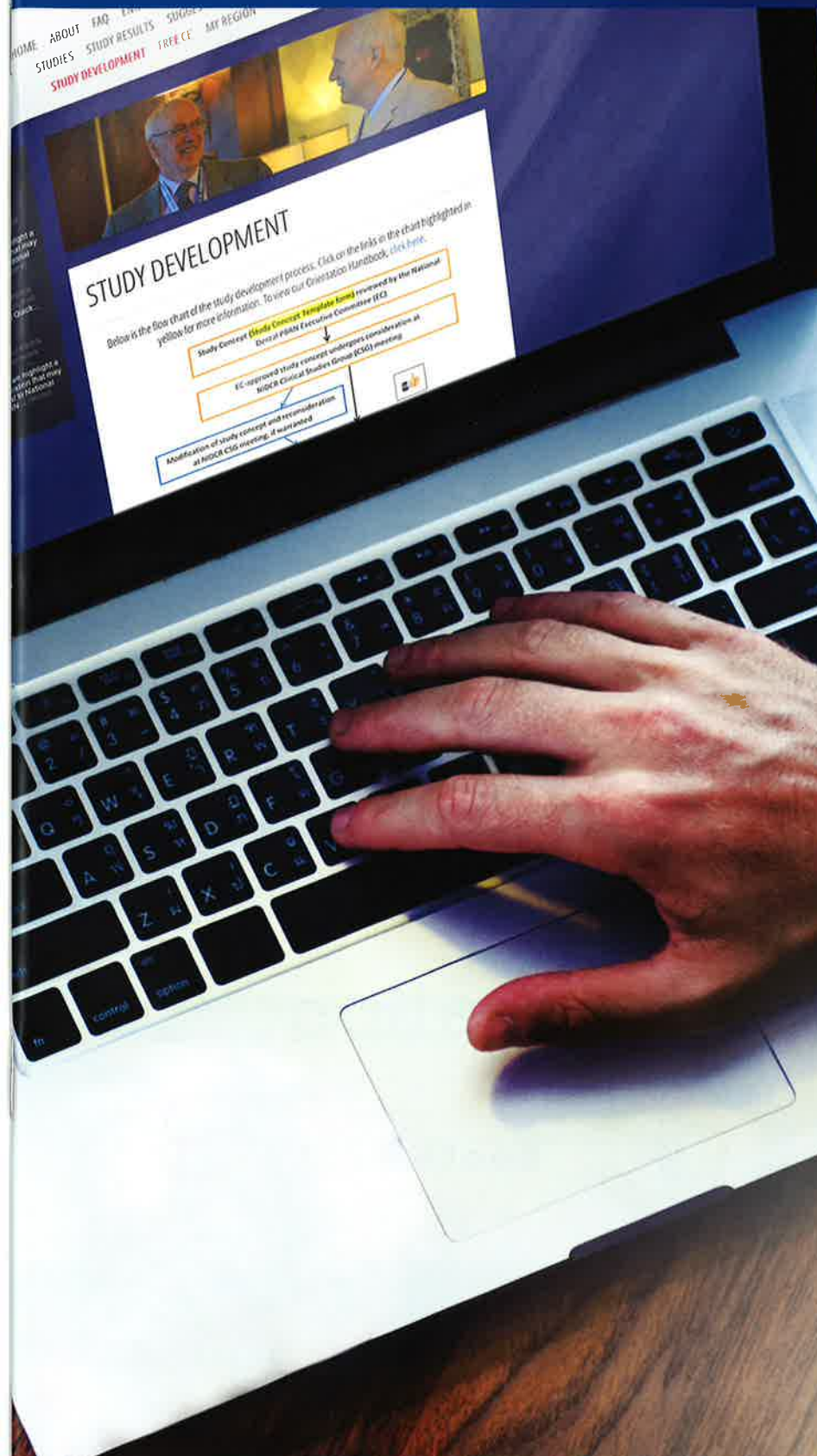


The Bulletin

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Inside This Edition

**The National Dental
Practice-Based
Research Network**



**American
Association of
Orthodontists®**

My Life. My Smile. My Orthodontist.®



Orthodontists joining the National Dental Practice-Based Research Network will be eligible to participate in orthodontic studies as they are approved.

Recruitment of AAO Members is Underway

"As an archive of peer-reviewed research, the *AJO-DO* is committed to accepting and publishing investigations of the highest quality. The lowest quality of evidence consists of expert opinion, and the highest quality evidence consists of systematic reviews and meta-analyses. Although most systematic reviews evaluate the best available observational studies, ideally, a systematic review summarizes the outcomes of randomized controlled trials. One major challenge is obtaining a sufficient number of randomized subjects. Although a sample size calculation will determine the appropriate number of subjects necessary to provide adequate statistical power, enrolling enough subjects in an RCT can be an overwhelming task. Fortunately, there is a solution."¹

With the above words, **Dr. Vincent G. Kokich Sr.** began an editorial that was published in the *AJO-DO* in September 2013, several weeks after Dr. Kokich passed away. The solution to which Dr. Kokich referred—that would help address the challenge of obtaining enough subjects to meet the requirements of a randomized controlled trial - is a network of orthodontists enrolling patients in RCTs and pooling their treatment data. The AAO recently began recruiting members to such a network.

Join the Orthodontic Practice-Based Research Network at Annual Session

- To join the orthodontic **Practice-Based Research Network** at the 2015 Annual Session (May 15-19 in San Francisco) go to the Practice-Based Research Network booth, where representatives of the National Dental Practice-Based Research Network and the AAO will be available to answer questions and enroll members.
- The Practice-Based Research Network Booth will be located on the concourse outside the Exhibit Hall at the Moscone Convention Center. The Exhibit Hall location will be Moscone South, Level 1.
- If you are unable to attend Annual Session, please watch your in-box for e-mails providing instructions for joining the PBRN.

REFERENCE

1. Kokich, Vincent G. Consider Joining the orthodontic practice-based research network. *Am J Orthod Dentofacial Orthop* 2013; 144 (3); 323.

“One major challenge [of conducting a successful systematic review] is obtaining a sufficient number of randomized subjects. Fortunately, there is a solution.”

— Dr. Vincent G. Kokich Sr.

“Much of our orthodontic knowledge is based on evidence that is relatively low on the hierarchy of evidence,” says **Dr. Greg J. Huang**, chair of the AAO Practice Based Research Network Committee and professor and chair of the Orthodontics Department at the University of Washington. “Research conducted in university settings has often been criticized as not generalizing to real-world practice, and studies based on patients treated in private practice settings raise concerns about potential for bias.”

Pilot Dental Practice-Based Research Network Produced Excellent Results

The National Dental Practice-Based Research Network, which began 10 years ago as an initiative of the National Institute of Dental and Craniofacial Research (NIDCR), created and funded regional networks of dental practices participating in research. In his editorial, Dr. Kokich noted that over seven years, 1,700 dental practitioners (nearly 6 percent of whom were orthodontists) in more than 40 states enrolled in the National Dental PBRN. The results included:

- 51 research studies;
- 87 journal articles.

The success of the first research network initiative motivated the NIDCR, a unit of the federally funded National Institutes of Health, to set up a second seven-year program, offering nearly \$67 million in grants to continue and expand the dental practice-based research network.

Dr. Huang describes practice-based networks as “combining the best elements of university-led research performed by a network of experienced clinicians. A network has the advantage of well-defined protocols, the power of recruiting large numbers of patients in a relatively short period of time, and good generalizability - since many practitioners contribute subjects to the study.”



Dr. Greg J. Huang

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A network of orthodontists pooling treatment data is expected to help address the challenges of obtaining sufficient subjects to meet the requirements of a randomized controlled trial (RCT).



AAO Recruiting Members to the National Dental Practice-Based Research Network

The AAO trustees reviewed information from the National Dental Practice-Based Research Network in 2013 and formed the AAO Practice-Based Research Network Committee to coordinate participation in the National Dental PBRN by the AAO.

“The first step was to initiate project proposals and submit them,” says Dr. Huang. “The review process is lengthy and until a project is approved for funding, doctors may not be recruited to join the study.”

AAO authors submit their project proposals first to the AAO Practice-Based Research Network Committee, which responds with recommendations. After revisions are made to the proposal, it is submitted to the National Dental PBRN, which may accept it or more likely, return it with concerns and suggested improvements. After revisions are made, the project goes through one or more additional rounds of reviews by the AAO PBRN Committee and then the National Dental PBRN.

“Because we have one study that has just been approved and another that is largely through the approval process, the time is right for the AAO to recruit network members, which is what we

will begin doing at Annual Session (see box on page 2),” says Dr. Huang. “Members who sign up at Annual Session may join the anterior open-bite study that has just been approved (see page 5). All new network members and their staffs will be eligible to undergo initial training from the National Dental PBRN, however, whether or not they are participating in the open-bite study.”

The National Dental PBRN provides training for research network members and their staffs. Trainers will cover research methods, HIPAA requirements, patient informed consent to participate, etc. As members agree to participate in specific studies, National Dental PBRN regional coordinators train each participant and his/her staff on the particulars of the project.

Participants in studies receive compensation via the National Dental PBRN grants for each study.

“We have been presented with an exciting opportunity to conduct timely and important research in our field,” says Dr. Huang. “I am counting on my colleagues from all over the country to join in this effort to improve our knowledge base in order to determine the best treatments to offer to our patients.”

Who May Join the Practice-Based Research Network?

Because of the federal funding of National Dental Practice-Based Research Network projects, participation in network research is open exclusively to dentists and dental specialists in practice in the United States. U.S.-based orthodontists in the following practice settings are eligible to join the network or may be able to join, as noted below:

- Private practice of orthodontics;
- Private multispecialty practice;
- Corporate practice (provided the signatory authorities of the corporation sign the participation agreement);
- Orthodontic faculty practices at academic institutions.*

* Orthodontic residency clinical programs are not eligible to participate in PBRN studies. Also, orthodontists practicing in military dental corps are not eligible to participate.



Dr. Veerasathpurush "Sath" Allareddy

AAO Members Develop PBRN Projects

The following projects developed by AAO members have been submitted to the National Dental Practice-Based Research Network for consideration for funding:

Study Topic: Anterior Open Bite

- **Principal Investigator:** Dr. Greg Huang, University of Washington
- **Project Status:** Recently approved for funding by the National Dental PBRN
- **Dr. Huang's Project Description:**

"Anterior open bites have always been challenging to treat, as well as to retain. Our study will attempt to answer three major questions regarding adult anterior open-bite patients:

First, what treatments are orthodontists recommending to these patients, and what treatments are patients accepting?

Second, what are the success rates associated with different kinds of treatment, such as extractions, or TADs, or orthognathic surgery?

Third, what factors are related to long-term stability?"

Study Topic: Class II Division Malocclusions

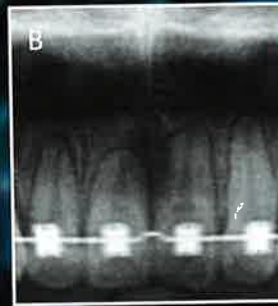
- **Principal Investigator:** Dr. Veerasathpurush "Sath" Allareddy, University of Iowa
- **Project Status:** This project has partially completed the National Dental PBRN review process and revisions are underway.

Dr. Allareddy's Project

Description: "Although Class II malocclusions are one of the most frequently treated cases in orthodontists' offices, there is no uniform consensus in the orthodontic community regarding the best treatment modality and biomechanical approach to use in treating patients with Class II malocclusions. We propose to conduct a nationwide study (of providers enrolled in the Practice Based Research Network) to delineate the relative effectiveness of different non-surgical treatment modalities to treat patients with severe Class II Division I malocclusions (overjet > 8 mm, bilateral Class II molars). The study findings will enable orthodontists to gain insight into the most effective intervention for improved clinical outcomes (end-of-treatment and long-term stability) and to tailor the best intervention strategy to the specific needs of individual patients. The specific objectives are to examine end-of-treatment outcomes, long-term stability, and quality of life in patients with severe Class II Division I malocclusions."



Radiographic evidence of a normal crown-root ratio (A) and severe root resorption following orthodontic treatment (B) in contrast to a radiograph depicting short root anomaly in a patient who never had orthodontic treatment – i.e., whose full-length roots never developed (C).



Without an appropriate history, these two conditions are difficult to distinguish and may be genetically related. (Information and photos courtesy of Dr. Sylvia Frazier-Bowers, co-author of a study in review by the National Dental Practice-Based Research Network.)

Study Topic: Root Resorption

Principal Investigators:

Dr. Jaime De Jesus-Vinas, University of Puerto Rico;
Dr. Sylvia Frazier-Bowers, University of North Carolina;

Project Status: This project recently began the National Dental PBRN review process.

Dr. DeJesus' and Frazier-Bowers' Project Description:

"An AAO nationwide survey* revealed that root resorption was considered a very important clinical issue by 60 percent of participating orthodontists. Our proposal addresses this concern of the orthodontic community. Among the complications of orthodontic treatment, external apical root resorption (EARR) represents a challenge in terms of management and post-treatment outcomes. However, the etiology and risk factors are not yet clearly defined. The objective of the study proposal is to address gaps of knowledge that remain in terms of the etiology and risk factors for EARR and to specifically investigate the contribution of one risk factor: Short Root Anomaly (SRA).

"The proposal calls for creation of an EARR registry for clinical and genetic characterization of this challenging problem; will facilitate a close examination of risk factors that contribute to the onset of this problem; and determine clinical outcomes when specific interventions are utilized.



Dr. Jaime De Jesus-Vinas



Dr. Sylvia Frazier-Bowers

It is of particular relevance to our proposed study that this clinical problem shows evidence of a genetic contribution, also making it well-suited for downstream genetic studies. Creating a registry that will facilitate long-term studies is the logical first step to address the emerging advances in the healthcare management of common or rare disorders that have a genetic etiology. But the ultimate goal is to be prepared for advances in the delivery of health care and the concept of 'precision medicine' or 'personalized medicine.' The approach of using a medical model that customizes healthcare by devising treatment plans that are tailored to the individual patient (often based on genetic architecture) will undoubtedly impact the practice of dentistry and orthodontics."

* In 2013, the AAO sent the Practice-Based Research Survey to members in the United States.

Dr. Erickson Gives Back to the Specialty by Participating in the Research Network

After entering orthodontic practice in St. George, Utah nine years ago with the late Dr. Mervyn K. Cox, **Dr. Jeff Erickson** became active in his local general dental society. At society events, he heard about the National Dental Practice-Based Research Network and learned that the National Dental PBRN was recruiting orthodontists in his region to participate in some funded studies.

"I thought the idea was very interesting and joined the network," says Dr. Erickson. "Regional coordinators from the National Dental PBRN came to our office to train the staff and myself. After training, we were able to join specific projects. I felt that the studies were all very well-designed and executed."

Dr. Erickson's office participated in a study of white-spot lesions and how they progressed with a particular treatment; and a study of the patient experience of having temporary anchorage devices (TADs) and of the devices' durability.

"We also received training on the methods for each specific study as we joined it," says Dr. Erickson. "Every aspect of our experience with the network was positive. The training program made the staff comfortable with the process, and the trainers were readily available by phone anytime we had questions. The data submission process was very simple and could largely be handled by the staff. The paperwork was self-explanatory. The impact on my time was minimal because I did not have to be very involved in the day-to-day process."

The National Dental PBRN training program included an informed consent process for patients whose information was to be included in the data submitted for the studies.

"Patients usually responded very positively to the opportunity to be part of orthodontic research," says Dr. Erickson. "I think that for many of them, being part of orthodontic research helped strengthen their respect for orthodontics and perception of it as a profession."

While completing his DDS degree at the Indiana University School of Dentistry, Dr. Erickson developed a strong interest in research, earning several research awards and giving presentations at international and national meetings. After he completed

his degree, he served as a U.S. Navy dentist and then completed his orthodontic residency at St. Barnabas Hospital in New York City.

As he began his work with the research network, Dr. Erickson was intrigued to learn that the National Dental PBRN will consider study proposals from any qualified dentist or dental specialist.

"The program isn't just for the academicians," he says. "Of course, developing a study is time-consuming, which is challenging when you have many patients and a practice to run, but it is possible to do so and have the project approved for funding. I am actually in the process of trying to develop a study myself."

In the meantime, Dr. Erickson finds satisfaction in sharing his experience with the research network.

"The PBRN also has meetings for network participants, which I attended and got to know new friends who shared my commitment to the effort," he says. "I am strongly aware of how much easier my life is because of the hard work by orthodontists who came before us, including the vast quantities of research that they produced. For me, participating in the research network is a small way to give back to the specialty. I am looking forward to being part of the orthodontic PBRN and think that many of my colleagues would also find it rewarding to contribute to our field in this way."

Dr. Jeff Erickson was a participant in the first seven-year network initiative of the National Dental Practice-Based Research Network. One of the studies in which he participated addressed the patient experience of having temporary anchorage devices (TADs), and the devices' durability.

Various styles of TADs.

