

# Promoting Evidenced-based Dentistry through “The Dental Practice-Based Research Network”

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This article focuses on dental practice-based research networks (PBRNs) as one of the solutions to the oftentimes slow and inefficient process of translating research evidence into clinical practice. This article identifies two major issues that are faced when setting up a dental practice-based research network. Using a dental practice-based research network that the author is involved with as an example, this article then discusses what is involved in undertaking a research project in your office. Also discussed are the types of projects being done in this new setting and how this author believes these studies will be one of the bridges toward developing evidenced based dentistry in private practice.

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As dentistry enters the 21st century many unanswered questions regarding patient care still remain. What are the best treatments for various dental conditions? For example, when should I replace an existing restoration and with what type of material? Can I leave deep decay in a tooth when I restore it? What depth should the decay be before I intervene surgically? Once we have answers to these questions, how do we translate the knowledge to dentists in regular clinical practice in a timely manner?

In other words, what is the scientific basis for what I am doing, and just as important, how can we help our dental community integrate research evidence into daily practice? The traditional method for gathering and transferring this information has been a top-to-bottom approach (ie, from university down to dental offices). Original research is conducted in university settings. These research results are summarized as articles, which are accepted by and published in journals. These articles are then placed into bibliographic databases, reviewed, eventually placed in textbooks, and oftentimes slowly

implemented in clinical dental practices. This progression can take on average 8 years.<sup>1</sup> There must be a more efficient informational highway not only for transferring this crucial information faster, but also for involving dental practitioners in the process of gathering the information.

Dental practice-based research networks are one solution to the inefficiency of the current process, while at the same time involving dental practitioners in the research process. The concept of Practice-Based Research Networks (PBRNs) has been successful in medicine.<sup>2,3</sup> PBRNs are now beginning to take their rightful place in the field of dentistry. To establish dental PBRNs, the National Institute of Dental and Craniofacial Research (NIDCR), one of the National Institutes of Health (NIH), funded each of 3 university-based groups with approximately \$25 million for a 7-year period that began in April 2005. The 3 dental PBRNs are the PEARL Network, Northwest PRECEDENT, and The Dental Practice-Based Research Network (DPBRN). The challenge in implementing these dental PBRNs is to conduct research projects within the network while drawing on the insight and experience of practicing dentists. This research must be rooted in everyday dental issues that are faced in day-to-day clinical practice.

I am an Executive Committee member of 1 of these 3 groups: the DPBRN. Our mission is “to improve oral health by conducting dental-based research and by serving

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dental professionals through education and collegiality.” This research is done in the real world of daily clinical practice in collaboration with university researchers financially backed by NIDCR. We have published an article explaining this concept.<sup>4</sup>

There are 6 general dentists who make up the majority-voting block of our committee and therefore the research projects we select should be of interest to practicing dentists. Our group consists of approximately 1200 dentists who span 7 states (Alabama, Florida, Georgia, Mississippi, Minnesota, Oregon, and Washington) plus the Scandinavian countries of Sweden, Denmark, and Norway. This gives us a unique mix of fee-for-service dentists, PPO dentists, and HMO dentists (HealthPartners and the Permanente Dental Associates, respectively), some public health clinics in the United States, and a mix of private practice and public health dentists from the Scandinavian countries.

We needed to answer 2 questions in setting up the DPBRN. First, “could and would private practitioners be able to perform research in our practice?” Second, “would we as clinicians take the time needed to fill out forms, or would the demands of private practice be too great to allow us to collect these data?” The answer to both those questions was a resounding “yes.”

The key to success in our studies was finding topics of interest to the dentist-practitioners and using regional coordinators to help guide the offices during the initial start-up of the project to its completion. Also important to our success was keeping the forms simple and easy to use so they would fit into, and not unduly disrupt, a busy practice’s flow. To reduce further the potential for disruptions, most of the DPBRN studies do not calibrate practitioners, although the DPBRN does standardize the data collection. This way, practitioners will not change their routine and because the studies are conducted in real world conditions, the results obtained will be applicable to daily practice.

The following are just a few of the projects developed with dentists in daily clinical practice, working in collaboration with university researchers:

- reason for replacement of restorations
- treatment of early caries lesions
- retrospective cohort study of osteonecrosis of the jaw
- hygienist tobacco cessation
- restoration of endodontically treated teeth
- glucose testing in dental practice
- postoperative complications among diabetic patients

Once a project is finalized and enough offices have signed on, we began by working in conjunction with regional coordinators to help each practice get familiar with the project (eg, setting up a “lunch and learn” visit). A dry run was done and then the dentist and staff began collecting data on their patients with all the proper consent forms.

As of the date of this presentation, I have personally been involved in 2 studies. My comments reflect the response from most dentists who participated in those studies (roughly 230 dentists, 5800 patients, and 10,000 restorations). After a short learning curve, the projects were easy to implement. My whole office team not only adapted well to the project but felt part of something bigger than just our practice. This leads me to 2 of the many positive side effects of doing research in your office. First, these projects made me think about refining my practice protocol because of what I learned. For example, on treatment of early lesions I have decided to implement a caries risk assessment form. Second, I have started asking more questions related to what is the science and evidence behind my decisions. Being part of a PBRN, you are naturally drawn into an informational stream, that information highway I talked about earlier, which makes you think more about what evidence is out there for you to make proper decisions for your dental treatment. Also being connected with the Scandinavian countries further opens one’s eyes to other philosophies of treatment.

As part of our mandate from NIH, the DPBRN met as a group at the Intercontinental Hotel in Atlanta in May 2008. At this 3-day face-to-face meeting, we compared notes on what worked well in our projects and where we could improve on implementing future studies. We also began the process of becoming part of a scientifically based network—a network empowered to think of what we, as general dentists, need to do to improve the oral health of our patients. Instead of just talking about these issues, I felt for the first time in my career that I was in a position to actually help guide researchers in answering these questions.

In Atlanta we also discussed some of the results of our early studies and found there was a significant variation in when we, as dentists, intervene surgically to treat carious lesions. This no longer is some esoteric discussion, but has instant validity because we have participated in these studies, and really thought about what we were doing, rather than just reading them in some paper published by university faculty. This wasn’t some “ivory tower” project by some white coat academicians, but was a project done by us in the real world.

This not only makes our results more believable, but also for the first time for most of us, we felt connected with those university researchers. Now we understand what hurdles our research brethren have and they in return better understand our needs and concerns. This is definitely a win-win, as we have better connected the 2 worlds of research and private practice. Because of this 2-world partnership, the future is very bright for dental PBRNs. From my short 4-year involvement, the dental PBRNs have begun to gather real and reliable answers to optimal treatment for patients. Maybe now the translation of information can move from the bottom upward. In this way, as one of the bridges toward evidenced-based

dentistry PBRNs can help the clinical practitioner develop a more scientific approach toward oral care, because we will truly be on the ground level guiding, developing, and, therefore, implementing relevant and sound dental therapy.

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