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Building a Dental Practice-Based Research Network

The Inside Scoop

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The National Institute of Dental and Craniofacial Research last Spring awarded three seven-year grants, totaling $75 million, to establish “practice-based” research networks that investigate with greater scientific rigor “everyday” issues in the delivery of oral healthcare. The impetus behind the networks is the frequent lack of research data to guide treatment decisions in the dentist’s office. This data shortfall has led dentists and hygienists in some instances to rely on clinical experience alone to guide their treatment decisions, a valuable though inherently empirical approach to dental care. The Inside Scoop recently spoke with the principal investigators of these three grants to hear their thoughts on PBRNs, their organization, and how they will improve oral health. The first interview is with Jonathan Ship, DMD, of the New York University College of Dentistry, New York University School of Medicine, and Bluestone Center for Clinical Research. Dr. Ship is the chair of the Practitioners Engaged in Applied Research and Learning (PEARL) Network. Next is Gregg Gilbert, DDS, MBA, Professor and Chair of the Department of Diagnostic Sciences at the University of Alabama at Birmingham. Dr. Gilbert is the co-chair of the Dental PBRN. The third interview is with Timothy DeRouen, Ph.D., who is the Associate Dean for Research at the University of Washington School of Dentistry in Seattle. Dr. DeRouen is the chair of the Northwest PRECEDENT Network.

Jonathan Ship, DMD
New York University

Life in a dental practice can be extremely hectic. What would be the incentive for dentists to join a practice-based research network, or PBRN?

Because I think it’s a win-win situation for everybody. For practitioners, they will receive training in the fundamentals of clinical research and gain a unique opportunity to participate in research. For the profession and the nation’s oral health, the network will help to provide scientific answers to everyday practice questions and issues. And for those of us in academia, it’s a win situation because we need the real-world experience of the practitioners.

Why's that?

Private practitioners, both in medicine and dentistry, have noted in the past that academia has never fully utilized their real-world experience for the purposes of clinical research. Our intent is to mine that collective experience in dentistry and engage practitioners to propose *their* ideas for future studies. So, it’s a bottom-up approach. The practitioners themselves identify clinical deficiencies based on their extensive experience and then, working with us on the academic side, develop the ideas into full protocols that then can be implemented in their offices with their patients' consent.

How long will it take practitioners to complete their training in clinical research? Will it consume hours out of their day?

No, not at all. But it will require *some* time and effort. Each tutorial might take approximately one hour; but, spread out over the course of a year’s involvement in the network, a practitioner will invest many hours in tutorials. The idea is not for them to sign up and take 20 hours of courses in a week. The idea is to get them certified by the network as a practitioner investigator, while also being sensitive to their daily responsibilities.

How are things going in assembling the network?

Quite well. The PEARL Network, or Practitioners Engaged in Applied Research and Learning, is developing a comprehensive network to conduct approximately 20 studies over a seven-year period in a large number of dental offices. Five NYU senior faculty comprise the senior operations group that oversees all operations. The faculty members are: Drs. Page Caulfield, Rick Curro, Ananda Dasanayake, myself, and Van Thompson. In addition, we have partnered with the EMMES Corporation, a nationally recognized data and coordinating center in Rockville, Maryland.

Dr. Rick Curro is responsible for interacting with the dental community. We envision the network as consisting of three tiers of clinical research. The first tier involves a tightly knit group of 20 to 40 practitioners located within an approximate 40-mile radius of New York City. They will receive the most extensive training in clinical research. That’s because the our ultimate goal for tier one is to conduct controlled, very intensive clinical trials that are almost as sophisticated as those we do in academically based research centers. That’s our goal, and we hope to get there.

What about the second tier?

The second tier is a larger group of between 100 and 200 practitioners who work within a radius of approximately 200 miles from New York City. That roughly translates to a region from Washington, D. C. in the south to Boston in the north. The second tier is a very representative group of practitioners in terms of age, race, gender, and ethnicity. They will conduct the bulk of the approximate 20 studies that will be undertaken during the 7-year course of this grant.

Will these be large simple trials?

These will be large simple studies, or what we commonly describe as simple outcome studies. In other words, they will not be experimental studies. They will evaluate standard procedures or decisions in dental practice. Hypothetically, that might be: Is one restorative material more superior than another? Should the recall for a certain condition or procedure be a week or a month? Should antibiotics be used for certain procedures or diagnoses?Or are they not necessary? The issues addressed will involve decisions that are made everyday in private practice and, most importantly, for which there is not sufficient scientific evidence to base a decision.

What about the third tier?

The third tier will involve practitioners from the entire country. We’ll work with third party payers and state/national organizations. The idea is: By using a national tier,

we can do survey studies. Such studies might anonymously survey practitioners or their staff on various practices, beliefs, or knowledge. Or, they might survey patients anonymously on their beliefs, knowledge, experiences, and disease prevalence. The PEARL Network could help us identify practice trends, prevalence rates of certain oral and systemic diseases, as well as emerging conditions.

And the information would be very relevant to dental practice.

That's correct. The survey will fill in important details about the prevalence of a particular disease, the belief among practitioners about a certain technique, or knowledge of a certain disease.

How will practitioners be trained in clinical research?

This is a critically important part of the PEARL Network. We have created a core that is dedicated entirely to practitioner training. It is directed by Dr. Ananda Dasanayake, who also directs the NYU College of Dentistry's Masters Program in Clinical Research. Practitioners will take web based courses or tutorials on a variety of topics and receive certifications and continuing education credit for completing successfully these courses.

How will the protocols be developed for the individual studies?

We have assembled a core that is directed by Dr. Van Thompson, who also is a professor at NYU's College of Dentistry, to develop the protocols. Once finalized, each protocol then will be handed over to Dr. Rick Curro's core for implementation.

How will this information be disseminated to practitioners?

That's an important point. All of this research is worthless unless you get out the data to the community.Dr. Page Caufield, a professor at NYU College of Dentistry, directs a PEARL core to disseminate the results through web sites, brochures, and newsletters, then ultimately through peer reviewed scientific articles. We also will organize an annual meeting, where the practitioners who are involved in these studies will present their findings. We intend to take a few practitioners from the network who are heavily involved in each one of the studies and have them present their findings at scientific meetings, such as the annual meetings of the International Association For Dental Research (IADR) or the American Dental Association (ADA).

So, the network is really a work in progress, and the infrastructure is being carved out right now.

That's correct. PEARL has a web site - www.pearlnetwork.org - and we have several staff administrators and research coordinators who are dedicated entirely to the operation of the network. The infrastructure supports all of the different missions of this network, and we need to assemble it correctly before implementing the first studies. But I'm very excited because this is the first time that we can really bridge the domains of dental practitioners and dental academics. This is an unbelievable opportunity for everyone involved.

Gregg Gilbert, DDS, MBA
University of Alabama at Birmingham

You actually developed a practice-based network a few years ago, is that correct?

That's right. It began in 2002 as what we called the Alabama Practice Based Research Network. We received a grant from the University of Alabama at Birmingham to establish a network in the state, and we actually are conducting two projects right now. One deals with an internet intervention to improve oral cancer prevention; the other evaluates root canal treatment effectiveness among diabetics and non diabetics.

Based on your experience, what characterizes a successful practice-based network?

Two things. One, a PBRN must ultimately contribute to improved oral health. That's really the bottom line here. Two, you must create an ethos within the network of education and collegiality. A PBRN should be an interactive experience in which dentists generate the research ideas, participate with their colleagues in the research projects, and truly engage each other in the excitement of discovery. Nothing would be worse than for practitioners simply to function within the network as data collectors. We want dentists to have a sense of ownership in the network. After all, the network belongs to them as a tool to benefit their patients and profession. We've already established a web site for the network, and we list the characteristics of a successful PBRN under the heading "About us." The web address is: http://www.DentalPBRN.org

How wide a geographic net will the network cast?

Our first expansion was into Florida. I should mention the University of Florida is a major subcontractor on this grant. Our lead collaborator there is Dr. Ivar Mjör, who also serves as the network co-chair. We also have joined forced with HealthPartners in Minnesota and Kaiser Permanente-Permanente Dental Associates in Oregon, both of which are health maintenance organizations. Additionally, through Dr. Mjör's contacts in his native Scandinavia, we've also enrolled about 40 dentists in Norway, Sweden, and Denmark.

Is this for comparative purposes?

Yes, that's part of the reason. Dentistry in Scandinavia tends to be very prevention oriented, and that will allow for interesting contrasts across the network. The other reason is dental PBRNs have existed previously in Scandinavia, and practitioners there have experience with them. In any case, we envision the Scandinavian component to be on the order of 10 percent of the dentists that participate in any particular protocol.

Getting back to the educational component of the network, how will practitioners be trained to participate in clinical research?

The first phase is a three-to-four-hour orientation session that is presented in a continuing-education format. The purpose is to give background on what PBRNs are, what dental PBRNs are, and what our's specifically hopes to accomplish. We also go over the basics of study design and how they can influence the conclusions reached. We also go over various aspects of working with human subjects. Again, you might want to visit our web site for more information.

How lengthy will the training be?

The training time required for each practitioner will vary depending upon the protocol. What I mean is, our protocols will run the gamut in study design. At one end of the spectrum will be chart review studies, which will require very little effort on the part of participating dentist practitioner-investigators. In the middle of this spectrum will be observational studies that will require dentists to interact with patients, administer informed consent, and begin data collection for a prospective follow-up study. At the other end of the spectrum will be highly controlled, regimented, randomized clinical trials. We envision those will require the most training. That will likely involve a visit or visits from our project staff to these sites, probably an initial visit and a follow-up contact that might progress to telephone contacts and followup after that.

Let's say I'm a dentist in Georgia or North Carolina. Is it possible for me to join the network?

Yes, however, we think that the most efficient way to handle our finite resources is to focus on where our project staff are physically located, namely Alabama, Florida, Minneapolis, Minnesota, Portland, Oregon, and Scandinavia. To have dentists in the network who are several hours away from our project staff and involved in a more complex protocol would really stretch our staff and resources. That said, I think ultimately practitioners outside of these focused geographic areas can participate in the more straightforward protocols that don't require our staff to visit the practice. That is, the dentist in Georgia or North Carolina that you mentioned can participate in certain types of studies, but not all of the ones that we envision.

So, for practitioners, participation in a dental PBRN should be a real good entre into the clinical research process?

Yes, definitely. One of our long-range objectives is to help dentists in the network to think on a daily basis, "What is the scientific basis for this procedure?" That awareness will spur new ideas for studies, which will further benefit their patients and the profession. Based on some of our experiences in Scandinavia, we believe participation in a PBRN can actually be a practice builder. It helps dentists raise awareness of their practices, causing others to view their practice as something special because of its involvement in moving dental care forward.

So, it's potentially a very positive thing for their practices?

Yes, that's certainly our expectation. Incidentally, I'd like to add one more thing. On our web site, we've just launched an online study club. We would love for interested dentists to become engaged in online discussions. We think of it as a very large online group practice that allows them to make use of each other's expertise and engage in online discussions of clinical and research topics.

Tim DeRouen, Ph.D.
University of Washington

I understand your practice-based research network goes by the name Northwest Precedent. How are you organizing Northwest Precedent?

Originally, Northwest Precedent was designed to be strictly a regional network. So, following through on this initial idea, we're now recruiting practitioners from a five-state area: Oregon, Washington, Idaho, Montana, and Utah.

That's a lot of miles to cover.

That's certainly true, so to help cover the territory we will have five different regional coordinators. We're already organized regionally in our recruitment efforts. Dr. Joel Berg, a researcher here at the University of Washington and a co-investigator, is responsible for recruitment of practitioners in Washington, Idaho, and Montana. Dr. Tom Hilton, a researcher at Oregon Health Sciences University and another co-investigator, will recruit practitioners in Oregon and Utah.

How is recruitment going?

We're just getting started, but the interest so far has been pretty high. What we're finding is that practitioners like the idea that they can participate in clinical research at no cost to their practices. They appreciate that we will pay for any additional time they or their staff must put into participating in a protocol.

What will the educational process consist of?

To start, we're going to offer a 12-hour continuing dental education course on generic clinical research methods.

How will the course be offered?

We'll offer it over a weekend as a Continuing Dental Education (CDE) course in Seattle, Portland, and possibly Boise, for which participants will receive free CDE credit. So, that's one aspect of the education. The second aspect will be online educational modules on HIPAA and conducting research on human subjects.

So, once dentists are trained, they're pretty much on their own to do the research.

No, not necessarily. There will likely be some specific training required for each protocol, which we may offer online. We plan to hire dental hygienists as the regional coordinators, and they will visit offices located within their area that are participating in Northwest Precedent. They will help to answer questions about protocols and assist in getting things to run smoothly.

But the level of contact and training will be determined by the nature of the protocol. Is that right?

Yes. For the more complex protocols, participating practitioners might need additional training and/or office visits than for the simple protocols.

You mentioned that Northwest Precedent was originally conceived as a regional network. Is your goal to expand beyond the five states that you mentioned?

Once we are up and running and things are working smoothly, we're open to expanding beyond the five-state region. If practitioners in other areas of the West want to participate, they should contact us and let us know. We'll put their names on a list and contact them when we reach the point that we're ready to expand geographically.

Would you be more inclined to expand into a state if you had not one but a cluster of four or five dentists who wanted to participate?

That would certainly be more amenable to quality control if there were a cluster of practitioners. As mentioned, we're organized to make sure that we maintain some personal contact with the investigators. If they're spread out all over the country and we don't have the resources to visit them, then we will be less informed on how things are going. You lose some quality control that way.

How may studies do you anticipate doing?

We've budgeted for 18 studies, and expect to complete 15-20 over the seven years of the grant.

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Who should practitioners contact if they want to get involved?

They should visit our web site first. Its address is: www.nwprecedent.net Dentists can learn about the network there, find contact information, and, if interested, complete a short questionnaire about some of their practice characteristics.

Last question, do you plan to do any survey studies as well?

We will conduct surveys, as called for. We also have an agreement with third-party carrier, through which we will purchase data from the claims warehouse and potentially look at treatment outcomes and other issues in their data sets.