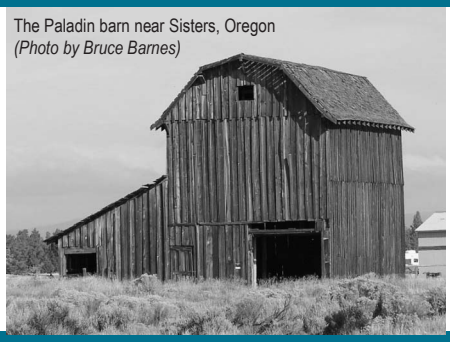
Newsletter of the Practice-based Research in Oral Health Network

Summer 2009

An OHSU-sponsored dental research group in Oregon and SW Washington

PROH



The Paladin barn near Sisters, Oregon
(Photo by Bruce Barnes)

Message from the Director

Tom Hilton, D.M.D., M.S.

It is graduation time again here at the OHSU School of Dentistry. It is always exciting to see the departing seniors embark on the next phase of their lives. With our increasing emphasis on evidence-based dentistry, we hope that several of our graduates will choose to participate in practice-based research by joining PROH and/or PRECEDENT.

We have set the date for our 2009 annual conference so mark your calendars for Friday, November 13. A-dec has generously offered their conference center in Newberg for this year's event. It is a beautiful facility that will be a wonderful arena for our meeting. Downtown parking for the World Trade Center seems to cause anxiety among attendees, so it will be a relief for folks to know that parking is plentiful .and free! In keeping with our goal of supporting and disseminating evidence-based research, we will again focus on the ever-popular "Dental Myths & Controversies." As I write this, we are collecting responses via an online survey to identify topics of interest.

There has been a great deal of attention given to the recent stimulus package passed by the federal government. PROH could feel a positive impact of the increased spending in the research arena. We have submitted a grant application to the National Institutes of Health/National Institute of Dental and Craniofacial Research for a study on cracked teeth that would include PROH practitioners. The cracked teeth survey PROH conducted in 2006 provided a solid basis for the application. We should know the outcome this summer. This type of federal grant would be a departure from the typical industrial funding that PROH has received in the past, and a great shot in the arm for our program.

Our thanks to George McCully, D.M.D. who has kindly agreed to sit on the PROH Steering Committee to represent your interests along with Mark Driver, D.M.D., Mark Jensen D.M.D., and Walt Manning, D.M.D. We are still seeking one additional dentist and a dental staff member that has been involved in implementing research projects. Please contact me if you would like information about these important roles.

Thanks for your continued support and participation in PROH. Have a safe and enjoyable summer.

Thomas J. Hilton, D.M.D., M.S.
PROH Director, hiltont@ohsu.edu

IN THIS ISSUE

Update on Research Projects

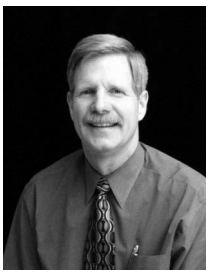
We are approximately half way through the **Kerr Premise posterior composite** clinical trial. It is a two-year study involving five PROH practitioners and 50 patients. All restorations have been placed and more than half of the patients have completed their one-year evaluations. Upon completion of the two-year evaluations and submission of the results to the sponsor of the study, we have hopes of convincing the sponsor to extend the study to gather longer term data.

The **Rowpar chlorine dioxide mouth rinse** clinical trial proved difficult to implement. We learned three major lessons from this study. First, we have no control over the timetable of corporate sponsors, which affects the availability of principal investigators and dental offices. Second, limiting the amount of staff time required for training and implementation is crucial to maintaining smooth operations for dental offices. Third, having a large patient pool that meets the inclusion criteria is important; this study would have been more successful if implemented in periodontal practices rather than in general practices. We ultimately enrolled 37 of the 116 patients needed for the study at which point it was halted. Our thanks to Dr. Kim Wright and her hygienist, Kelly Blakeslee, as well as Dr. Lillian Harewood and her staff for their participation in this study.

OREGON HEALTH & SCIENCE UNIVERSITY

“Dental Myths & Controversies II” Continuing Education Course

The Fifth Annual PROH Conference was held at the World Trade Center in Portland on November 21, 2008. Below is a summary of the continuing education course presented by Oregon Health & Science University faculty at the conference.



“What is the best material for pulp capping?” by Tom Hilton, D.M.D., M.S., Alumni Centennial Professor in Operative Dentistry. He directs the PROH network and maintains a part time private dental practice.

Dr. Hilton opened his presentation by confirming that the most recent Cochrane review and systematic review both supported the practice of avoiding pulp exposure rather than removing caries completely. After reviewing literature on various materials used for pulp capping, he concluded that zinc oxide eugenol, glass ionomer and adhesive systems are poor agents for direct pulp caps. Mineral trioxide aggregate (MTA) is showing results comparable to calcium hydroxide (CaOH) in short term data. The gold standard continues to be CaOH. It has the longest track record of clinical success, it is the most cost effective and it is likely that CaOH is the effective agent in MTA.

“Caries management: Is fluoride enough?” by Juliana da Costa, D.D.S., M.S., assistant professor, department of restorative dentistry and a practitioner in the Oregon Health & Science University Faculty Dental Practice.

Dr. da Costa began by verifying that there is evidence for the validity of dentists subjective assessment of a patients level of caries risk. She reviewed the literature on numerous topical agents (fluoride toothpaste, highly concentrated fluoride toothpaste, fluoride rinse, fluoride gel, fluoride varnish, xylitol, chlorhexidine rinse and MI paste) and the use of combinations of agents. There is overwhelming evidence that the daily use of fluoride toothpaste and the biannual application of fluoride gel are beneficial in decreasing caries incidence. The evidence is either controversial or lacking that fluoride rinse, fluoride varnish,

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Steering Committee Members

Private practitioners:
Mark Driver, D.M.D., Roseburg
Mark Jensen, D.M.D., Bend
Walt Manning, D.M.D., Albany
George McCully, D.M.D., Eugene
Dentist open position
Office manager open position

OHSU faculty/staff:
Cindy Barnes, R.D.H., M.B.A., PROH Network Manager
LJ Fagnan, M.D., ORPRN Director
Jack Ferracane, Ph.D., PROH Investigator
Tom Hilton, D.M.D., M.S., PROH Director
Cindy Morris, M.D., Ph.D., OHIP Director

Meet Your Steering Committee

George McCully, D.M.D.

The newest member of your PROH Steering Committee is George McCully from Eugene, Oregon. George received a bachelor of arts degree in general science from the University of Oregon in 1970. He completed dental school in 1973 at the University of Oregon Dental School (now Oregon Health & Science University) and then spent a year in New Mexico as a general practice resident at the Gallup Indian Medical Center. He has been in private practice in Eugene since 1974.

Georges professional interests have led to his involvement in numerous organizations including the L.D. Pankey Institute, the Oregon Board of Dentistry (president 2004-2005), the Academy of General Dentistry (mastership), the American College of Dentists (fellow), the American Academy of Cosmetic Dentistry, the OHSU Dental School Alumni Association, and the Academy of Cosmetic and Adhesive Dentistry. In 2002, he was awarded the Oregon General Dentist of the Year by the Oregon Academy of General Dentistry. His enthusiasm for practice-based research extends beyond PROH; he is also a member of Northwest PRECEDENT (www.nwprecedent.net). When asked why he participates in PROH, George notes that he is interested in furthering the science of dentistry especially as it relates to direct patient care. Practice-based research is the real frontier in research and it may provide the profession and society with answers that are more valid than what is ascertained in the lab. Longitudinal studies with patients are the only real way to accurately evaluate new products and that research is seldom being accomplished by the manufacturers.

George makes time for numerous civic activities with Rotary International, Eugene YMCA, Ski Patrol, Boy Scouts, the Eugene Yacht Club, the Eugene Chamber of Commerce, the Eugene Gleemans chorale group, and others. If that doesnt keep him busy enough, he also enjoys flying, scuba diving, sailing, hiking, and woodworking. He has been married to Diane since 1973 and has a daughter (Sarah, 34) and a son (Sean, 31).

We appreciate George making time to assist us in guiding the PROH network!

George McCully in Chittyjush,Guatemala

"Dental Myths & Controversies II" Continuing Education Course *Continued*

(Continued from page 2)
xylitol, chlorhexidine rinse and MI paste decrease caries incidence. There is reason to believe that preventive strategies are more effective when they are combined than when they are administered individually, nonetheless the evidence is lacking. There is evidence that active fluoride therapy, combined with good oral hygiene, supervision of caries progression and a change in criteria for when to place restorations, led to marked reduction in the need for restorations. Dentistry has moved historically from extraction to surgical restoration. Identification of early carious lesions and treatment with nonsurgical methods, including remineralization, represent the next era in dental care.

"Does orthodontic treatment harm, improve, or have any affect on a patient's periodontal status?" by Jennifer Crowe, D.M.D., third-year resident, department of orthodontics.

Dr. Crowe presented several articles in which malocclusion was mildly correlated with periodontitis. However, research does not support *generally* recommending orthodontic treatment to patients as a means of preventing future periodontal breakdown. More research is needed to better identify which patients benefit most from orthodontic treatment. In general, orthodontics does not have a clinically significant negative impact on a patient's periodontal status. She emphasized that teeth should be moved within their biologic limits, but that more research is needed to determine those limits. All patients must be closely monitored to avoid active periodontitis during orthodontic treatment. Periodontal disease is multi-factorial and variation between individuals is high. Orthodontics can be a useful adjunct to periodontal and restorative procedures even when the periodontium is compromised or teeth are deemed un-restorable.

"Scalpel vs. Brush: What is the best biopsy technique?" by Cindy Kleinegger, D.D.S., M.S., associate professor, department of pathology and radiology and a practitioner in the Oregon Health & Science University Faculty Dental Practice.

Dr. Kleinegger pointed out early in her presentation that brush cytology is not equivalent to a biopsy. Not all microscopic features of epithelial dysplasia can be assessed on cytology. Brush cytology is designed to investigate clinical lesions that would otherwise not be subjected to biopsy because the level of suspicion for carcinoma is low based upon clinical features (class II lesions). An atypical or positive brush cytology must be followed with a scalpel biopsy for definitive diagnosis. Brush cytology may be useful in patients with class II lesions who may not comply with monitoring and in patients with class I lesions (clinically suspicious lesions) who will not accept immediate scalpel biopsy. Better research is needed on class II lesions and the study design needs to include brush cytology *and* scalpel biopsy on *all* lesions.

"Adhesive systems: Does simpler = better?" by Jack Ferracane, Ph.D., chair, department of restorative dentistry and division director, department of biomaterials and biomechanics. He is also a principal investigator for the PROH network.

Dr. Ferracane identified the claims of self-etch systems as being simpler to use (they are quicker and less technique sensitive) and resulting in better performance (equal/better adhesion to dentin and enamel, less post-operative sensitivity, and equal/better clinical performance with regard to retention and leakage/staining). The evidence indicates that for resin dentin adhesives, the three part etch-and-rinse systems are still considered the gold standard, and simpler does not yet mean better. Overall, the following conclusions were drawn: 1) GIC shows the best results and least variability; 2) 3-step etch-and-rinse and 2-step self-etch were the best resin adhesives; 3) 2-step etch-and-rinse shows high variability, especially those with acetone solvent; and 4) 1-step self-etch shows the most variability and the poorest results (although it improved with separate enamel etching).

"Is local anesthetic nerve damage affected by injection technique or drug used?" by Leon A. Assael, D.M.D., professor and chair, department of oral and maxillofacial surgery and director of the oral and maxillofacial surgery residency program.

Dr. Assael began with a review of the various types of persistent altered sensation. Evidence that points to the mechanics of the injection causing nerve damage include: 1) two out of three cases involve the lingual nerve, 2) needle piercing or breakage occurred, 3) trismus is often associated with the loss of sensation, and 4) hematoma can be associated with the loss of sensation. Evidence that the drug used causes nerve damage is indicated by 1) amides causing more problems than esters; 2) higher concentrations lead to higher risk; and 3) vasoconstrictors increase the risk.

Save the Date!
November 13, 2009
Sixth Annual PROH Conference

Contact PROH

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Notes

Jack Ferracane, PROH co-director and chair of the department of restorative dentistry, headed to England on May 1to spend a year sabbatical at the University of Birmingham Dental School in Birmingham studying the interaction of dental materials with dentin and pulp. He will be studying with Dr. Tony Smith, the editor of the *Journal of Dental Research*, and an expert in the field of dentin and pulp regeneration.

We are looking forward to a thorough report on the state of British pubs upon his return!

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Sixth Annual PROH Conference

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