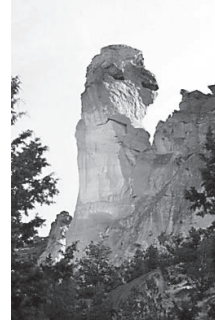




Monkey Face
at Smith Rock
State Park



Message from the Director

Summer weather has finally arrived! Although summer weather just got here, the summer term at the dental school is over, and the calendar indicates that fall is right around the corner. And with fall coming soon, the annual PROH conference is not far behind. Once again, we will be using the popular "Myths and Controversies" theme. You, the PROH members, chose topics and we found six great speakers who will provide evidence-based answers to the clinically-relevant issues you identified. Additional information and registration forms are included with this newsletter. I do want to highlight a couple of changes to the format we are making this year, which are based on feedback we received from our members. We are going to increase the length of each presentation by 10 minutes to 40 minutes. This will allow more time for questions and answers at the end of each presentation. It will also allow attendees to get more continuing education credit than in past years. We will have two breaks rather than one, so it will be a comfortable pace and offer plenty of opportunity to catch up with friends and colleagues.

As I related to you in previous newsletters, we have struggled to get funding for PROH projects. We continue to pursue cracked teeth as a subject for a study, since that is one of the top subjects you have identified as a topic of clinical importance. We are trying to combine a laboratory assessment of cracks in teeth, using techniques such as dye, sophisticated new radiographic techniques such as micro-CT (computerized tomography), or ultrasound that have the potential for future clinical use, with an assessment by PROH dentists of cracks in extracted teeth, and a clinical risk assessment of cracked teeth on patients in your practices. We want to determine tooth and or crack characteristics that are most predictive of future adverse outcomes. We have not been successful in obtaining funding, but we are submitting another proposal this fall. So

we keep trying, and we are hopeful that we will find the right protocol that will interest the National Institute of Dental and Craniofacial Research (NIDCR).

We had a productive Steering Committee meeting, held at the annual Oregon Dental Conference. Your Steering Committee members of Dr Sean Benson, Dr. Mark Driver, Dr. Mark Jensen, Dr. Walt Manning, Dr. George McCully and Dr. John Shurtz are a tremendous resource in helping direct us to subjects for future research, as well as providing us with guidance in developing research protocols that are appropriate for conducting research in private practices. In addition to the cracked teeth study ideas, we discussed potential studies in the area of evidence-based dentistry. For example: what is the most effective way to disseminate evidence to dentists? Steering committee members were also supportive of more student-dentist interaction to promote practice-based research. Two suggestions offered were to have PROH dentists come to OHSU and talk about what it is like to incorporate practice-based research into their offices; or conversely, have interested students come to PROH offices and discuss/observe how dentists have incorporated evidence into their practices.

I hope everyone has a safe and enjoyable summer. I look forward to seeing you at the annual PROH conference in November!

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



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

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Save the Date!
April 20-21, 2012
Northwest PRECEDENT Annual Meeting
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Summary of 2010 “Dental Myths & Controversies IV” Continuing Education Course

The seventh annual PROH Conference was held on October 29, 2010 in Portland at the World Trade Center. In keeping with our mission of promoting evidence-based dentistry, we once again focused on “myths and controversies” that face us in dentistry today. Six OHSU faculty members introduced their topic, identified the opposing viewpoints, reviewed the relevant research, and presented their position on the topic based on their understanding of the evidence. Each presentation was followed by a brief question and answer period. Below is a summary of the course.



“Non-Carious Cervical Lesions: Does Occlusion Affect Their Formation and Treatment?” by Scott Dyer, D.M.D., M.S., Ph.D., assistant professor in the department of restorative dentistry and a private practitioner.

There is strong support that abrasion and erosion are present in the development of NCCLs but they are not the sole cause of cervical wear. Research indicates a significant correlation between the prevalence of NCCLs and the presence of occlusal wear facets. There is insufficient evidence to confirm that abfraction (a theoretical process whereby occlusal forces create stresses in enamel and dentin along the cervical area) exists. Treatment involves managing 1) occlusal forces, 2) toothbrush abrasion, and 3) decreased pH levels. Restoration of NCCLs should be considered if dentin is exposed or if the tooth is sensitive. The ideal restorative material is dependent upon the condition and involvement of the cementum, dentin and enamel.



“Alternative Caries Diagnostic Techniques: Time to Throw Away the Explorer?” by Rose McPharlin, D.D.S., assistant professor in the department of restorative dentistry, a group leader in the pre-doctoral clinic, and a practitioner in the OHSU Faculty Dental Practice.

There have been a variety of caries detection devices on the market. Explorers and radiographs have their limitations in the diagnosis of non-cavitated lesions, so caries detection devices are useful in confirming changes in tooth mineralization. The technological advances have included ultrasound, the electric caries monitor, infrared/LED devices such as Caries ID and QLF/LF devices such as the DIAGNOdent or DIAGNOdent Pen. An ideal diagnostic method should offer a high level of specificity (low false positives) and be highly sensitive (low false negatives). DIAGNOdent and DIAGNOdent pen have the most published research and are found to be highly accurate in diagnosing lesions that are visually and radiographically undetectable.



“Antimicrobial Agents: Are They Necessary for Successful Endodontics?” by Christine Sedgley, B.D.S., M.D.Sc., M.D.S., F.R.A.C.D.S., M.R.A.C.D.S. (ENDO), Ph.D., associate professor and chair of the department of endodontology.

Antimicrobial agents used in endodontic treatment include irrigants and interappointment intracanal medicaments. Current research continues to indicate that sodium hypochlorite (NaOCl) is an effective antimicrobial agent for irrigation. It is better than saline and its effects can be enhanced by the chelating irrigant EDTA. Although chlorhexidine gluconate is also a useful antimicrobial irrigant, it is not active against all bacterial endospores, some fungal spores or viruses and is therefore not as effective an antimicrobial agent as NaOCl. The frequency of irrigation and mechanical agitation of the NaOCl irrigant during preparation is more important than the concentration. However, 6% NaOCl penetrates deeper into dentinal tubules than 1% NaOCl. For interappointment intracanal medication, evidence from clinical studies indicates that calcium hydroxide (Ca(OH)₂) remains the best medicament available to reduce residual microbial flora in the root canal system.

(Continued on page 7)

Steering Committee Members

Private practitioners:

Sean Benson, D.D.S., Baker City
Mark Driver, D.M.D., Roseburg
Mark Jensen, D.M.D., Bend
Walt Manning, D.M.D., Albany
George McCully, D.M.D., Eugene
John Shurtz, D.D.S., Salem
Office manager – open position

OHSU faculty/staff:

Cindy Barnes, R.D.H., M.B.A., PROH Network Manager
Jack Ferracane, Ph.D., PROH Investigator
Tom Hilton, D.M.D., M.S., PROH Director

Meet Your Steering Committee

The newest member of the PROH Steering Committee is John D. Shurtz, D.D.S. John attended Brigham Young University and received his doctor of dental science degree from the University of Washington in 1975. He completed a general dentistry residency with the United States Air Force in 1985.

He spent two years as director of dental services for the Indian Health Service and one year as a fellow in oral surgery with the U.S. Public Health Service. During his 16 years with the U.S. Air Force as a dentist, John held a variety of positions including chief of endodontics, staff oral surgeon, chief of radiology, and chair of dental education and clinical investigation. Upon leaving military service, he joined Kaiser Permanente in Salem. In 1995, he began as an assistant professor of operative dentistry at OHSU School of Dentistry and, in 2002, he established a private practice in Monmouth.

Outside of dentistry, John has been involved in Boy Scouts of America, the Church of Jesus Christ of Latter-Day Saints, rugby, and Head Start. He and his wife, Jeanie, have six children.

We are appreciative of John's willingness to make time to participate in PROH's Steering Committee.

Results of 24-Month Posterior Composite Study

Study Objective: While polymerization shrinkage has been indicated as being the single greatest drawback to resin composite as a restorative material, polymerization shrinkage itself is not necessarily a significant problem. Rather, resin composite is capable of developing significant shrinkage stress in cavity preparations that can result in adverse consequences, including fracture of remaining tooth structure, and open restoration margins. This in turn, can cause marginal leakage and staining, recurrent caries, post-operative sensitivity, and ultimately restoration failure. The ability of resin composite to reduce shrinkage stress and provide a sealed restorative-cavity preparation, is considered critical to the clinical success of the restoration. Kerr Corporation has developed a new low-shrinking composite (Premise) designed to reduce polymerization shrinkage. The purpose of this study was to evaluate the ability of Premise resin composite to provide clinically acceptable restorations over a 24-month period. This report provides the outcomes after two years of clinical performance of the restorations.

Methods and Materials: Kerr Corporation developed a new low-shrinking composite (Premise) designed to reduce polymerization shrinkage. This evaluation was accomplished using both direct clinical (modified Ryge criteria) and indirect (wear measurement) methods. A training session was conducted for five practitioners and office personnel participating in the study. A total of 50 class 1 and 2 restorations were placed by five PROH practitioners, each completing 10 Premise restorations.

The study teeth were evaluated for vitality prior to restoration by objectively testing for cold response with ice (positive or negative response). Teeth testing negative to cold were additionally evaluated with an electric pulp test (EPT) for vitality (positive or negative response). Only teeth testing vital to cold and/or EPT were enrolled in the study. The patients were asked for their subjective history of temperature sensitivity on each study tooth (positive or negative history). All restorative procedures were performed with rubber dam isolation. The occlusal cavo-surface margins were not beveled. All cavity preparations received the same adhesive system, Optibond All-in-one self-etching dental adhesive (Kerr). The adhesive was light cured for 10 seconds with an Optilux 501 (Kerr) visible light-curing unit. For each restoration, composite was placed in increments of two mm or less in depth and light polymerized for 40 seconds per increment with the Optilux 501 curing unit. All restorations were contoured and finished with finishing diamonds and polished with aluminum oxide impregnated rubber wheels, discs and cups (Kerr). No surface sealant was placed.

Assessments were conducted by the practitioners at the insertion appointment, at the baseline appointment (approximately two weeks after insertion), at approximately one year after insertion, and at approximately two years after insertion. Digital photographs were taken as well as sextant/quadrant polyvinylsiloxane (PVS) impressions. Casts were poured at the OHSU School of Dentistry. The data was analyzed with descriptive statistics. The associations between insertion, baseline, and follow-up for various characteristics were presented using frequencies and percentages in tables. Correlations were computed using Spearman's rank correlation coefficient. All hypotheses were tested using generalized estimating equations (GEE) and exchangeable working correlation model to account for clustering among dentists with different models.

Results:

Subjective cold. There was a significant correlation between subjective cold assessment and restoration width at one and two years, but not at baseline. As the restorations became larger, they tended to show more subjective cold response from patients at two years ($p < 0.001$). Interestingly, there was no correlation between restoration depth and subjective cold at baseline ($p=0.75$), one year ($p=0.38$), or two years ($p=0.23$).

Objective cold. There was a significant decrease in objective cold from baseline to one year ($p=0.007$), but the change from one year to two years was not significant ($p=0.19$). There was no significant correlation between restoration width and objective cold at baseline ($p=0.06$), one year ($p=0.66$), or two years ($p=0.62$). There was no correlation between objective cold and restoration depth at baseline ($p=0.28$), one year ($p=0.06$), or two years ($p=0.53$).

Surface roughness. Sixty-eight percent of study participants did not change their surface roughness ranking from baseline to two-years. The association between surface roughness at baseline and two years was significant ($p=.05$). The association between surface roughness at one-year and two-years was not significant ($p=0.13$). The change in surface roughness from baseline to one year was not significant ($p=0.10$). However, the change in surface roughness from baseline to two years was significant ($p=0.05$). The surface roughness at two years was worse than the baseline assessment.

Color match. One restoration failed due to dark discoloration; part of the discoloration was beneath the restoration, and part of the discoloration was on the surface, along with surface pitting. Overall, there was not a significant change in color match from baseline to one year ($p=0.27$), or at two years ($p=0.97$).

Marginal integrity. The marginal integrity showed a significant shift ($p=0.005$) from closed to open or ditched margins over the first year of the study. Two restorations (DO of a maxillary first molar, MO of a maxillary second molar) failed due to open margins during the second year of the study. The marginal integrity worsened significantly from baseline to 2-years ($p<.0001$) and from one-year to two-years ($p<.0001$).

Marginal discoloration. There was a significant increase in marginal discoloration over the first year of the study ($p=0.001$). There was also a significant increase in marginal discoloration from baseline to two years ($p<0.0001$), and from one year to two years ($p<0.0001$).

Occlusal anatomic form. One restoration failed (MO on a maxillary first molar) due to a fracture of a portion of the occlusal and proximal aspect of the restoration during the first year of the study. A second restoration (MO of a maxillary second premolar) failed due to a fracture in the occlusal isthmus of the restoration. Overall, there was no significant change in occlusal anatomic form from baseline to one year ($p=0.23$), or from baseline to two years

(Continued on page 4)

Results of 24-Month Posterior Composite Study *Continued*

(Continued from page 3)

($p=0.80$).

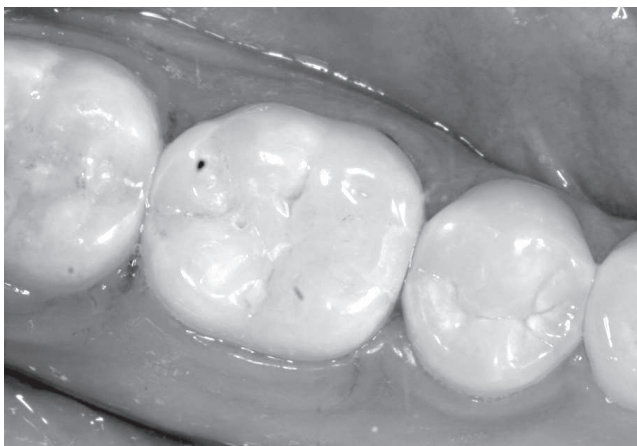
Proximal anatomic form. One restoration failed (MO on a maxillary first molar; the same restoration as noted in the occlusal anatomic form section above) due to a fracture of a portion of the occlusal and proximal aspect of the restoration during the first year of the study. A second restoration (MODB on a lower first molar) had a fracture of a marginal ridge of the restoration during the first year of the study. Overall, there was no significant change in proximal anatomic form from baseline to one year ($p=0.83$), or from baseline to two years ($p=0.86$).

In addition to the above direct assessments conducted by the practitioners who placed the restorations, indirect evaluations were conducted by OHSU faculty. There was a good association between the direct assessments and the photographic assessments. Analysis of the casts made of the restorations at baseline and at one year supported the clinically acceptable ratings for marginal integrity. There was a trend for increased exposure of the occlusal cavosurface margins between baseline and one year, and further exposure of the cavosurface margins from one year to two years. There was a significant increase in the average wear from baseline to one year ($p<0.0001$), from baseline to two years ($p<0.0001$), and from one year to two years ($p<0.0001$). There was not a significant change in the average wear of the restorations by wear of the tooth in the first year of the study ($p=0.21$), however the change was significant from baseline to two years. In other words, the greater the baseline assessment of the wear of the tooth, the greater the average restoration wear by year two. Similarly, there was a non-significant direct correlation between the width of the restoration and average wear at year one ($p=0.28$), but by year two, the correlation had reached significance ($p=0.03$). There was a significant increase in the average maximum wear from baseline to one year ($p<0.0001$), from baseline to two years ($p<0.0001$), and from one year to two years ($p<0.0001$). Unlike the average wear, there were no significant changes in average maximum wear relative to either the baseline wear of the tooth at year one ($p=0.41$) or year two ($p=0.19$), or relative to the width of the restoration at year one ($p=0.42$) or year two ($p=0.19$).

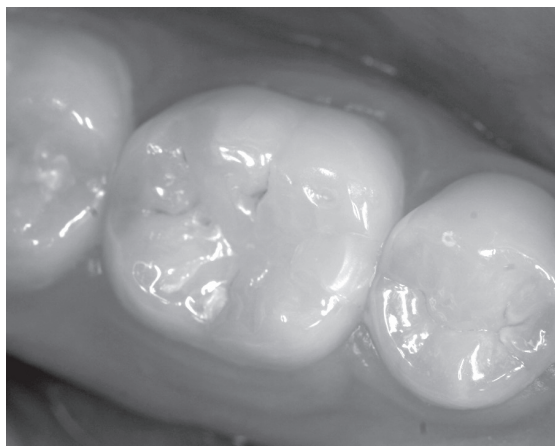
Conclusion: Premise showed acceptable clinical performance after two years of clinical service. The practice-based research network, PROH, provided a valid means to assess the clinical performance of this material under the “real world” conditions of everyday private practices operated by full-time dentists.

Participating Dental Practices: Dr. Mark Driver, Dr. Walt Manning, Dr. George McCully, Dr. Ron Selis, and Dr. Scott Travelstead.

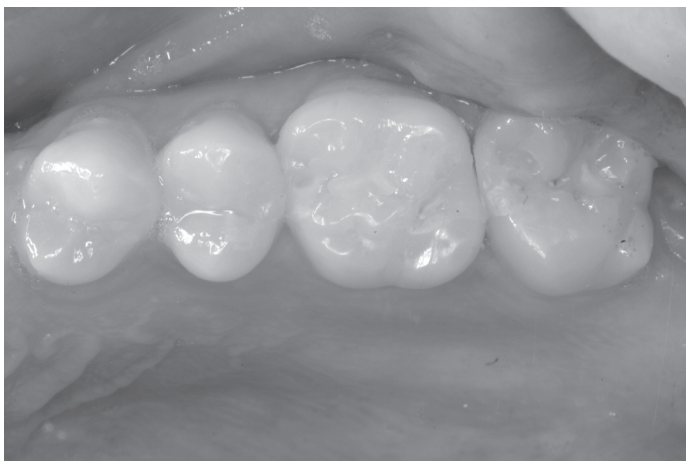
Patient 1—#19 MO at insertion appointment.



Patient 1—#19 MO success at 2-year appointment.



Patient 2—#15 MO at baseline appointment.



Patient 2—#15 MO failure at 2-year appointment.



8th Annual PROH Conference
“Dental Myths and Controversies V”
Friday, November 4, 2011

Join us for an exciting, fast-paced morning with six speakers addressing some of those confusing and contentious myths and controversies that face us in dentistry today. OHSU faculty will each introduce their topic, identify the opposing viewpoints, review the relevant research, present their position on the topic based on their understanding of the evidence, and answer your questions. Topics and speakers are as follows:

“Implant Supported RPDs: Valuable Treatment Option or Outdated Modality?” by **Scott Dyer, D.M.D., M.S., Ph.D.**, adjunct assistant professor in the department of restorative dentistry and a private practitioner.

“Should Every Extraction Site be Grafted?” by **Brad McAllister, D.D.S., Ph.D.**, adjunct assistant professor in the department of periodontology and a private practitioner.

“Cold Sores: Preventable, Treatable, or Inevitable?” by **Cynthia Kleinegger, D.D.S., M.S.**, associate professor in the department of pathology and radiology and a practitioner in the OHSU Faculty Dental Practice.

“Over-the-Counter Dental Products: Do They Work (Part 2)?” by **Erinne Lubisich, D.M.D.**, assistant professor in the department of restorative dentistry and a private practitioner.

“Which Endodontic Rotary System Works Best?” by **Brian Whitten, D.D.S.**, assistant professor and pre-doctoral program director in the department of endodontology.

“Caries Prevention in a “Green” World: Is Fluoride a Toxin or a Treatment?” by **Eli Schwarz, D.D.S., M.P.H., Ph.D.**, professor and chair of the department of community dentistry.

You won't want to miss this important and timely information of vital importance to all practitioners.

When:	Friday, November 4, 2011
Time:	8:00 a.m. to 1:00 p.m.
Early Tuition:	Through October 4, 2011 - \$140 dentist/\$120 staff
Tuition:	After October 4, 2011 - \$150 dentist/\$130 staff
Credit:	5 hours
Location:	World Trade Center, Auditorium, Bridge Level 121 S.W. Salmon Street Portland, Oregon

Registration – 8th Annual PROH Conference

Friday, November 4, 2011

Dental Myths and Controversies V

World Trade Center, 121 S.W. Salmon Street, Portland, OR 97204

You will receive acknowledgement of your enrollment by mail.

Last name: _____ First name: _____ M.I.: _____

Address: _____ City, State, And Zip: _____

Office phone: _____ Home phone: _____

Fax number: _____ E-mail address: _____

License/ADA/AGD #: _____

Title (please circle): DDS DMD Fee: _____

Staff attending: _____ Fee: _____

Title (please circle): RDH CDA EFDA CDT

Staff attending: _____ Fee: _____

Title (please circle): RDH CDA EFDA CDT

Staff attending: _____ Fee: _____

Title (please circle): RDH CDA EFDA CDT

Staff attending: _____ Fee: _____

Title (please circle): RDH CDA EFDA CDT

____ Check/Money Order payable to OHSU Amount Enclosed _____

____ MasterCard ____ Visa

Card number: _____ Exp. Date: _____ 3-Digit Code _____

Signature of cardholder: _____

Billing Address of CC if different than above

Course Times & Fees:

Registration: 7:30 a.m. to 8:00 a.m.

Course: 8:00 a.m. to 1:00 p.m.

PROH Business Meeting and Luncheon 1:15 p.m. to 2:45 p.m.

Registration: \$150 Dentist & \$130 Staff *Early Fees: \$140 Dentist & \$120 Staff

Luncheon: Free to PROH members, \$20 to non-members to come learn about practice-based research

____ Yes, I will attend luncheon (non-members add \$20 to registration fee)

____ No, I will not attend luncheon

*Early fees are applicable when registering one month prior to the course date.

Return to: OHSU – CDE Department, 611 S.W. Campus Drive, Portland, OR 97239-3097

Phone: 503-494-8857 or 800-232-6478 Fax: 503-494-2973 E-mail: kingg@ohsu.edu

(Continued from page 2)



“Over-the-Counter Dental Products: Do They Work?” by Erinne Lubisich, D.M.D., assistant professor in the department of restorative dentistry and a private practitioner.

Bleaching: There is evidence that whitening products are effective. All trials were short term and the majority of the studies were at high risk of bias and were either sponsored or conducted by the manufacturers. **OTC pain medications:** Ibuprofen 400 mg was consistently more effective than aspirin 650 mg, acetaminophen 600 mg, and both aspirin and acetaminophen when combined with codeine 60 mg. Ibuprofen 800 mg has been shown to have a higher analgesic effect than 1000 mg acetaminophen plus 60 mg of codeine. **Sensitivity toothpastes (containing potassium):** Studies failed to show a significant effect at the 6 to 8 week assessment. **Products for prevention of oral herpes:** Studies show mixed results. Prophylactic lysine can be useful in the management of select cases of RHL. Some studies of N-docosanol (Abreva) demonstrate reduced healing time. **Electric tooth brushes:** Brushes with a rotation oscillation action removed plaque and reduced gingivitis more effectively than manual brushes. No other power designs were as consistently superior to manual toothbrushes.



“Evidence-Based Dentistry: Does it Work in the Real World?” by Kevin Kwiecien, D.M.D., F.A.G.D., assistant professor in the department of restorative dentistry and a private practitioner.

Dr. Kwiecien described the benefits and difficulties of using evidence-based dentistry in private practice. He walked the audience through the process of using current literature to find well-supported studies and trends, specifically the correlation between nighttime bruxism and sleep apnea. With over 16 years in private practice and hundreds of hours of continuing education, he noted that there is always a need to confirm what dentists are seeing in private practice, regardless of previous experiences. Although there are some inherent frustrations when beginning a review of current literature, refining the search becomes easier. Dr. Kwiecien emphasized that the most important outcome is to at least find the current trends in the topic, be open to the possibility that there is more, and allow all three (each practitioner's experience/observations, specific literature, and obvious trends) to help guide appropriate treatment for each patient.



“Sealants: Under Used or Over-Hyped?” by John Engle, D.D.S., assistant professor and director of the pre-doctoral clinic in the department of pediatric dentistry.

Dr. Engle reviewed the guidelines put forth by the American Academy of Pediatric Dentistry in which an emphasis is placed on the patient's caries risk, not the patient's age or time elapsed since tooth eruption. A 2004 Cochrane Database System Review determined that the effectiveness of sealants is obvious at high caries risk, but information on the benefits of sealing specific to different caries risks is lacking. Both glass ionomer and resin sealants are suitable sealant materials; there is no evidence that one is superior to the other.

Northwest PRECEDENT Annual Meeting April 20-21, 2012

You may recall from 2005 that Oregon Health & Science University partnered with the University of Washington in a \$22 million practice-based research grant awarded by the National Institute of Dental and Craniofacial Research. Fifteen studies have been conducted and will be presented on April 20-21, 2012 in Seattle, Washington at the Seattle Sheraton Hotel. All dentists from Idaho, Montana, Oregon, Utah and Washington will receive invitations in January 2012. Mark your calendars now to hear about the following studies:

Oral Disease Prevalence – Survey of PRECEDENT Practices
Salivary Markers in Caries Risk Assessment
Case-control Study of Osteonecrosis of the Jaws
Computer-Assisted Relaxation Learning
Cracked Tooth Registry
Pulp Capping with MTA vs. Calcium Hydroxide
Dentin Hypersensitivity-Dentist Survey
Dentin Hypersensitivity-Patient Survey

Referrals for Third Molar Extraction
Impact of Dental Practice-Based Research Networks
Temporary Anchorage Devices in Orthodontic Practice
Overbite Retention
Temporomandibular Muscle and Joint Disorder Survey
Treatments for Remineralization of White Spot Lesions
Survey of Dentist Attitudes and Beliefs for Treatment of Children with Special Health Care Needs



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Eighth Annual PROH Conference

Friday November 4, 2011

Registration form inside



OREGON
HEALTH & SCIENCE
UNIVERSITY

Newsletter of the Practice-based Research in Oral Health network

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Portland, Oregon 97239

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