"Dental Myths & Controversies VI" Continuing Education Course

The Ninth Annual PROH Conference was held on Friday, November 2, 2012 at the World Trade Center in Portland. Topics for "Dental Myths & Controversies VI" were selected by surveying PROH members. Six select faculty from OHSU and the University of Washington identified the opposing viewpoints, presented a review of the relevant research and their position on the topic based on their understanding of the evidence, and answered questions. Below is a summary of the course.

"New kid on the block: Are all-ceramic restorations ready to replace traditional metal-based indirect restorations?" by Steven Gold, D.D.S., Assistant Professor, Department of Restorative Dentistry and Group Practice Leader at OHSU.
All-ceramic restorations are popular due to esthetic demands, cost, conservation of tooth structure (as compared to porcelain-fused -to-metal), and the integration of digital technology. Dr. Gold cites several challenges to obtaining a high-quality base of evidence on all-ceramic restorations: variables found in all ceramics (materials, usage, method of manufacture, luting and parameters of "success"), the correlation to reality, the scarcity of independent funding and influence of commercial interests, and rapidly changing technology that is not conducive to long-term clinical studies. In summary, the evidence indicates that 1) all-ceramic restorations consistently show at least a 95% success rate at approximately 5 years to 90% at approximately 10 years, 2) most failures are due to fracture, 3) there are higher success rates on anterior teeth, 4) there are higher failure rates for multi-unit and implant restorations, and 5) CAD/CAM margins are acceptable with current technology. In conclusion, all-ceramic restorations are not ready to replace traditional metal-based indirect restorations but they are a valuable and viable addition to current restorative options.

"Periodontal and cardiovascular diseases: Is this a chicken or the egg story?" by Jim Katancik, D.D.S., Ph.D., Associate Professor and Chair, Department of Periodontology at OHSU.
The risk factors shared by periodontal disease (PD) and atherosclerotic vascular disease (ASVD) are increasing age, smoking, alcohol abuse, race/ethnicity, education and socioeconomic status, male sex, diabetes mellitus, and overweight or obesity. The direct pathogenic mechanism linking PD and ASVD is bacteremia and vascular injury by periodontal pathogens potentially contributing to atheromatous plaque formation. The indirect mechanisms are systemic inflammation and molecular mimicry. Current evidence supports the concept that PD may be a contributing, but not sole factor, for developing ASVD.

"Pulpotomy and restoration of primary teeth: What goes in them and what goes on them?" by Elizabeth Palmer, D.M.D., Assistant Professor, Department of Pediatric Dentistry at OHSU.
Dr. Palmer reviewed current literature on pulp therapy treatment options for large carious lesions encroaching on the pulp of primary molars including formocresol (FC) pulpotomy, ferric sulfate (FS) pulpotomy, mineral trioxide aggregate (MTA) pulpotomy, sodium hypochlorite (NaOCl) pulpotomy, electrosurgical (ES) pulpotomy, and indirect pulp therapy (IPT). Research to date indicates that FC and FS have similar clinical and radiographic success, MTA has a higher success rate than FC, NaOCl has a higher success rate than FS, and ES is comparable to FC. IPT shows higher long-term success rates than any pulpotomy type other than MTA. IPT is less expensive, has fewer potential side effects, and does not exhibit early exfoliation as pulpotomy does. Types of restorations for primary molars treated for reversible pulpitis include stainless steel crowns (SSC), interim restorative material (IRM), amalgam, and bonded resins. Success rates for SSC are higher than for IRM. SSC and amalgam restorations succeed similarly; however, a one surface amalgam is significantly better than a two surface amalgam. Amalgam and resin-based materials perform similarly.

"Do fiber posts provide adequate support for restoring root filled teeth?" by Roberto Macedo, D.D.S., Ph.D., Assistant Professor, Department of Restorative Dentistry at OHSU.
Fiber posts are desirable because they 1) conserve tooth structure, 2) provide an elastic modulus similar to dentin, 3) strengthen crowned endo-treated teeth, and 4) reduce the incidence of catastrophic fracture. They do not improve fracture resistance. A 1.5 to 2 mm ferrule has shown to significantly improve resistance to fracture as compared to teeth restored without a ferrule. When fiber posts fail, it is most frequently caused by loss of retention. Resin cement used with fiber posts has shown to increase post retention, relieve stress within the root (acts as a shock absorber), optimize fracture patterns, increase failure resistance, and improve the apical seal. In summary, a high level of clinical success is achievable with most of the current restorative systems (fiber post, composite build-up, resin cementation) keeping these tips in mind: avoid bacterial contamination of the root-canal system, provide cuspal coverage for posterior teeth, preserve radicular and coronal tooth structure, use posts with adequate strength in thin diameters, provide adequate post length for retention, maximize resistance form by including an adequate ferrule, and use posts that are retrievable (not ceramic or zirconium posts).

"You're under arrest! Halting and preventing caries: Topical fluoride or silver nitrate?" by Steve Duffin, D.D.S., M.B.A., Affiliate Assistant Professor at OHSU and private practitioner in Keizer, Oregon.
Topical fluoride is a preventive agent and it remineralizes tooth structure. Silver nitrate is an antimicrobial agent that arrests caries and was described by GV Black in 1908. Using these two agents in combination enhances caries arrest efficacy. Dr. Duffin's use of this combined protocol in his practice has led to increased access to care, fewer emergency visits, and fewer hospital cases. Arresting caries and then restoring function and esthetics in a disinfected lesion is his approach.

"I can't eat ice cream…or can I? Treatment of dentin hypersensitivity" by John Wataha, D.M.D., Ph.D., Professor and Chair, Department of Restorative Dentistry at the University of Washington.

Dentin hypersensitivity (DH) occurs in about 1 in 8 individuals, is more common in women, primarily occurs on molars and premolars, is chronic, but is not a major problem for most people. There is a higher risk of DH when gingival recession is present and some risk with tooth whitening or with non-carious cervical lesions. Fluorides are the oldest of treatments but studies have lacked good control/placebo groups. Some studies may have been influenced by corporate sponsors. Casien phosphopeptides-amorphous calcium phosphate as an alternative treatment lacks sufficient clinical trial evidence to determine its long-term effectiveness. Several types of oxalates have been heavily marketed but quality evidence is lacking to show efficacy. Arginine-calcium carbonate is early in development; no long-term studies, large scale studies or meta analyses are available yet, although initial results are promising. Dr. Wataha suggests a treatment progression of: ruling out other causes/factors, at-home topical treatments, in-office topical treatments, in-office minor invasive treatments, and in-office major invasive treatments. It is important to balance the magnitude of the patient's problem against the aggressiveness of the treatment strategy. When evaluating new treatments/products, consider the evidence. Are the studies in-vitro? Are the studies clinical trials? Who sponsored the study? At this point in time, treatment of dentin hypersensitivity suffers from lack of a gold standard or even a consensus on a definition for the condition.