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How Subgingival Plaque Biofilm Gets Started

by Trisha E. O’Hehir, RDH, MS, Hygienetown Editorial Director

Research articles and text books describe supragingival and subgingival plaque as two quite different substances, based on location and bacterial makeup. Studies have demonstrated that the composition of supragingival plaque will influence the composition of subgingival plaque and other studies show that disruption of supragingival plaque will have an impact on subgingival plaque growth. But are they really totally different?

Discussing supragingival and subgingival plaque as different is due in part to the understanding researchers had of bacterial plaque before the concept of a biofilm was introduced to the dental world by engineers. Until plaque was studied in its natural environment, using laser confocal microscopy and computer imaging, our knowledge of supragingival and subgingival plaque was limited to microscopic evaluation of dried bacterial specimens with no fluid or polysaccharide biofilm structure. Researchers focused on identification of the bacteria in plaque, with no information about the structures in which the bacteria lived. Dental researchers wanted to know which bacteria were in plaque. It was the engineers who wanted to know how the bacteria functioned in the plaque or as they called it – biofilm. Did they live in single-family dwellings or multispecies high-rises? How did they get around? How did they communicate with each other? Cell phones? Text messages? How did they bring nutrients in and get rid of waste materials? Did biofilm move?

To answer these questions, engineers built tiny stages on which the bacteria could form a biofilm in a constant stream of saliva and crevicular fluid. Taking digital images through the biofilm allowed them to see and answer their questions about how bacteria function in a biofilm.

Supragingival plaque begins forming within minutes after the teeth are cleaned. The early pioneer colonizing bacteria begin the process and are soon joined by hundreds of other bacterial species and yeasts. Clinically we can’t actually see early supragingival plaque, but we know it’s there. As the mass increases, we can disclose it with dyes and see and feel it through careful disruption with a probe or explorer.

The supragingival bacterial biofilm will begin to form on surfaces protected from direct tongue and cheek movement, along the gingival margins for instance. The biofilm will attach to surfaces in a moist environment based on the shear forces of fluid in the area. It attaches well enough to resist removal by salivary flow or gingival crevicular fluid (GCF) flow. Have you ever noticed that plaque is easier to remove next to healthy tissue compared to tissue inflamed with gingivitis? GCF flow increases in the presence of gingivitis, thus a stronger shear force requiring plaque to attach with greater adherence in these areas. More plaque biofilm will accumulate next to inflamed gingival tissue, as the food source is better for the bacteria.

In a healthy mouth, supragingival plaque biofilm forms before subgingival plaque biofilm. Disclosed plaque in the mouth doesn’t appear to move, but biofilms are actively moving masses of bacteria and slime. Biofilm ripples, streams, rolls, creeps and actually moves microscopically along tooth surfaces. This explains how supragingival plaque actually creeps subgingivally. As it moves into the sulcus, the environment changes, which is inviting for some bacteria and not so inviting for others, thus the change in bacterial composition between supragingival plaque and subgingival plaque.

Supragingival and subgingival plaque are actually a continuous biofilm in the beginning, creeping from exposed tooth surfaces into the sulcus. As the subgingival bacterial biofilm increases in mass and triggers gingivitis and periodontitis, it becomes distinctly different from supragingival plaque. Look closely at the biofilm forming on the tooth surfaces you encounter in your patients. There’s a lot going on in that complex ecosystem!
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Smoking Cessation Improves Perio Health

Tobacco is a significant health problem, estimated to kill more than five million people per year and accounts for one in 10 deaths worldwide. Smoking is a risk factor for cancer, lung disease, cardiovascular disease and periodontal disease. Smokers are two to seven times more likely to have periodontal disease than non-smokers. Despite great efforts at smoking cessation, many dental research studies report only 10 to 20 percent success rates.

Researchers at the University of Sao Paulo in Sao Paulo, Brazil evaluated the effects of smoking cessation on periodontal parameters following non-surgical therapy. The one-year study began with 93 subjects and finished with 52 subjects. Subjects all received thorough non-surgical therapy and oral hygiene instructions over several appointments. They were seen every three months for maintenance visits and further smoking cessation counseling. The smoking cessation program included four one-hour sessions, scheduled weekly. The multidisciplinary team provided information, counseling, nicotine replacement drugs and motivational interviewing to establish individualized programs to fit each person’s needs and wants.

Thirty percent of the 52 subjects did quit smoking. Although very disappointing to the researchers, this is better than other studies have reported. Both quitters and non-quitters showed improved oral health at one year. A gain of 0.5mm in clinical attachment level was shown in the quitter group compared to the non-quitters. In fact, the non-quitters showed an increase in attachment loss at three months, with no changes from baseline at six and 12 months.

Clinical Implications: Smoking cessation should be part of periodontal therapy.


Blood Group Secretor Status Influences Periodontitis

There are four human blood groups: O, A, B and AB. Researchers have shown a difference in periodontal disease experience depending on blood type. Within blood groups a person might also be considered a secretor if they produce blood group reactive substances and secrete them into saliva. Blood group O secretes H antigen, groups A, B and AB secrete A antigen, B antigen or A and B antigens. The blood reactive antigens are found on the surface of mucins, erythrocytes and other cells and cause selective adherence of bacteria to tooth surfaces and thus biofilm formation.

Researchers at Jaipur Dental College in India evaluated a group of 90 patients equally divided into three groups: periodontally healthy, chronic gingivitis and chronic periodontitis. They collected subgingival plaque samples, unstimulated saliva and blood to determine if secretor status influenced oral health.

Of this group, 44 were secretors and 46 were non-secretors. The majority of secretors belonged to the healthy group, while the majority of non-secretors belonged to the periodontitis group. There were equal numbers of each in the gingivitis group. Plaque and gingivitis scores were higher in the non-secretor group compared to secretors.

Bacterial counts in both subgingival plaque samples and saliva samples were higher for P. intermedia and P. gingivalis in non-secretors. Blood group antigens secreted in the saliva appear to inhibit bacterial aggregation and thus biofilm formation. Secretors provide a protective effect that protects against periodontal disease.

Clinical Implications: Based on these findings, it might be important to learn the blood type and secretor status of patients, since non-secretors are more prone to bacterial accumulation and therefore periodontal disease.

**Bacteria Remain After Full-mouth Extraction**

Placing implants in a mouth with periodontally involved teeth allows bacteria to move to the new implant sulcus. Depending on the immune response, peri-implantitis might or might not occur.

When bacterial culturing is used to determine the presence or absence of bacteria in the mouth, it was reported that full-mouth extraction leads to an eradication of periodontal pathogens. When the pockets were gone, so were the periodontal pathogens. With newer microbiologic techniques to detect oral pathogens using DNA testing, reports suggest just the opposite.

Researchers at Catholic University Leuven in Leuven, Belgium used several methods to test for oral bacteria prior to full-mouth extraction and after implant placement. They selected 10 patients with advanced periodontitis. Half were smokers, three were women, seven were men and they ranged in age from 47 to 65 years. Bacterial samples were taken from subgingival plaque, the tongue and saliva. Culturing and DNA testing were both done.

The teeth were extracted and six months later implants were placed. Three to six months later, abutments were placed. Plaque samples and clinical indices were measured at one and three weeks, and 12 months after abutment placement.

Bacterial levels were high prior to tooth extractions. The levels for the amount of bacteria were much lower after implant placement, however the same bacteria were present. Levels for two bacteria remained very similar throughout. Aa and Pi. The crevice around the implants was pristine to begin, but within one week was colonized by all the usual suspects, but in much fewer numbers, except for Aa.

**Clinical Implications:** Aa survives at established levels even without teeth.


**Green Tea Decreases Acid Levels of Saliva and Plaque**

Green tea contains bioactive compounds of the catechin family, a group of flavonoids (phenolic compounds). Catechins have anti-inflammatory, anticariogenic, antioxidant and antibacterial properties.

Researchers at EL-Azhar University in Cairo, Egypt evaluated the effects of rinsing for five minutes with green tea extract on salivary and plaque pH levels and *S. mutans* counts. Testing was done on a random sample of 25 patients visiting the dental school clinic. 13 males and 12 females ranging in age from 21 to 46 years. Subjects received a complete clinical exam and plaque and saliva samples were taken. Bleeding scores were calculated by passing a piece of unwaxed floss between the teeth in the anterior region and the premolars (18 interproximal sites).

The study protocol included several steps. First was a two-minute rinse with 10 percent sucrose solution. Seven minutes later, plaque and saliva samples were taken followed by a water rinse. One hour later subjects rinsed with two percent green tea for five minutes and then waited 20 minutes before rinsing again with a 10 percent sucrose solution for two minutes. Seven minutes after that, plaque and saliva samples were taken.

After the first sucrose rinse, the pH dropped from 7 to under 5. Following the green tea rinse, the pH dropped from 7 to 6.5. *S. mutans* count increased after the sucrose rinse and dropped after the green tea rinse. Bleeding also reduced following the green tea rinse.

**Clinical Implications:** Green tea extract can be used in rinses and toothpaste to reduce bacteria and maintain a neutral pH in the mouth.

Three patient factors influence the effectiveness of manual toothbrushing: dexterity, frequency and duration of brushing. A fourth factor is toothbrush design, which is in a constant state of change by toothbrush companies wanting to sell more toothbrushes at higher prices with new designs and bristle configuration.

Researchers at Ponta Grossa State University in Ponta Grossa, Parana, Brazil compared three toothbrushes in a group of 27 nine- to 10-year olds. Toothbrush 1 (Colgate Classic), the conventional toothbrush has straight bristles and straight bristle tuft arrangement. Toothbrush 2 (Colgate Extra Clean) has bristles cut on different planes, and all tufts are in straight alignment. Toothbrush 3 (Colgate 360 degree) has bristles on different planes and bristle tufts are arranged in straight and circular patterns.

For 21 days prior to starting the study, all subjects brushed daily with Toothbrush 1 and Colgate fluoridated toothpaste under supervision, but with no instructions. In a cross-over study design, each student brushed with all three toothbrush designs, based on group assignment. Ten students were assigned to each test group and began the first 15-day period of brushing with one of the three brushes. This was followed by a seven-day washout period with all children using Toothbrush 1. This pattern was followed for all three brushes. Plaque and gingivitis levels were recorded at the end of each 15-day test period.

No significant differences between the three toothbrushes were seen. All three toothbrushes showed similar plaque and gingivitis scores.

Clinical Implications: The conventional, simple toothbrush design is as effective as more expensive, complex bristle designs.


Both caries and periodontal disease are bacterial infections, with many other factors influencing who experiences these diseases. Genetics as well as habits learned at home influence the future health or disease of children.

Clinicians in a Brazilian periodontal practice established a preventive program for the children of their patients in an attempt to prevent caries and periodontal disease. Parents were diagnosed with gingivitis (G), chronic periodontitis (CP) or aggressive periodontitis (AP). Fifty children ages three to 13 years joined the program. The children had no caries and no evidence of bone loss. They received oral hygiene instructions and maintenance visits every six to 12 months, similar to their parents. Parents were instructed to perform toothbrushing and flossing for children eight years old and younger. The children were divided into three groups, based on their parent’s periodontal diagnosis: G, CP or AP.

A total of 30 children were still being seen 20 years later, 16 females and 14 males from 23 to 33 years of age. Recall intervals averaged six months. There were no significant clinical differences between the three groups and no gingivitis.

Sixty percent (18 children) experienced no dental caries, 10 percent (three children) had one lesion, 3.5 percent (one child) had two lesions, 20 percent (six children) had three lesions, and 6.5 percent (two children) had four lesions. Seven of the total lesions were initial, not through the enamel and 16 were through the enamel.

Clinical Implications: Oral hygiene instructions and regular maintenance prevented gingivitis and bone loss in these children and helped more than half the group prevent dental caries.

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by Trisha E. O’Hehir, RDH, MS, Hygienetown Editorial Director

**Introduction**

Diagnosis is recognizing the signs and symptoms of disease—being able to distinguish health from disease. Clinically healthy gingival tissues are pale pink in color, have thin marginal areas, stippled surface texture (looking like orange peel), and on probing there is resilience that feels like rubber and no bleeding.

Ideally, all the patients in your practice are diagnosed as periodontally healthy, but based on the number of “bloody prophies” occurring every day in this country, that isn’t true. The first step in periodontal diagnosis is simply identifying those people who are healthy, according to the definition above, and those who are not. Classification comes later after making the distinction between health and disease and when you ask more questions: is it chronic or aggressive; mild, moderate or severe; associated with a systemic disease; involving abscesses; a necrotizing infection; associated with an endodontic lesion; involved with developmental or acquired factors; and is the patient a smoker? Answers to these questions come after you’ve made the distinction between health and disease.

The first step is deciding who isn’t healthy. When you diagnose “periodontal disease,” distinguish between these three distinct conditions: gingivitis, chronic periodontitis and aggressive periodontitis. Based on the criteria used to define “periodontal disease,” estimates are as high as 90 percent of the population when gingivitis is included along with chronic and aggressive periodontitis. Chronic periodontitis estimates vary depending on whether the study called for full mouth probing or partial mouth probing. Another variable in prevalence studies is the angle of the probe. If the researchers insist on holding the probe parallel to the long axis of the tooth for all measurements, they will miss the mid-interproximal surfaces of the posterior teeth and grossly underestimate the extent of disease. Partial mouth probing instead of full mouth probing is also a reason for missing disease. According to a press release from the AAP dated September 21, 2010, new research suggests that current estimates of the prevalence of chronic periodontitis might underestimate the actual prevalence by 50 percent. When separating out gingivitis and chronic periodontitis, researchers estimate the prevalence of severe periodontitis to be between five to 15 percent and aggressive periodontitis to be one percent of the population.

It’s easy to distinguish between health and bone loss, but diagnosing gingivitis poses a problem. The procedure codes created by the ADA and used by insurance companies contain no procedure codes to treat gingivitis, so it’s off the radar. Right now the codes include one procedure code to treat periodontally healthy patients (prophylaxis) and several procedure codes to treat chronic or aggressive periodontitis (SRP and surgery). Since there are no codes for treating gingivitis, both health and gingivitis are often lumped together. The problem here is that the vast majority of the population currently has gingivitis but is being led to believe they are periodontally healthy. Without procedure codes to treat gingivitis, those patients are either treated as healthy or as having chronic periodontitis. Both are inaccurate diagnoses.

There are several clinical indices including probing depth, bleeding, suppuration, recession, mobility and furcation involvement to be considered when making a periodontal diagnosis. Laboratory tests are now available to provide information about bacteria involved and genetic susceptibility, leading to more accurate treatment decisions and information sharing with patients. Adding to this are the many risk factors that need to be taken into consideration when making a diagnosis and prognosis. Here’s a brief overview of the clinical signs and laboratory test available to assist in making a periodontal diagnosis.

**Bleeding**

To make a diagnosis of gingivitis, look first at the tissues for color change or texture change due to swelling. Bleeding is our most objective clinical measure of gingivitis. However, sometimes probing depth suggests periodontal disease, but the clinician doesn’t see bleeding on the examination, but instrumentation elicits bleeding. It might be the probing technique that missed inflamed tissue and bleeding. If the probe is simply inserted into the pocket, barely reaching the clinical attachment, bleeding might not be seen. To detect bleeding, the entire subgingival area should be examined, not just one probe point.

According to commonly used bleeding indices, the probe is either inserted just apical to the gingival margin or to the depth of the sulcus or pocket. The Gingival Index first described in 1963 by
Drs. Silness and Löe inserts the probe just apical to the gingival margin and the tissue is gently stroked laterally with the edge of the probe to determine bleeding. Bleeding upon probing requires the probe to be inserted to the epithelial attachment and then walked around the entire sulcus from one point to the next, covering six points circumferentially around the tooth. This method should cover the entire epithelial attachment around the tooth. Bleeding might be immediate or become visible within seconds.

A third bleeding index used by clinicians and researchers can also be used by patients as a self-test for gingivitis. It’s the Eastman Interdental Bleeding Index or EIBI. A triangular-shaped wooden pick is inserted between the teeth from all facial surfaces until it fits tightly. It is then moved in and out four times in a rubbing action, depressing the interdental papilla at least one millimeter and exerting pressure on the papilla. This index was shown to be a more accurate representation of inflammatory tissue infiltrate than bleeding upon probing. Using a triangular wooden stick exerts the same amount of pressure each time, dictated by the size of the interproximal space. The force exerted when using a periodontal probe can and does vary considerably between clinicians, leading to variations in bleeding scores.

Bleeding is not an accurate indicator of gingivitis in smokers. Nicotine causes vasoconstriction, reducing bleeding scores, but this does not mean that smokers are healthy. There are other factors that need to be considered, especially probing depth, attachment loss and bone levels.

Clinical Implication: Examine the entire subgingival attachment area and sulcular or pocket epithelial wall to determine bleeding. Remember, the sulcular/pocket wall is an open wound that needs to be examined in its entirety. Bleeding might be reduced in smokers, so look for other factors including probing depths, attachment loss and bone levels.

Probing Depth Scores
Treatment decisions are often based primarily on probing depth scores, when many other factors should be considered as well. The first should be bleeding, which provides information about the level of current inflammation. Interproximal surfaces are at greatest risk for periodontal disease due to the lack of keratinization of epithelium in the col area and the protection these areas provide subgingival bacterial biofilm. When possible, follow Dr. Howard Farran’s probing suggestion, first probe brushing surfaces (facial and lingual) and then probe flossing surfaces (interproximal). Changing the pattern of probing provides an opportunity to educate patients about the connection between their oral hygiene activities and the current level of health or disease in their mouth. However, when using automated probing devices or computerized recording of probing scores, the pattern of probing will be the traditional round-the-tooth approach. These methods allow patients to hear the range of probing scores, but not which specific surfaces they represent.

Probing technique focuses on three aspects to ensure proper probe placement. Start with the probe parallel with the long axis of the tooth, keeping the probe tip in constant contact with the tooth surface. The probe tip remains in contact with the tooth surface as it follows the tooth contour moving subgingivally to the base of the sulcus or pocket. Second, aim the probe tip to the mid-point of interproximal surfaces to gain access to the area right under the contact. Avoid probing only line angles with a parallel probe placement, thus missing the mid-interproximal point. Third, keep the side of the probe against the contact as the tip moves interproximally to create a reproducible reference point to compare future measurements.

Clinical Implication: Probing depths provide information about the extent of tissue breakdown when disease is present. Probing circumferentially around each tooth provides the most accurate picture of periodontal health or disease.

Recession
Recession is generally measured on facial surfaces, sometimes on lingual surfaces and rarely on interproximal surfaces. Some charts only allow for two recession measurements per tooth, one facial and one lingual. Measuring and recording recession on all six probing points around a tooth provides the information necessary to calculate clinical attachment loss. This will provide a more accurate picture of the periodontal condition.

Recession is measured from the CEJ to the gingival margin. Sometimes the CEJ is obscured by restorations. Finding a reference point to begin the measurement will provide a reproducible measurement.

Clinical Implication: Measure recession at six points around each tooth, to provide information to calculate clinical attachment levels.
Clinical Attachment Level
Adding the recession score and the probing depth score together provides the clinical attachment score. This number is indicative of the bone loss already experienced by the patient. This number provides an accurate view of both soft tissue and bone destruction from periodontal disease.

Clinical Implication: A 5mm probing depth might not seem too serious, but when 3mm of recession is added, for a clinical attachment level of 8mm, the situation is much more serious.

Mobility
Class I and II mobility represent the extent of lateral tooth motion. Class III denotes both lateral and occlusal tooth movement. Measurements are made with two instrument handles, exerting force in one direction and then the other, noticing the distance the tooth moves. Placing one instrument handle tip on the occlusal surface or incisal edge of a tooth and pushing will determine if there is occlusal movement into and out of the socket. Measuring mobility with fingers or with one instrument handle and a finger will provide inaccurate data, as finger tissue compression might be interpreted as movement, thus confusing the measure of actual tooth movement.

Clinical Implication: Mobility indicates more than a bacterial infection as occlusal discrepancies and interferences might be exacerbating the situation.

Bone Loss
Bone loss is evaluated using both conventional and digital radiographs, but does not capture bone loss visible to the eye until 30 to 50 percent of mineral content is lost. Differences in mineral content between spongiform bone and compact bone are responsible for this, according to Dr. Per Axelsson in his textbook *Diagnosis and Risk Predictors of Periodontal Disease*. Probing depth might be considerably deeper in posterior interproximal areas, with no evidence yet of radiographic bone loss. It might be several months until the mineral loss is detected on radiographs. Subtraction radiography is the best way to determine differences in bone levels between radiographs.

Clinical Implication: Bone loss provides a picture of disease history. However, there might be more bone lost than is visible in radiographs.

Furcation Involvement
Furcation probes provide a marked curved probe to assess furcations more accurately than traditional straight probes. Furcation measurements are made horizontally rather than vertically. Furcation involvement is categorized as:
- **Class I** – bone loss not exceeding one-third the width of the tooth
- **Class II** – bone loss exceeding one-third of the tooth width, but not through-and-through
- **Class III** – through-and-through destruction of supporting bone in the furcation

Clinical Implication: Teeth with furcation involvement, especially Class III, provide a significant challenge to treat because access to the “roof” of the furcation is difficult.

Salivary Testing
Saliva contains information about the bacteria associated with periodontal disease. Gingival crevicular fluid mixes with saliva to provide immediate information about what’s happening inside the sulcus or periodontal pocket. Saliva also contains genetic information to determine if a patient is genetically susceptible to periodontitis.

Two periodontal salivary tests are available from the OralDNA Labs that measure bacterial DNA and genetic susceptibility to periodontitis. The patient swishes with sterile saline, expectorates into a funneled tube, and the tube is then shipped to the laboratory for analysis. When the laboratory report is available, the clinician is notified electronically of the results.

The bacterial tests check for DNA evidence of 13 periodontal pathogens. The Periodontal Susceptibility Test (PST) identifies genetic differences responsible for an exaggerated immune response of increased cytokine production. This genetic difference might lead to more serious periodontal disease.

Clinical Implication: Salivary tests provide an additional laboratory option for gathering valuable diagnostic information.

Future Diagnosis
Chairside, point-of-contact testing or over-the-counter home saliva tests will eventually become available for oral as well as systemic diseases. Salivary diagnosis is now possible, but available only to researchers for oral cancer, breast cancer, salivary gland diseases and biomarkers for periodontal disease.

The future will bring the NanoSensor, a handheld, automated, oral fluid sensor for rapid detection of multiple salivary proteins. Screening chips are designed with information to test immediately against the saliva sample. The screening chip for each disease or condition is the size of a credit card and is inserted into a handheld machine along with the saliva sample. It won’t be long before dentists and dental hygienists have greater involvement in the identification and monitoring of oral and systemic diseases.

Clinical Implication: In the not-too-distant future, clinicians will provide point of contact salivary testing for oral health conditions as well as systemic diseases, and consumers will buy over-the-counter saliva tests to measure and monitor their periodontal health.

Conclusion
The best clinical diagnostic tool we have for gingivitis and periodontitis today is bleeding on probing, with the absence of bleeding being the more accurate predictor of health. Not all bleeding on probing leads to bone loss, but all bone loss is preceded by gingivitis. Make the distinction between health, gingivitis and periodontitis with an accurate diagnosis using the clinical and laboratory diagnostics we have available today. This is essential to providing the appropriate treatment and preventing future disease progression. The future will bring less invasive, chairside saliva tests to revolutionize periodontal diagnosis.
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Patient Safety Glasses

Safety glasses protect patients from aerosols, splatter and dropped instruments, but not every office requires patients to wear them during procedures.

Do you require your patients to wear safety glasses for every procedure? I know it was required in school (as were a myriad of other things), but what do you actually do in practice? Out of about six or seven offices I’ve worked in, only the hygienists in one office have required patients to wear safety glasses. n

We are required by our doc to make sure the patients are wearing safety glasses; I think it’s a good idea. I remember as a kid getting the prophy paste in my eye... ouch! n

We have all our patients wear safety glasses. We have them in both adult and kid sizes. n

I always have my patients wear glasses. About 10 years ago I had a rip-roaring case of pink eye that made me so miserable. I would never want to do that to a patient. n

Yes, we always require the patients to wear safety glasses. Both restorative and hygiene. I’ve been at a few that don’t require it, and one office that didn’t even have safety glasses, but that is not the norm around here. n

I know that some patients like to stare into my safety glasses to watch the reflection of what I am doing, however their gaze gives me the willies. Besides the obvious reasons, I like to have patients wear safety glasses to avoid this gaze. Surprisingly, when I have gone to other dental offices for my own prophy I had to ask for safety glasses and the RDH was happy to oblige, however it took several minutes for her to find a pair. n

Over the years our office has tried many different brands of safety glasses, many that don’t work for all patients. Our office has the smaller, darker safety glasses for children. It is the adults I seem to have the most problems with. Many will ask and want to take them off during the appointment, yet I explain to them the importance and they hesitantly leave them on or again go through re-adjusting phases. n

The worst – and I mean the worst – looking eye I have ever seen was a patient who got prophy paste spatter in his eye. By the end of the appointment the white of his eye was blood red. He said it did not hurt, but it looked like he had been stabbed in the eyeball. I often ask my patients to close their eyes during polishing as I remember the blood
shot patient. I temp a lot and not every office has glasses for the patient. The kids like sunglasses for sure.

Shaded glasses are often very popular with patients as it helps cut down glare from the operating light as well. However, you must be mindful that you will need to see the patient’s eyes sometimes (anesthesia) so having clear glasses as well is a good idea.

As far as getting glasses that fit more people, really your only option is to have a variety of glasses on hand. While most safety glasses manufacturers will tell you that 80 percent of all people can wear the same size, there is no true one size fits all.

I used to have my patients wear them, but no one in any of the offices I have worked in uses them. I had patients refuse to wear them; I think they thought I was weird because I was the only one using them. I feel better now that I’ve heard many people comment here that they use them.

In our office, all operators in every operatory ask patients to don darkened safety glasses for every procedure. If anybody questions why, my reasons are to reduce the light’s glare, and to protect the patient’s eyes from prophylaxis paste splatter and airborne bacteria. A few people are resistant to our sunglasses and bring their own, which I allow them to use, but most people enjoy wearing them and find them comfortable. Ours have the side shields also, like the glasses that people who have glaucoma use. I have had more people ask me where to find these sunglasses than those who oppose wearing ours.

We have three different sizes: one for two- to six-year-olds, one for seven- to 12-year olds and an adult pair. Obviously, not all children and adults come in the same sizes so we play around with the glasses first and find the pair that is going to work for them throughout the appointment. I believe it is very important to protect their eyes from all of the foreign debris and bacteria. Our job is prevention so it just seems natural to try and prevent other injuries and infections during our procedures.

In hygiene school we were told of a hygienist who lost an eye. She got calculus in her eye and some kind of infection, and there was someone who got herpes in his eye.
Cemental Tear Repair with Endoscope

The cemental tear, also considered a vertical root fracture due to occlusal overloading, aging or previous trauma, in this case left a cemental fragment still attached to the tooth.

I saw this patient a couple of weeks ago. She didn’t want an extraction of #9 so she came out from New York to undergo regenerative periodontal endoscopy (RPE) to try to save the tooth. She had other areas to treat as well, but this was interesting so I thought I would share and get feedback. She presented with a history of ortho and trauma, radiopaque area adjacent to apex, calcified canal, non-vital tooth and Class II mobility. But what in the world was going on subgingivally? I made a video clip when I endoscopically repaired this area (see it in the message board). I assumed it was just a cemental tear of sorts. It came off fairly easily and appeared to be like an egg shell. Very interesting. Patient on sub-antimicrobial dose doxycycline (SDD) a week before RPE with Emdogain.

Figs. 1 & 2: 10mm on mesial – all photos taken after RPE and videos, note minimal tissue trauma
Fig. 3: 9mm on facial – the egg shell coating wrapped around the tooth facial, mesial and palatal surfaces. Tooth is extruded. If we save it she will do something aesthetic here.
Fig. 4: 12mm mesial from the lingual
Fig. 5: 8mm straight lingual
It took me about 10 minutes to thoroughly clean this tooth with the aid of the periodontal endoscope, followed by coating the root with Emdogain from the apex to the CEJ. The patient reported no problems and no tissue shrinkage. She will come back to see me in six months for a re-evaluation.


Here are follow-up images from 10 months. I had her re-evaluated by two dentists in New York where she lives, they both concur that this tooth is solid and stable, Class I mobility. I am having one of them take digital photos of the tissue for me this month. I do not like the apparent cementum loose in the tissue, but I love the regeneration above it. I might have her come back at the one-year mark just to be sure I don’t need to go back in. I feel I could get 2-3mm more bone in the IP. All probings are within normal limits with no bleeding on probing (BOP), except for a 5mm pocket described by her DDS on the ML of #9. It was a 12mm pocket before RPE. Both her dentists are thrilled and want more info.

Fig. 6: 10 months after RPE, nice bone fill occurring
[Posted: 5/25/2011]

Here are the one-year follow-up photos I took before removing the cementum lodged in the CT still visible in the X-ray posted above. I teased/cut it out with my laser and piezo diamond, while viewing with the endoscope. I recorded it – it was fun and somewhat challenging because of the location (away from the tooth root), and the strong attachment to the tissue. I then filled the remaining 5mm pocket on the ML with Emdogain. She will have a re-evaluation again in three months with her DDS back East, they can then discuss aesthetic options if she wants to pursue. I hope to see 2-3mm more bone by then on the X-ray. There is no mobility on this tooth and no recession created by the RPE procedure.

Fig. 7: Before was 10mm, after is 3mm with slight BOP
Fig. 8: Line angle was 8mm, now 3mm with slight BOP
Fig. 9: Before was 9mm – after is 2mm, no BOP
Fig. 10: Before was 12mm – after is still 5mm with slight BOP due to cementum stuck in CT – this is the area I accessed to retreat
DentalSpots.com: New Solutions to Solving the Age-old Challenges of Finding Temporary Staffing for Dental Offices

The educated hiring of qualified dental assistants, hygienists and front office staff can help dentists prevent costly drops in production income.

by Feridoon Amini, founder of DentalSpots.com

Twenty years of managing people and dealing with HR issues for a number of large IT organizations prepared me for addressing some of the challenges of running a successful dental practice.

Prime among these challenges is the never-ending quest to fill vacant office positions. Complicating this issue is the increasing reliance on part-time and temporary help, and the difficulty in identifying truly qualified candidates.

“In six years I’ve had employees quit suddenly, not show up and embezzle funds, but it happens to all dentists I talk to,” says Mojan Safavi, DDS, who practices in McKinney, Texas. “My colleagues and I struggle with these issues on a regular basis, hoping to find a solution so our practices aren’t hijacked by our staff.”

However, there is hope. By applying successful strategies from the corporate world and harnessing the power of the Internet, practitioners can regain control of their office to prevent devastating drops in productivity caused by employee vacancies.

One thing I’ve noticed in the dental industry, especially in smaller offices, is too great of a reliance on individuals. “I’ve had days where I’m fully booked with patients, but five minutes before the day begins, the dental assistant calls in sick,” says Safavi. “What do you do? Without them, it’s hard to do procedures like veneers. You aren’t even sure where some of the dental products are, so you have to cancel most of your patients. All that potential income vanishes.”

The absence of a hygienist proves equally as costly. “For the lack of a hygienist, the doctor can lose around $20,000 to 30,000 a month,” says Fariba Dadgostar, general manager for the Dossett Dental chain located in Dallas, Texas. “A delay in securing a dental insurance specialist can be equally as financially devastating.”

In contrast, large organizations will require employees to document their processes so that others can take over, in their absence. These should be written so that anyone can follow those steps.

Also critical to the success of a dental practice is the ability to identify qualified temporary workers, yet many dentists still rely on traditional temporary agencies with no way of knowing whether a person is qualified. “I used to call a temporary agency to send me people who were supposed to be the best,” recalls Safavi. “But they’d come to my office without knowing how to take film X-rays, let alone digital.”

Given the inexpensive resources found on the Internet, it is now hard to justify calling on costly brick and mortar temporary agencies, which charge $30 to $50 a day in addition to the worker’s hourly rate. Using a Web site that allows you to post temporary jobs and screen candidates based on skills and ratings for free, paying a nominal fee only when you choose to use the person, and then nothing else if you do hire him or her permanently, can literally save thousands.

DentalSpots.com has built into its portal a means to allow dentists or office managers to rate recently acquired temporary help that other offices can review to determine a good hire. While seemingly a benefit only to employers, such practices also benefit well-performing employees in their job searches.

Contact Info

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