Many habits threaten oral and systemic health. Poor nutrition, compromised oral hygiene care, tobacco use, and alcohol consumption are but a few. A constellation of negative health behaviors is not uncommon, particularly among young adults who are beginning to assume control of their own healthcare. Mr. D, the subject of today's case, engages in highly destructive health behaviors that have resulted in rampant caries, generalized erosion, and threats to systemic health.

Mr. D, a young man who is the subject of today's case, has shrugged off his responsibility to maintain his own oral health. He has adopted lifestyle behaviors that have resulted in rampant decay and erosion and that pose risks to his general health. Initially, he blames his parents for his unmet needs, but ultimately, with the help of his dental hygienist, he realizes that to become healthy, change must come from him.

All too often we encounter patients with low dental IQs and a lack of oral health literacy. To aid these patients, we must know about the best approaches to health education and motivation, and be aware of the best practices and therapeutics available. Through Case Studies in Dental Hygiene we are able to learn techniques and approaches that enhance our capabilities and effectiveness. Colgate offers us this opportunity to ponder how we practice and to consider alternatives to providing care. Continued learning is a hallmark of our profession. To Colgate, I say thank you.

Sincerely,

Jacquelyn L. Fried, RDH, MS
Associate Professor and Director of Inter-Professional Initiatives
University of Maryland School of Dentistry

Young Adulthood: A Time of Transition and Increased Responsibility

Tara L. Newcomb, BSDH, MS
Assistant Professor and Clinical Instructor
Old Dominion University School of Dental Hygiene

Introduction

Many habits threaten oral and systemic health. Poor nutrition, compromised oral hygiene care, tobacco use, and alcohol consumption are but a few. A constellation of negative health behaviors is not uncommon, particularly among young adults who are beginning to assume control of their own healthcare. Mr. D, the subject of today's case, engages in highly destructive health behaviors that have resulted in rampant caries, generalized erosion, and threats to systemic health. His excessive consumption of sugared soft drinks, a low dental IQ, alcohol and tobacco use, and a reluctance to assume responsibility for his own healthcare are the primary etiologies.

Excessive soda consumption is commonplace in today's society. American children and adults consume approximately 56 gallons of soft drinks per year, equivalent to over 600 twelve-ounce servings per person per year. Soft drink consumption has doubled among women and tripled for men, with males between the ages of 12–29 consuming the most. Beverages high in sugar content increase a person's risk for rapid progression of dental caries and erosion, and can adversely affect overall health.

Increased risk for dental caries and extrinsic enamel erosion depends on the beverage's level of cariogenicity, acidity, and the time, quantity, and frequency of consumption. Sugary soft drinks contain acids, typically phosphoric, citric, and/or carbonic acids that injure enamel hydroxyapatite, causing erosion, a non-bacterial chemical wearing away of the tooth due to depletion of the enamel coating. Individuals who consume excessive amounts of sugary soft drinks gain weight and put themselves at greater risk for type II diabetes and cardiovascular disease. Research shows that when soft drink consumption is increased, the intake of nutrient-rich foods and beverages such as milk is reduced.

A component of oral health literacy involves a patient's ability to understand how unhealthy habits affect their oral wellness; for example, understanding that excessive drinking and cigarette use increase the risk for oral cancer.
hygienists, by working on a one-on-one basis with their patients, can increase patient oral health literacy.

Effectively motivating patients to modify destructive habits is challenging, particularly when multiple behaviors are involved. Knowing how to manage a particular patient is complex. Helping reduce risk factors for oral and systemic disease is a dental hygienist’s ethical responsibility. Enhancing biological, behavioral, and/or socioeconomic contributors to systemic and oral health requires a strong knowledge base, intuition, and perseverance, skills dental hygiene professionals possess.

Mr. D is a 24-year-old man with a low dental IQ who has not taken responsibility for his oral or general health. He blames his parents for his dental disease and does not realize that his excessive soda consumption, alcohol use, smoking, and poor dietary habits threaten his well-being. The dental hygienist meets the complexities of this case by challenging Mr. D to take responsibility for his well-being, and modify or eliminate risk behaviors that threaten his oral and systemic health.

Case Report

Background and Health History

Mr. D: 24-year-old single, Caucasian male presenting for a “check-up and cleaning.” He has had no routine dental hygiene care in over six years; he has no dental insurance coverage despite full-time employment at a local scrapyard. His parents no longer schedule his medical or dental appointments, nor cover related expenses. He reluctantly assumes responsibility for his own care.

Mr. D does not use any prescription medications. He has a history of seasonal allergies treated with OTC antihistamine medications, p.r.n.; he suffered with asthma as a child with no attack in over 10 years. He has had emergency room visits and dermatological procedures, including a broken collar bone in a motor bike accident (2005); removal of four dysplastic nevi, two of which were facial (2006); work-related broken leg requiring placement of two screws in fibula (2008); car accident with trauma to the right side of face, broken rib, and minor cuts on the head and chest (2010); and deep laceration (work injury) of right palm of hand with localized infection due to patient negligence (2011). This was treated with oral antibiotics and first aid antibiotic ointment; residual numbness in healing site reported.

Chief Complaint: “I need to have my teeth cleaned, they are getting brown.”

Physical Assessment: Height 5’11”; weight 142 lbs. (medium frame); visible dirt in nail beds and on face and clothing, possibly work-related. Lack of good personal hygiene; patient states that being tired after working long days outdoors doing manual labor makes “it difficult to come to dental appointments or to make other doctors’ appointments.”

Vital Signs: BP: 120/80 mm Hg, RAS; pulse: 68 BPM; respirations: 16 RPM;

Family History: Father: age 58, divorced; history of diabetes, high blood pressure, high cholesterol and heart disease; suffered a heart attack followed by double by-pass surgery (2010). Mother: age 57, divorced, history of anxiety and depression, removal of basal cell carcinomas on face and arm (2007).

Social History: Employed in manual labor since entering job market (construction work, landscaping, and the scrapyard); schedules no exercise. Has used tobacco products for the past five years, smoking one pack of cigarettes/day; drinks 5–6 alcoholic beverages, mostly on the weekends when “hanging out with friends,” sometimes consumes beer and liquor mixed with soft drinks during the week; has no formal education or job skill training; started working right after graduation from high school; lives with one roommate; likes to party and play pool on the weekends with friends; hunts and fishes year round.

Nutrition History: Since living independently, has not established skill set to purchase and prepare nutritious meals. Generally eats prepackaged meals or fast food (high in fat, sodium, and carbohydrates) “picked up” on the way home from work; rarely eats fruits or fresh vegetables; typically eats in front of the TV (sometimes falling asleep on the couch without showering or brushing teeth), or goes to happy hours and skips dinner. Reports drinking at least 12 sugared carbonated soft drinks per day.

Past Dental History: Has received comprehensive dental hygiene care in the past (when under parental supervision); has had some of his carious lesions restored; blames current untreated carious lesions on his parents, who he claims did not take him back for additional planned restorative appointments when he was a teenager.

Relevant Clinical Assessment Data

Extraoral: Signs of sun exposure and damage on face and lips; chapped, dry lips. Several small (under 2 mm in circumference) dark brown nevi on forehead near hairline, nose, and cheeks; freckles across the upper cheeks and bridge of nose. One mole noted for its size (3 mm), irregular border, darker color and scaly appearance.

Intraoral: Small 4x2 mm piece of black rubbery material lodged into existing buccal caries #2, removed. Patient shredded over 150 tires prior to appointment; maxillary tori and brown coated tongue.
Slightly decreased salivary flow. Angles Classification I, bilaterally. Two mm midline deviation to the left; 5 mm overjet; overbite at middle third. Crossbite, teeth numbers 13–19, 14–20.

**Radiographic Findings:** Slight posterior vertical bone loss; anterior and posterior fillings, some with obvious secondary caries; numerous primary caries; multiple restorations present (Figure 1).

**Hard Tissue Findings:** Twenty-eight teeth present; wisdom teeth extracted at age 18; 18 areas of suspected caries: four interproximal, four occlusal, ten with active root caries and/or erosion; chalky white spot lesions generalized at gingival margins in plaque stagnation areas; cervical decay and erosion, brown in appearance; soft and rough upon light exploration (Figure 2).

**Accretions:** Generalized heavy marginal and interproximal plaque biofilm; moderate posterior occlusal plaque deposits on surfaces and in areas with deep decay; generalized, moderate extrinsic brown stain; tire remnants lodged in two mandibular molars with deep cervical decay. Silness and Loe15 Plaque Index score of 2.0, indicating poor oral hygiene; calculus generalized; heavy, lower anteriors, moderate subgingival deposit interproximally.

**Caries Risk Assessment:** Overall high risk for caries per ADA Client Caries Risk Assessment Form (Table 1). Mr. D is at high risk due to consumption of sugary or starchy foods or drinks with a frequency of prolonged between-meal exposure/day; at moderate risk due to no dental home care and not being an established patient of record receiving regular or routine dental care; at low risk for general health conditions; and at high risk for having cavitated or incipient carious lesion or restorations, three or more carious lesions or restorations in the last 36 months; visible plaque, interproximal restorations, and exposed root surfaces contribute moderate risk.

**Oral Hygiene Behaviors:** Brushes every two days with medium manual toothbrush, sometimes without toothpaste; no interdental cleansing; occasional rinsing with essential oils mouthrinse.

---

**Table 1. Caries Risk Assessment Form**

<table>
<thead>
<tr>
<th>Patient Name: Mr. D Score: 24</th>
<th>Birth Date: 3/13/1988 Date: 2/25/2012</th>
<th>Age: 24</th>
<th>Initials: XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk (a)</td>
<td>Moderate Risk (b)</td>
<td>High Risk (c)</td>
<td>Patient Risk</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Contributing Conditions</strong></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>I.</td>
<td>Fever or Exposures (through drinking water, supplements, professional applications, toothpaste)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>II.</td>
<td>Sugary Foods or Drinks (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)</td>
<td>Primarily at mealtimes</td>
<td>Frequent or prolonged between meal exposure/day</td>
</tr>
<tr>
<td>III.</td>
<td>Caries Experience of Mother, Caregiver and/or other Siblings (for patients ages 6-14)</td>
<td>No carious lesions in last 24 months</td>
<td>Carious lesions in last 3-23 months</td>
</tr>
<tr>
<td>IV.</td>
<td>Dental Home: established patient of record, receiving regular dental care in a dental office</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>General Health Conditions</strong></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>I.</td>
<td>Special Health Care Needs*</td>
<td>No (over age 14)</td>
<td>Yes (ages 6-14)</td>
</tr>
<tr>
<td>II.</td>
<td>Chronic/Radiation Therapy</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>III.</td>
<td>Eating Disorders</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IV.</td>
<td>Medications that Reduce Salivary Flow</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>V.</td>
<td>Drug/Alcohol Abuse</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Clinical Conditions</strong></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>I.</td>
<td>Cavitated or Non-Cavitated (incipient) Carious Lesions or Restorations (visually or radiographically evident)</td>
<td>No new carious lesions or restorations in last 36 months</td>
<td>1 or 2 new carious lesions or restorations in last 36 months</td>
</tr>
<tr>
<td>II.</td>
<td>Teeth Missing Due to Caries in past 6 months</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>III.</td>
<td>Visible Plaque</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IV.</td>
<td>Unusual Tooth Morphology that compromises oral hygiene</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>V.</td>
<td>Interproximal Restorations - 1 or more</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VI.</td>
<td>Exposed Root Surfaces Present</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>VII.</td>
<td>Restorations with Overhangs and/or Open Margins, Open Contacts with Food Impaction</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>VIII.</td>
<td>Dental/Orthodontic Appliances (fixed or removable)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IX.</td>
<td>Severe Dry Mouth (Xerostomia)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Periodontal Findings: Bleeding on probing, all sites; 2–5 mm readings generalized, 6 mm pseudo-pocketing on #8 5 DB and #15 MB; moderate recession localized to mandibular posteriors. Classification: severe gingivitis; moderate periodontitis (3–4 mm Calculated Attachment Loss). Erythematous, edematous tissue (Figure 3).

Periodontal Risk Assessment: High risk due to smoking, recession, existing caries, and defective restorations with secondary caries, poor oral hygiene and diet, lack of professional care, and bouts of oral dryness.

Clinical: Rampant caries and erosion, extensive plaque accumulations, suspect extra-oral lesions, high bleeding scores; minimal to moderate bone loss.

Psychosocial: General lack of health knowledge; reluctance to assume control over his well-being; engages in destructive health habits, including poor to no oral hygiene, excessive consumption of sugary carbonated beverages and alcohol, tobacco use, and unacceptable dietary practices; appears “accident prone” and lackadaisical about his lifestyle.

Analysis of Assessment Data

Health Education Topics: Assuming personal responsibility for oral and systemic health, connections between rampant caries, sugar consumption, and poor oral hygiene, and between carbonated beverages, poor oral hygiene, and erosion; need for regular dental hygiene care and caries prevention strategies, including nutritional counseling; limiting alcohol consumption and smoking as both pose increased risk for oral cancer and periodontal disease; teaching patient self-examination to reduce risk of oral and skin cancer; addressing xerostomia, caused by combined use of tobacco, alcohol, and caffeinated carbonated beverages.

Home Care: Introduce oral hygiene measures, emphasizing frequency; prescribe fluoride therapy and non-alcoholic mouthrinse; assess and modify diet and food plan; emphasize reduction (with ultimate elimination) of sugary sodas and suggest alternatives; approach tobacco cessation and reduction in alcohol use; discuss skin protection to avoid facial lesions.

Periodontal Debridement: Non-surgical periodontal therapy (NSPT), including scaling and root planning four quadrants using local anesthesia with epinephrine. Local anesthesia with a vasoconstrictor can be used to help control bleeding during NSPT and reduce discomfort. Mr. D experiences pain upon probing and presents with moderate generalized bleeding; his use of alcohol may further increase bleeding. Hand scaling in areas of demineralization is recommended; power-driven scalers are contraindicated for demineralized areas and can cause surface defects and damage marginal integrity of restorations. Selective polishing is indicated with fluoride varnish applied after treatment.

Sequencing: Mr. D's responses and requests will determine the topics raised and the behavior modifications introduced. A daily oral home
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98% of hygienists who responded saw a reduction in their patients’ gingival inflammation*

“Patients went from red, inflamed gingiva to pink and firm gingiva.”
Ruben Borunda, RDH, BS
El Paso, Texas
Colgate Oral Health Advisor since 2010

“I was amazed to see less plaque, especially with older patients, which decreased inflammation.”
JoAnn Pyne, RDH
Collegeville, Pennsylvania
Colgate Oral Health Advisor since 2009

94% of hygienists who responded saw a reduction in their patients’ bleeding on probing*

“I saw a decrease in bleeding and, most importantly, patients liked the taste so I get increased compliance.”
Jill Keeney, RDH
Hanover, Pennsylvania
Colgate Oral Health Advisor since 2009

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*Respondents were sent “See the Evidence Yourself” kit to evaluate patients who were not using Colgate Total® Patient education survey 2011. Participants received a gift card for the completion of surveys.
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care regimen must be introduced at the first appointment. Diet, alcohol use, and smoking may be addressed in relation to the EIOE and visible findings. One side of the mouth will be scaled. At appointment two, the first two quadrants will be reevaluated to assess deposit removal and tissue resolution. The remaining quadrants will be scaled. Reinforcement of modifications will be included at every appointment. A post-evaluation will be scheduled and a follow-up interval determined.

**Appointment 1**

No changes in health history; blood pressure: 122/81 mm Hg, RAS. During the EIOE, signs of sun damage (dark spots across the upper cheeks and bridge of nose, and dark brown nevi on his forehead near the hairline, nose, and cheeks) are noted. The nevus with irregular borders, darker color, and scaly appearance is measured and documented. Upon conferring with the dentist, a dermatological referral is made. To avoid skin cancer, the following recommendations are made: liberal use of sunscreen and wearing treated clothing that block the sun. Eye and mouth protection can be achieved by wearing protective eye wear and a mask when working with debris in the scrapyard.

Mr. D discusses his present alcohol and smoking habits, seemingly oblivious to their harmful oral and systemic effects. He learns that the combination of chronic alcohol consumption and smoking increases his risk for oral cancer; specifically, with high alcohol consumption the risk of pharyngeal cancer, esophageal cancer, and oral cancer grows. Mr. D will be monitored for oral cancer and periodontal disease as they are linked to tobacco use and will be taught how to conduct a self-screening. Mr. D seems alarmed at the information and says he might consider reducing his intake of both substances. Mr. D has been using tobacco for only five years, so the benefits of using and the reasons for starting must be addressed. Given that he is employed out of doors, smoking in the workplace is permissible. This challenge will be discussed. Mr. D is informed that quitting smoking is difficult and multiple attempts at cessation are common. The dental hygienist will support Mr. D through education and encouragement. Mr. D’s chief complaint of brown stain provides a segue to introduce home care; it also demonstrates the link between tobacco use and staining. Mr. D is shown the brown erosion areas which he thought were simply stain. Erosion and its link to carbonated sugared beverages are discussed. Mr. D learns that sodas have been instrumental in his 18 new carious lesions; he also falls into the range of males who consume the most sugary soft drinks. He appears concerned about losing his teeth and the cost of restorations.

Mr. D’s deleterious habits become the focus of discussion. He is advised to commit to healthy drinking by choosing water and milk and limiting the use of sugary drinks. His Silness and Loe Plaque Index score is 2.0, indicating poor oral hygiene. As such, the following oral hygiene measures using the “tell, show, do” method are introduced: soft-bristle tooth brushing using the modified Bass technique, applying gentle pressure due to recession and erosion; C-shaped flossing once a day or use of a flossing aid to remove interproximal plaque and reduce bleeding; and tongue cleansing to reduce microorganisms, remove residual tobacco stain, and augment oral cleanliness. Mr. D successfully demonstrates 45-degree angle sulcular brushing using short back-and-forth motions. Brushing 2–3 times daily, especially at bedtime is recommended. C-shaped flossing instructions using disclosing solution were given; Mr. D manipulated the floss well on the anterior teeth even with crowding, but became frustrated when demonstrating on posterior teeth; floss picks were introduced if C-shape flossing continues to be a problem. Based on his risk assessments, a combination therapy for both high-caries risk and periodontal disease using a 5000 ppm fluoride toothpaste and chlorhexidine (CHX) mouthrinse is recommended. Using a 1.1% prescription strength sodium fluoride toothpaste daily combines brushing with simultaneous fluoride uptake; this one step promotes greater patient compliance. The recommended toothpaste also is safe for exposed root surfaces, and significantly remineralizes demineralized areas and root caries. Once-daily rinsing with chlorhexidine gluconate (0.12%) for the management of both dental caries and periodontal disease is suggested for two weeks. Mr. D sets a goal to reduce his plaque levels by 30% for the next visit.

Mr. D has completed a 24-hour food recall form, and his nutrition habits are addressed. The 24-hour food recall can be taken in 15 to 20 minutes, showing consideration for Mr. D’s busy work schedule and limited time for appointments. Prevention targets are to reduce caries risk and address systemic conditions that could arise from a compromised diet. The dental hygienist recommends the following: limiting consumption of fermentable carbohydrates to mealtime; reducing/omitting sweet foods/drinks with meals; selecting between-meal snacks that include raw fruits and vegetables, and avoiding sticky carbohydrates and sweets before bedtime; avoiding fast foods high in sodium and fat; decreasing the frequency of sugar consumption; replacing cariogenic foods with those of nutritional value; and using xylitol products to satisfy his sweet tooth and stimulate salivary flow. Xylitol tastes like sucrose, yet inhibits attachment and transmission of bacteria and enhances remineralization of hard tissues. Chewing two pieces of gum or sucking on two xylitol lozenges four to five times daily is recommended for patients with moderate to severe caries risk. Recommended dietary allowances using the Dietary Food Guidelines for Americans and US Department of Agriculture My Pyramid were reviewed.

Mr. D has agreed to reduce sugary soda intake by half, substituting water for rehydration. He is realizing that he can no longer blame his
parents for his poor oral health, seeing that his consumption of sugared acidic beverages, poor dietary choices, smoking, and alcohol habits are behaviors he has chosen as an adult.

The initial restorative treatment plan will include the placement of sealants in incipient lesions, and the use of glass ionomer restorations that slowly release fluoride. More complex restorative treatment may be warranted. The entire dental team will facilitate Mr. D’s movement toward prevention of disease or its recurrence. A sliding scale for payment of services rendered will be established so Mr. D can continue treatment and manage costs. Mr. D is grateful for this plan.

For NSPT, the following instruments were used: a subgingival periodontal explorer, ODU 11/12 for calculus detection, extended shank area-specific curets; Gracey 1/2 for anterior and premolar surfaces and interproximal areas; Gracey 11/12 for mesial proximal and 13/14 for distal proximal surfaces of molars; and mini-bladed area-specific curets for adaptation on narrow facial and lingual surfaces of anterior teeth where Mr. D has crowding. Ultrasonic scalers are contraindicated for decayed and demineralized areas because the ultrasonic vibrations can remove the delicate remineralized cover of a vulnerable area. NSPT was implemented on the left side and topical anesthesia was applied at each local anesthesia injection site. One carpule of lidocaine 1:100,000 epinephrine was administered to the maxillary left ASA, MSA, and PSA, and to the mandibular left IA and long buccal. Negative aspirations reported. Mr. D presented with moderate supra- and subgingival calculus and heavy plaque. Some veneer and generalized moderate interproximal calculus was tenacious, and bleeding upon scaling was heavy due to the amount of inflammation present. Brown stains from tobacco were removed by scaling and selective polishing. Heavy subgingival plaque was removed with debridement.

All take-home messages were reinforced. The dental hygienist advised Mr. D to focus on a few main things, such as the reduction of sugared carbonated beverages, practicing the recommended oral hygiene measures, and considering limited tobacco and alcohol use.

Appointment 2

No changes in medical history and EIOE; blood pressure: 122/79 mm Hg, RAS. Mr. D will be seeing the dermatologist in three days and was congratulated for that effort. He has purchased sunscreen products for his face and lips. Tissue reassessment indicates a 25% reduction in bleeding and less edema on the previously scaled left side; pseudo pocketing was reduced by 1 mm generalized, with the areas of cervical decay excepted. Minor bleeding upon probing was present in the mandibular anteriors; an end-tuft brush was introduced for that area. Mr. D’s Silness and Löe Plaque Index score of 1.0 shows improvement to “fair.” He has reduced his consumption of sugary sodas by one-half, choosing to drink more water instead. He now attempts to keep groceries at home, often buying pre-cut vegetables and fruits, as recommended; he is saving money by not eating out all of the time. Mr. D reports the following: twice-daily brushing with the prescribed toothpaste and daily rinsing using CHX. He is not flossing due to dexterity issues related to his numb hand. Floss holder and/or plastic pik use are reinforced.

Mr. D’s accomplishments after one appointment are exceptional. Since he does want to quit smoking, the dental hygienist implements the “Five A’s Approach.” An online resource (http://www.smokefree.gov) and a national telephone quit line that offers immediate and local support group resources in smoking cessation (1-800-QUITNOW) are provided. The dental hygienist teaches Mr. D how to self-perform an oral cancer screening, noting common sites for lesions and explaining the benefits of early detection. He was also told that areas differing in color, shape, and size in comparison to the surrounding tissue, and lesions that do not heal merit further investigation. Mr. D recognizes that stopping smoking will save money, reduce his risk of heart disease (a familial condition), and prevent bone loss and oral cancer. He agrees to reduce his tobacco use to one-half pack a day by his re-evaluation appointment. Mr. D is relishing his self-determination and the dental hygienist is somewhat amazed at his progress. After reviewing the Drug Use Continuum (Table 2), Mr. D sets a small goal to reduce his consumption to occasional use. He admits that after drinking several drinks he becomes tired and falls asleep without brushing his teeth.

### Table 2. Drug Use Continuum

<table>
<thead>
<tr>
<th>Classification Based on Use</th>
<th>Description</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Abstainers (about one third of the population)</td>
<td>Never used drugs or alcohol</td>
</tr>
<tr>
<td>Type 2</td>
<td>Social drinkers or users (majority of population)</td>
<td>Occasional use Able to drink one cup and stop Does not result in personal problems</td>
</tr>
<tr>
<td>Type 3</td>
<td>Drug abusers</td>
<td>Excessive use of substance Binge drinking</td>
</tr>
<tr>
<td>Type 4</td>
<td>Physically dependent Addicts</td>
<td>Adaptation of the body’s chemistry Withdrawal signs and symptoms Not used as a coping device Physician-induced addictions</td>
</tr>
<tr>
<td>Type 5</td>
<td>Psychologically dependent addicts</td>
<td>Alcohol or drugs used to cope with life Can never return to social use Tolerance Withdrawal symptoms Compulsive use Loss of control Use despite personal problems Preoccupation Denial</td>
</tr>
</tbody>
</table>
The dental hygienist reinforces Mr. D's self-efficacy; however, she adds that if alcohol and tobacco use remain problems, seeking out support groups or other professionals in the community may be necessary.

NSPT is begun using the same procedures and armamentarium for local anesthesia administration and instrumentation as at the first appointment. Like the left side during scaling, bleeding is evoked but it is less substantial given Mr. D's adherence to his new home care regimen. To complete the appointment, a fluoride varnish is painted on all teeth, with a recommended application of two to three times annually. A four-week reassessment appointment is scheduled. Mr. D has verbalized his desire to start restorative treatment soon.

**Four-Week Reassessment Appointment**

Mr. D's health history and EIOE are reviewed; no changes noted. Overall, gingival health, pocket depths, and stable clinical attachment levels are noted; full mouth probing reveals generalized 2 mm pocket depth reductions, with bleeding sites reduced by 75%. Tissue is less edematous and erythematous. Mr. D met his tobacco reduction goal and decreased his alcohol consumption during the week; however, he is having several drinks on the weekends. He continues to adhere to the prescribed home care regimen. Although he flosses only 3–4 times a week, that does represent an improvement. A slight calculus build up is present on the crowded lower anterior lingual. End-tuft brush use is reviewed. Some generalized brown stain from smoking and the CHX rinse has lowered anterior lingual. Mr. D's plaque index score was 0.9, which is "good." He is surprised and elated by the changes in his mouth.

Mr. D will be scheduled as the first appointment of the day so he can get to work on time or compensate for missed work hours by working later into the day. Teeth #s 20 and 30 are priorities and may require endodontic therapy due to deep decay. An initial two-month recall appointment is recommended for tissue reassessment and home care review. The dental hygienist will check up on Mr. D and reinforce his efforts during his scheduled restorative appointments.

Dental offices need to maintain contact with their young adult patients for appointment scheduling and reminders.

As in past generations, today's young adults have high rates of damaging and risky health behaviors, yet the health issues of young adulthood frequently receive less attention than those of childhood or adolescence. When treating young adult patients, dental hygienists need to take accurate social histories that include questions about alcohol consumption and tobacco and drug use. Oral cancer risks are higher in patients who use tobacco and consume alcohol; alcohol consumption alone is a risk factor for oral cancers, periodontitis, loss of teeth, and increased caries, calculus, xerostomia and nutritional deficiencies. In the United States, one in three young adults smokes cigarettes. Though the smoking rate has decreased since 1997 by nearly 20% among women in this age group, it has not declined significantly for young men. Dental hygienists also must recognize harmful drinking and dependence. While light to moderate intake (one to three drinks per day) is not deemed harmful, binge drinking (drinking five or more drinks on the same occasion at least once in 30 days) can be. One-fifth of young adults are binge drinkers, consuming five or more drinks in a day on at least 12 days in the past year.

Diet and nutritional counseling is also important to implement when treating vulnerable young adult patients. Nutritional counseling for dental caries prevention needs to include reducing sugar (liquid or solid) intake and replacing cariogenic foods with those that are nutritionally sound. Information on how frequent consumption of fermentable carbohydrates subjects the tooth enamel to acid attacks and leads to caries and/or erosion also must be emphasized. 

Young adults are the least likely of any age group to have health insurance due to limited finances. From 2004–2006, 15% of young adults reported not receiving dental care in the past year because of out-of-pocket costs and the expense of basic dental insurance. As in Mr. D's case, dental offices can develop individual financial plans for young adults who are no longer covered by their family's insurance and are newly employed.

Mr. D represents a population of patients who often fall through the cracks. Due to a low dental IQ, a reticence to “take charge” of his health, the lack of dental insurance, and the practice of destructive health behaviors, Mr. D was put at risk for familial systemic disease and suffered extensive oral disease. Dental hygienists can work to ensure that young adults are kept in the practice's data base. Continued contact may help prevent negative outcomes.

Fortunately, with the assistance of his dental hygienist, Mr. D had the wherewithal to move forward with his healthcare and improve his quality of life.
### Case Studies in Dental Hygiene

**CONTINUING EDUCATION APPROVAL**

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### Registration

To earn free CE credit, print out this page and answer all questions in the 15-question quiz on this form. Complete the registration form and mail to:

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(Circle your answers below)

| 1. a b c d | 6. a b c d | 11. a b c d |
| 2. a b c d | 7. a b c d | 12. a b c d |
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| 4. a b c d | 9. a b c d | 14. a b c d |
| 5. a b c d | 10. a b c d | 15. a b c d |

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1. Which of the following treatment plan modification(s) is/are recommended for a patient at high to moderate caries risk?
   - Xylitol-containing chewing gum
   - Fluoride varnish
   - 1.1% prescription-strength sodium fluoride toothpaste
   - All of the above

2. Recommendations to a patient at high risk for oral cancer will include all of the following except one. Which one is the exception?
   - Abstinence from smoking
   - Abstinence from mouthrinse use
   - Abstinence from tobacco products
   - Abstinence from heavy alcohol consumption

3. A dental hygienist should recommend all of the following to patients struggling to quit smoking except one. Which one is the exception?
   - Review oral cancer signs and symptoms
   - Educate the patient on self-oral cancer screenings
   - Recommend online and community resources on smoking cessation
   - Avoid addressing smoking habits if the patient decides not to quit smoking

4. Which of the following factors in this case can contribute to periodontal disease risk?
   - Sugary soda consumption
   - Sound dental restorations
   - Smoking
   - All of the above

5. Which of the following in this case contributed to caries risk?
   - Poor oral hygiene
   - Sugary soft drink consumption
   - Smoking
   - All of the above

6. Which of the following put Mr. D at risk for systemic disease?
   - Dental erosion
   - Occasional alcohol use
   - Consuming fast food
   - All of the above

7. Which of the following mouthrinses is a broad-spectrum antibacterial agent that can be used with fluoride therapy for dental caries?
   - Chlorhexidine gluconate rinse
   - 0.05% NaF rinses
   - Ethanol oral rinses
   - All of the above

8. According to the drug use continuum, Mr. D's classification of alcohol use is
   - Type 1/Abstainer.
   - Type 2/Social drinker.
   - Type 3/Drug abuser.
   - Type 4/Physically dependent.

9. Young adult patients may not have dental treatment completed due to all of the following except one. Which one is the exception?
   - They are under the legal age of 18
   - No insurance coverage
   - Cost of care is too high
   - Minimal parental influence

10. Which pair of periodontal instruments is used for adaptation on narrow facial and lingual surfaces of the anterior teeth?
   - Gracey 11/12 and Gracey 13/14
   - Mini-bladed area specific curets
   - Periodontal file
   - None of the above

11. Responsibility for oral health must include all of the following except one. Which one is the exception?
    - Past home care regimens
    - Sense of self-determination
    - Personal commitment
    - Active participation in goal setting

12. High sugar intake combined with poor dietary habits is linked to which of the following systemic conditions?
    - Obesity
    - Type II diabetes
    - Cardiovascular disease related to weight gain
    - All of the above

13. An extraoral clinical assessment includes which of the following?
    - Overall surface and lymph evaluation of the head and neck
    - Checking vital signs
    - Documentation of any lesions found
    - Only A and C

14. Dental hygienists should take accurate social histories to include which of the following?
    - Alcohol use
    - Drug use
    - Smoking habits
    - All of the above

15. Frequent sugar and fermentable carbohydrate intake subjects the tooth to
    - acid attacks.
    - fluoride uptake.
    - stain.
    - mobility.