

Advancing Dental Hygiene Education to Affect Earlier Diagnosis, Better Treatment, and Appropriate Referrals for Specialist Care of Periodontal Disease

A growing number of periodontists recognize the key role that dental hygienists have in identifying, treating, and referring cases of periodontal disease. These are periodontists who have experienced increased referrals and other benefits that are derived by working in close collaboration with dental hygienists who excel in periodontal therapeutics within a general practice environment. Dental hygienists who concentrate on refining their nonsurgical case outcomes understand their limitations in providing quality care. They are also expert in making the kind of referrals that compel patients to follow through with periodontists. In fact, the American Academy of Periodontology (AAP) 2020 Vision specifically acknowledges that it will be general dentists and dental hygienists who should be evaluating, treatment planning, and managing most slight to moderate cases of periodontal disease. It would seem that the AAP also appreciates the need to increase the education of dental hygienists to fulfill this important role.

Those who see the need for advancing education for dental hygienists are right on target in addressing the gap in diagnosis and treatment of chronic periodontitis that epidemiological trends seem to indicate. However, recognition of the need for advanced education of dental hygienists comes at a time when the availability of higher education is decreasing and, sadly, at a dramatic rate.¹

Are We Prepared to Meet the Challenge?

When the report *Healthy People 2010* was published in 2000, it challenged dentistry to increase to 42% the proportion of adults aged 35 to 44 who have never had a permanent tooth extracted because of caries or periodontal disease.² With a baseline during the previous period (1988 to 1999) of 31%, this represents an 11% improvement.² Dental hygienists are at the forefront of assuming this burden of care, but, what may be preventing us from taking on such a critical health care role is a gap in the education of both veteran clinicians and even recent graduates. With year 2010 only 6 years away and continued disregard for the advanced educational needs of dental hygienists, achieving this level of reduction in disease prevalence by the end of the decade may be a real stretch.

The American Dental Association (ADA) notes

that “the critically important transfer of research based knowledge and technology to practicing dental professionals has lagged behind the expansion of the knowledge base for the etiology of dental diseases and methods of treatment.”³ Could it be that this lag in transferring knowledge has limited the ability of currently practicing dentists and dental hygienists in primary care settings to diagnose and treat periodontal disease?

Cobb and colleagues published a preliminary study that compared the level of referrals general dentists made to periodontists in 1980 to the referrals general dentists made to periodontists in 2000.⁴ The results of the study were not surprising. Yet, what did emerge was the speculation that certain factors might be the reason referrals to periodontists have decreased so dramatically over the last 20 years. Collectively, this information might best be taken as a wake-up call regarding the need to advance dental hygiene education. Noted in the discussion of the research was the following, “Given the increased knowledge of periodontal diseases over the last two decades, one would anticipate an improvement toward earlier diagnosis, treatment, and/or referral for treatment of periodontal diseases. However, based on the findings from this study, this does not seem to be the case.”⁴ The researchers go on to note specific trends that seem to have occurred over the last 20 years. At the time patients are referred, there seems to be:

- an increase in the mean age of patients at the time of the periodontist’s initial examination.
- an increase in the percentage of periodontal Case Type IV patients.
- an overall decrease in the number of periodontal Case Type III patients.
- an increase in the mean number of missing teeth per patient at the periodontist’s initial examination.
- an increase in the mean number of teeth sched-

uled for extraction per periodontal treatment plan.

- an increase in the mean periodontal case type.
- The researchers speculate that these collective trends may be the result of various factors.⁴
- General dentists treat less serious cases and refer only the severe cases.
 - Delayed diagnosis of periodontal disease.
 - A lack of recognition of the severity of disease.
 - Delayed referral or timely referral for treatment.
 - Inappropriate treatment or a lack of treatment.
 - Increased use or inappropriate use of site-specific drug delivery systems that may “mask disease.”
 - Patient anxiety or fear of treatment and, therefore, rejection of treatment or referral.
 - Increased extraction of teeth with questionable prognosis and replacement with dental implants.
 - Negative patient financial considerations that dictate rejection of a periodontal treatment plan and/or referral to a specialist.

The referral patterns of general dentists to periodontists, and even the speculation as to why there has been such a dramatic shift in referral trends, raises some very critical questions that must be addressed within the dental profession. Do these trends indicate a disconnect in the education of general practice clinicians relative to current etiological theory, potential periodontal-systemic links, and increasingly sophisticated diagnostic and treatment approaches? Have our frontline, primary care providers, such as general dentists and dental hygienists, really been educated and trained to competently perform the diagnostic and treatment procedures that may have precluded the trends that Cobb and colleagues have noted? Are currently practicing clinicians limited in terms of their ability to:

- perform comprehensive periodontal evaluations to detect presymptomatic cases of early to moderate loss of periodontal support?
- assess risk for periodontal disease?
- perform appropriate laboratory testing related to genetic testing for periodontal disease? salivary and gingival crevicular fluid analyses, and microbial tests, and link the results to therapeutic strategies?
- incorporate information from systematic reviews as an aid to clinical decision making?
- intercept and refer cases of aggressive periodontitis, periodontitis as a manifestation of systemic conditions, mucogingival defects, and patients



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who would benefit from oral plastic surgery?

- make appropriate and timely referrals to avert the number of more severe cases of periodontal disease?
- prescribe appropriate treatment plans that address multifactorial risk and other components of disease etiology?
- execute the technical aspects of the treatment plan to ensure quality of care is rendered?
- reevaluate the effectiveness of the periodontal treatment performed in the general practice environment by knowing how to assess definite clinical endpoints?
- incorporate periodontal-systemic information into patient education that distinguishes causation vs association?
- educate patients and manage their expectations to the point that they are compelled to seek treatment regardless of their anxiety, fear of treatment, or financial constraints, which may dictate rejection of treatment or referral to a periodontist?

If you take a serious look at reliable epidemiological studies, credible consumer surveys, and governmental reports, the answer to many of these questions may be “no.”

Underdiagnosis: The Biggest Problem

Disease can't be treated until it is diagnosed. To that end, one of the greatest challenges facing dentistry may be the difficulty general practice clinicians (both dental hygienists and dentists) have in identifying early-to-moderate loss of periodontal support. The article by Cobb and colleagues points out that the prevalence of chronic periodontitis ranges from 28% to 63% for moderate cases and 8% to 18% for severe cases.⁵⁻⁸

The AAP has recommended that clinical attachment level assessment gives a better overall estimate of the amount of damage to the periodontium than do pocket depth measurements.⁹ Accordingly, the AAP distinguishes slight to moderate destruction as clinical attachment loss of ≤ 4 mm¹⁰ and advanced loss of periodontal support as clinical attachment loss ≥ 4 mm.¹¹ Given the AAP's guidelines on the use of clinical attachment loss in diagnosing the severity of chronic periodontitis, and 4 mm of clinical attachment loss being the threshold for the distinction between moderate and advanced chronic periodontitis,

it seems reasonable that clinical attachment loss of at least 3 mm would define the upper level of mild chronic periodontitis, ≥ 3 mm but ≤ 4 mm would define moderate disease and ≥ 4 mm would define severe disease.

If these diagnostic criteria are superimposed on findings of the Third National Health and Nutrition

Examination Survey, the proportion of adults in all age groups, whose worst loss of attachment is stated as level or greater range from 28% to 79% for mild disease, 12% to 58% for moderate disease, and 5% to 40% for severe disease (Figure 1).¹² Yet, how many general practices can claim that they have identified chronic periodontitis among their patient

base to the extent epidemiological studies have reported?

When estimates of the prevalence of chronic periodontitis are tracked against data published in a public opinion survey compiled by the ADA in 2000, failure to diagnose periodontal disease seems even more evident.¹³ When a nationally representative sample of 1,011 adults, 18 and

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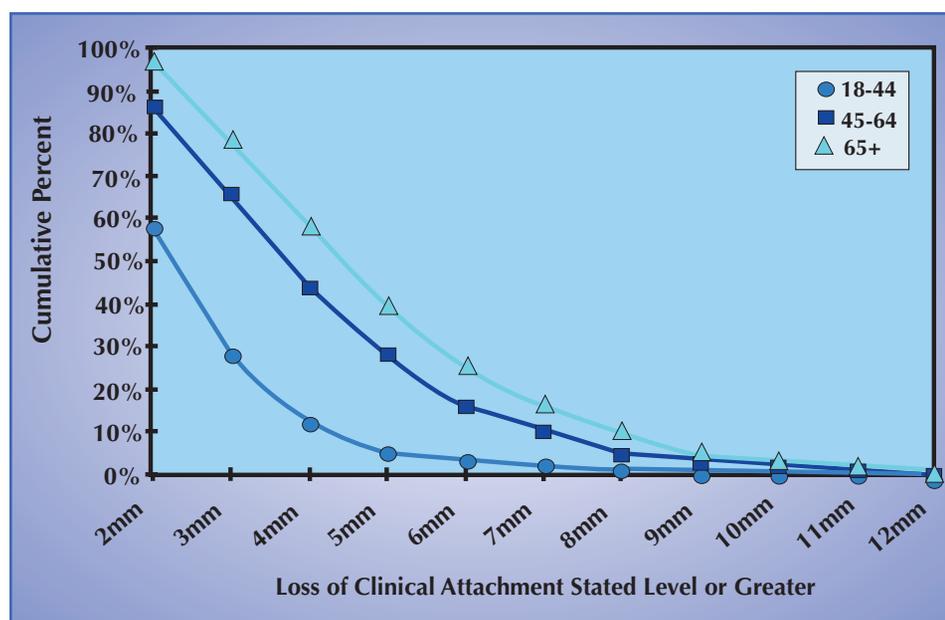


Figure 1—Proportion of adults, in age groups 18 to 44, 45 to 64, and 65 or older, whose worst loss of periodontal attachment is stated level or greater. United States, 1988 to 1994. (From US Department of Health and Human Services, National Center for Health Statistics, Third National Health and Nutrition Examination Survey, 1988 to 1994. Public Use Data File No. 7-0627. Hyattsville, MD: CDC, 1997.)

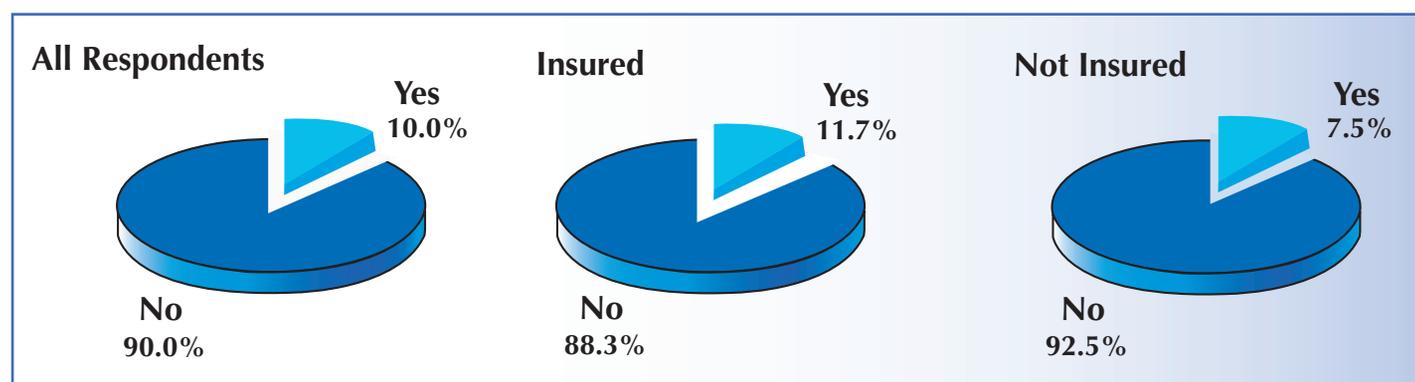


Figure 2—The percentage of US households with a resident who has “gum disease.”

older, were asked, “Do you or does anyone in your household have gum disease (periodontal disease)?”, the responses seem to confirm the suspicion that there may be a significant number of individuals who have periodontal disease who have not been identified (Figure 2).¹³ Interestingly, if you compare the percentage of households with a resident who has gum disease and who is insured to those who have gum disease and are not insured, it appears that insurance coverage does not play a significant role in whether the individual is properly diagnosed.¹³

Sampled households were asked, “What was the reason for your last visit to the dentist?”¹³ The results of the survey indicated that 34.9% last visited the dentist for a “check-up” and 32.5% last visited the dentist for a “cleaning.”¹³ Only 0.6% of the respondents indicated that their last dental appointment was for “gum disease/gingivitis/periodontal disease.”¹³ Alarming, it could be that less than 1% of dental visits are related to periodontal treatment, which begs a question, “Assuming this survey accurately reflects greater

America, are patients within the United States being given a false sense of security regarding their periodontal health?” It seems to be so.

Problem 2: Failure to Educate Patients About Periodontal Health vs Disease; the Next Hurdle

When a patient rejects treatment, what can we say conclusively about the rate of loss in periodontal support? Studies in which untreated populations were examined over long intervals indicate disease progression at mean rates ranging from 0.05 mm to 0.3 mm of attachment loss per year (gradual model).¹⁴ It becomes clear that without treatment, patients with periodontal disease will continue to lose clinical attachment.

An old dental boot camp adage is: “People don’t buy solutions to problems they don’t perceive they have.” To this end, if clinician-patient communication has been effective, case acceptance is high. What becomes pivotal in patient acceptance of treatment plans is reserving enough time during diagnostic visits to educate patients and properly manage their

expectations regarding care, including a discussion of all the etiological components of periodontal disease, such as bacterial challenge; genetic, environmental, and acquired risk; host response; and multifactorial cumulative risk.

One of the greatest mistakes clinicians make is underestimating patients’ appetites for scientific information or their ability to understand research. When patients are given the opportunity to understand their diseases and scientifically sound rationale for treatment, acceptance of treatment recommendations is nearly a certainty. But what seems to compromise a clinician’s ability to make the kind of case presentation that compels a patient to seek treatment, is the lack of adequate knowledge relative to the etiological components of peri-

odontal surgery, and 8.6% were referred to a periodontist.⁵ The alarming part of this research is that 40% of those who were diagnosed remained untreated. Though purely conjecture, it would have been interesting to investigate whether patient education and allocating adequate time for treatment plan presentation could have decreased the level of untreated disease in this study group.

Conclusion

This article has highlighted what may be the 2 biggest obstacles to closing the disease gap in chronic periodontitis—underdiagnosis and failure to educate patients regarding the difference between periodontal health and disease. In the June 2004 issue of *Contemporary Oral Hygiene*, we will continue this article by discussing how the trends in dental hygiene education may be compromising our ability to fulfill our important role as the primary care providers in diagnosing, treating, or referring patients with periodontal disease.

It will also address the questionable ethics of focusing on periodontics in general practice settings as a *profit center* with disregard for evidence-based, patient-centered standards of care.

Whenever problems are identified, wisdom dictates offering solutions to them. June’s article will conclude by offering some ideas that may help bridge the education gap and jumpstart the thinking of dental hygienists, dentists, and periodontists who are seeking to establish a collaborative relationship, as well as academicians and others who are in leadership positions within organized dentistry. **COH**

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