# Delta Dental of Virginia Clinical Policy # 902

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## Preamble:

The Clinical Policy Bulletin is an expression of Delta Dental of Virginia’s (DDVA) determination regarding whether certain services or supplies are medically or dentally necessary. DDVA bases its conclusions on a review of currently available clinical literature. This includes, but is not limited to, clinical outcome studies published in the peer-reviewed medical and dental literature, regulatory status of the technology, evidence-based guidelines of public health and health research agencies, evidence-based guidelines and positions of leading national health professional organizations, views of physicians and dentists practicing in relevant clinical areas, and other relevant factors. DDVA reserves the right to revise these policies as new clinical information is available and we welcome submission of further relevant information.

A group may define covered dental services under their dental plan, as well as those services that may be subject to dollar caps or other limits. The plan documents outline covered benefits, exclusions and limitations. DDVA advises dentists and enrollees to consult the plan documents to determine if there are exclusions or other benefit limitations applicable to the service request. The conclusion that a particular service is medically or dentally necessary does not constitute an indication or warranty that the service requested is a covered benefit payable by DDVA. Some plans exclude coverage for services that DDVA considers either medically or dentally necessary. When there is a discrepancy between DDVA’s clinical policy and the group’s plan documents, DDVA is to defer to the group’s plan documents as to whether the dental service is a covered benefit. In addition, if state or federal regulations mandate coverage then DDVA will adhere to the applicable regulatory requirement.

## History:

A laser is a device that transforms different frequencies of light energy into an intense, highly focused, monochromatic, single frequency beam of light radiation, which may or may not be visible(1). Medical use of various types of lasers is based on the scientific principle that biologic hard and soft tissues can be cut, coagulated, or ablated/destroyed by absorption of the generated laser light beam(2).

Relative to dentistry, the use of lasers has been proposed for tooth bleaching, detection and removal of tooth decay, soft tissue incisions, destruction of oral soft tissue lesions, root canal therapy, treatment of periodontal disease, and
For treatment of periodontal disease, lasers have been shown to improve measurements of clinical parameters such as pocket depth probings, bleeding on probing, and inflammation(3,4,5). The changes are statistically significant but may or may not be clinically significant. Laser treatment has also been shown to have the capability of removing calculus from the tooth root and reducing the bacterial load in periodontal pockets (6,7,12).

However, when compared to conventional methods, the use of lasers has inconsistently shown superior results when used for treatment of periodontal disease. Laser therapy has not consistently shown an improved ability to increase clinical attachment levels, reduce the bacterial load, successfully remove a significantly higher proportion of calculus from tooth roots, or improve the long term prognosis of periodontally involved teeth(2,3,4). Additionally, adjunctive use of laser therapy in combination with standard treatment by scaling and root planing has not consistently demonstrated an improved clinical or microbiological advantage(7,8,10,12,15). Some researchers have found laser therapy to be significantly less effective than conventional scaling and root planing for removal of calculus from sub-gingival root surfaces(9).

The most comprehensive systematic review of the literature to date, published in 2006, was sponsored by the American Academy of Periodontology and reviewed 278 scientific articles(10). This review concluded that the use of Nd:YAG or Er:YAG laser instruments “may be equivalent” to periodontal scaling and root planing with respect to reduced probing depths and subgingival bacterial populations, but “there was insufficient evidence to suggest that any specific wavelength of laser is superior to traditional modalities of therapy.” The review also concluded, “there is limited evidence to suggest that lasers used in an adjunctive capacity to scaling and root planing provided some additional benefit.”

More recent systematic reviews of the literature have confirmed the findings of the AAP commissioned report and have likewise failed to support the efficacy of laser treatment as being superior to standard non-surgical periodontal therapy(3,11,12,13,14).

There are indications that a specific treatment protocol for periodontitis may eventually offer some clinical advantage relative to reduction of periodontal pockets and regeneration of the periodontal attachment apparatus. This laser assisted therapy is referred to as “LNAP”, or “laser-assisted new attachment procedure”. A 2007 study histologically and clinically compared laser assisted scaling and root planing to conventional scaling and root planing alone(5). After three months, the laser assisted technique showed a purported “seal” of the gum tissue to the tooth as well as relative improved results compared to scaling and root planing alone, although the absolute clinical improvements were small. The LNAP treated teeth showed a greater mean pocket depth probing reduction of 1 millimeter and a greater clinical attachment level gain of 1.8 millimeters. These minimal improvements may or may not be clinically significant. The 2007 LNAP study was of short duration [three months] and the effect of this particular
protocol on the long term prognosis of periodontally involved teeth was not assessed.

In 2008, a short term study [30 days] compared treatment protocols of scaling and root planing alone, Er:YAG laser treatment alone, and laser assisted scaling and root planing(4). This study found reduced pocket depths and reduced bleeding in all groups. However, a gain in the clinical attachment level was found to be significant only for the teeth treated with conventional scaling and root planing alone. Subsequently, conflicting results were found in a longer term study by researchers with the same lead investigator(17). This study concluded that, at twelve months, significant gains in clinical attachment occurred for treated teeth in all groups [laser treatment alone, scaling and root planing alone, and scaling and root planing with laser].

In 2009, the American Dental Association (ADA) issued a position paper on laser treatment in dentistry in which the 2007 LNAP study was specifically addressed(16). The ADA paper noted that the 2007 study had a small sample size, provided “no more than pilot validation for this treatment method,” and was not “blinded,” meaning the investigators were aware of which treatment protocol was assigned to which teeth. The ADA paper noted the technical problems of the study including the difficult pre-treatment placement of index marker notches on the tooth roots below the gumline, difficulty in knowing where the marker notches were placed, and difficulty in clearly detecting the notches on histologic specimens. The paper also stated, “the advanced periodontal destruction initially present at these 6 test teeth make it difficult to extrapolate these results to cases of early and moderate chronic periodontitis where the anatomic environment, laser energy distribution and clinical outcome may differ substantially.” Relative to the “seal” of the gum tissue to the teeth, the ADA paper states, “It is also unclear what laser-based ‘sealing’ of a periodontal sulcus [gum pocket] is and, if real, what benefits it might provide.”

In 2011, the American Academy of Periodontology published an evidence-based position statement on the efficacy of lasers in the non-surgical treatment of periodontal disease(18). The AAP summarized the usefulness of laser therapy for three clinical disciplines: 1) debridement of periodontal pockets; 2) reduction of subgingival bacterial loads; and 3) scaling and root planing. Relative to pocket debridement, the AAP states, “Currently there is minimal evidence to support use of laser for the purpose of subgingival debridement, either as a monotherapy or adjunctive to scaling and root planing.” The AAP states the evidence is “lacking or conflicting” that laser therapy can predictably or consistently reduce subgingival bacterial loads, and that the evidence is also conflicting regarding the use of laser for scaling and root planing. The statement notes that some research studies show some “slight benefit” with laser therapy, while other research shows no benefit. The paper does note the Er:YAG laser has the capability to remove some calculus from the root surface, although the potential for damage to the root surface exists as this instrument is a hard tissue laser and visualization of the subgingival operative area is difficult. A subsequent paper published for consumers by the AAP in 2012 states, “At this time there is insufficient evidence to suggest that any specific laser wavelength is superior to the traditional
treatment methods of the common periodontal diseases, such as periodontitis”(19).

Relative to insurance coverage for any dental procedure, patient benefits are based on the treatment rendered rather than the technique or method of treatment. At this point, the adjunctive use of lasers is considered an inclusive technique for treatment of periodontal disease and does not qualify for a separate benefit. The 2012 AAP paper for consumers further clarified the position of insurance carriers regarding the use of lasers for periodontal therapy(19). The statement reads, in part, “Insurance carriers reimburse for the procedure being performed rather than the device used to perform it. Therefore, whether your periodontist [or dentist] uses traditional tools for treatment or lasers, your reimbursement will be the same for that specific procedure.” This principle would apply to any procedure, operative or surgical, for which a laser instrument is used as an adjunct to diagnosis or treatment. Additionally, the AAP statement recommends that prior to treatment, patients should “always consult with your insurance carrier to determine what procedures are covered in your plan.” Delta Dental of Virginia also recommends that providers submit procedures for preauthorization if the provider and/or subscriber are unsure of the specific coverage.

The continuing questions concerning laser therapy are:

1. Even if effective, does adjunctive laser therapy offer a clinically significant improvement over standard procedures, such as definitive periodontal scaling and root planing, for the treatment of periodontal disease?

2. Is the long-term survival rate of periodontally involved teeth improved by adjunctive laser treatment when compared to conventional therapy with scaling and root planing?

The consensus is that continued research and investigation into the capabilities and long-term efficacy of laser instruments is needed and recommended.

References:


