

FEATURE

EDITOR'S NOTE:

The two articles that follow describe the clinical experiences of dental hygienists Julie DiNardo and Manuela Rosatelli when using Prevora, a topical antiseptic therapy approved by Health Canada and regulatory bodies in Europe for the reduction of root caries in high-risk adults. Prevora is now undergoing further study to determine its treatment effect on chronic oral inflammation. The two case reports published here suggest that Prevora may be an effective adjunctive therapy to scaling and root planing; higher-level studies (case-control, cohort, and randomized controlled clinical trials) are being undertaken and are necessary to validate this anecdotal evidence. We look forward to reading the results of those studies. Until then, dental hygienists must always keep the evidence pyramid in mind when considering any changes to their clinical practice protocols.



Testing a Rapid, Non-Invasive Treatment for Chronic Oral Inflammation in Senior Adult Patients

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BACKGROUND

Next to hypertension, periodontal disease is the most prevalent adult chronic disease, affecting 68% of seniors in the United States.¹ This oral inflammation is often unobserved and is too often an unattended risk factor for diabetes,² hypertension,³ cardiovascular disease⁴ and stroke⁵, depression,⁶ cognitive decline,⁷ frailty,⁸ respiratory problems,^{9,10} and inflammation¹¹.

Periodontal disease emerges from bacterial dysbiosis in the dental plaque. Several gram-negative commensal bacteria are implicated, including *Porphyromonas gingivalis*, *Treponema denticola*, *Tannerella forsythia*, and *Fusobacterium nucleatum*.¹² Oral dysbiosis is commonly driven by age and associated chronic disorders, and by an inability to maintain good oral hygiene and to visit an oral health professional.

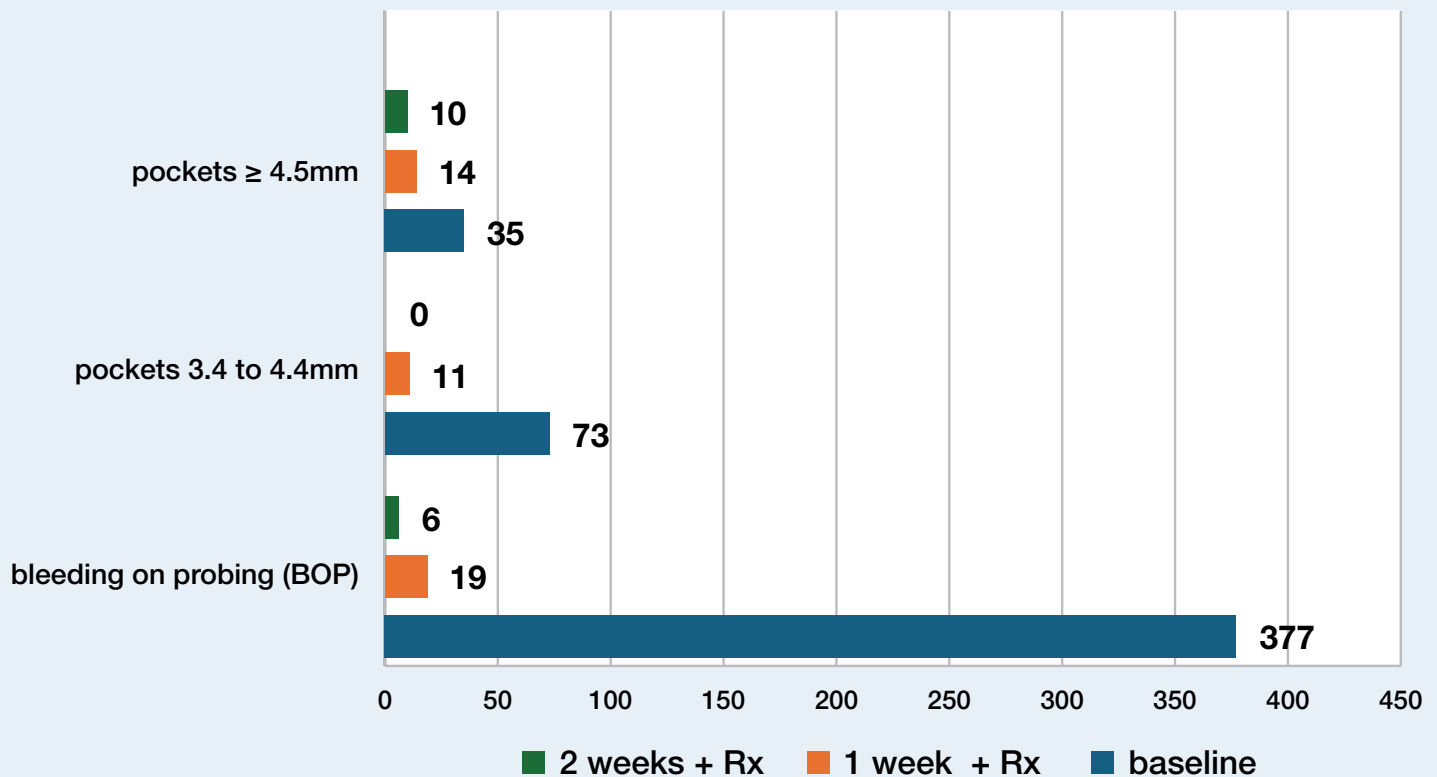
The current standard of periodontal care involves improving personal oral hygiene and providing regular dental debridement (periodontal scaling). Debridement can take an hour and can be uncomfortable for patients, thus necessitating the use of topical or local anaesthesia. This treatment can also cause gingival bleeding, which can be a potential problem for those on anticoagulant therapy, if appropriate measures are not taken.¹³ And this type of treatment usually requires repetition within three to six months.¹⁴ Finally, periodontal surgery may be necessary with advanced disease.



▲ **Figure 1.** Application of Prevora to the teeth and gumline of the patient with periodontal disease

Prevora® (CHX Technologies, Toronto) is uniquely approved by Health Canada, as well as regulatory agencies in Ireland, the United Kingdom, and the European Union, for the reduction of caries in adults at high risk of dental caries. This formulation consists of 10% chlorhexidine which is bactericidal to a broad spectrum of oral pathogens for days and inhibitory for months.¹⁵ The drug is applied with a small brush to all surfaces of the teeth including the gum line (Figure 1). This procedure is conducted up to four times in the first eight weeks followed by a single application every six months until the patient has no signs of caries for a year.

Because root caries co-exists with periodontal disease,¹⁶ Prevora has also been used by Canadian oral health professionals to treat chronic oral inflammation in patients for whom rapid, painless treatment is essential.^{17,18}



▲ **Figure 2.** Measures of chronic oral inflammation in 10 older Canadian adults after two treatments of Prevara ($p < 0.0001$)

THE CASE SERIES

Fourteen older adults living in the community responded to a newspaper article describing a feasibility study of Prevara at a local independent dental hygiene practice. The study was to evaluate a rapid application technique for Prevara that would make this procedure suitable for adults generally intolerant of dental discomfort. Readers interested in participating in this study were asked to contact the dental hygiene practice.

Ten of the fourteen respondents to the newspaper story qualified for the study. The mean age of the study participants was 72 years, with ages ranging between 60 and 84 years. All participants took between one and four medications daily, all of which were for chronic diseases. Their reasons for participating in the study were that the service was free-of-charge and it was perceived to be both tolerable and quick.

All volunteers provided informed consent, and all completed the three study visits over an average of 13 days. At the first two visits, which occurred one week apart, Prevara was applied by the dental hygienist. At all three visits, the volunteers were examined for periodontal disease using standard dental measurements of inflammation: bleeding upon probing (BOP) and periodontal pocket depth.

Prevara was applied directly to all the teeth up to and including the gumline and without a periodontal debridement. When needed, a dry toothbrush or a hand instrument was used to remove any food debris or obvious plaque. This application technique generated no aerosols, was non-invasive, and lasted about five minutes.

At the study's start, all volunteers had significant periodontal inflammation (Figure 2). The mean number of bleeding sites per participant was 38. There were 73 periodontal pockets in the 3.4 mm to 4.4 mm range, and 35 pockets ≥ 4.5 mm.

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FEATURE

Testing a Rapid, Non-Invasive Treatment...cont'd

I have had bleeding gums forever, and it has become worse after my cancer treatments.

I had 69 areas of bleeding, which covered 35% of my mouth.

The week after my first Prevora treatment I had only one area that was bleeding. I was shocked and pleased.

I was very impressed with the procedure and with Julie the hygienist.

— Lori D, Hamilton

▲ **Figure 3.** *Testimonial from a study participant*

The first treatment with Prevora led to a 95% reduction in bleeding sites and reduced, by almost 80%, periodontal pockets with a depth of 3.4 mm or more. Further improvement in periodontal condition occurred after the second treatment, although not as large as after the initial treatment.

Patient tolerance to this rapid, non-invasive treatment was measured by the desire to pay for the Prevora treatment plan upon completing the study. Seven in ten patients reported they would pay to continue treatment using Prevora; three wrote testimonials (Figure 3).

CONCLUSION

This case series suggests that a topical, non-invasive, rapid, intraoral antiseptic treatment could reduce periodontal disease in senior adults. The procedure appears to be suitable for many who will not or simply cannot access periodontal care. Patient adherence with follow-on commitment was strong. Because of these results, three other studies of the safety and effectiveness of the direct application of Prevora in high-risk seniors living in Ottawa, Toronto, and Hamilton have been carried out.

This study also suggests that this rapid, direct application of a high-strength antiseptic could enhance the delivery of more conventional periodontal therapies once the disease is stabilized. More particularly, this new procedure could reduce the stress of handling high-risk, commonly unresponsive patients, those who can tolerate only limited chair time, and those living in institutions or in the community where aerosol generation and equipment portability limit access to care.

CONFLICT OF INTEREST

Julie DiNardo is a clinical advisor with CHX Technologies, producer of Prevora®.

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