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Thinking About Our Thinking About Oral Rinsing: The Third Essential Component to Home Care (Part 1)

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INTRODUCTION

Dental hygienists know that client oral home care is critical for achieving and maintaining a healthy oral cavity. Beyond a healthy periodontium, oral health has far-reaching benefits including a positive association with systemic health.[1,2] It is clear that plaque biofilm is the major etiological factor for gingivitis, periodontitis and caries, and the primary aspect linking oral and systemic inflammation.[3,4] When biofilm matures due to suboptimal oral home care, its composition changes and includes more pathogenic bacteria.[3] These latter colonizers, sometimes referred to as red complex bacteria, contain anaerobic and erosive species that evade the immune and lymphatic systems and can kill immune cells.[3] The mature biofilm migrates subgingivally and becomes less accessible to oral hygiene efforts, thereby increasing potential for severe disease.

SCIENCE

Most people are well aware of the need for oral home care and perform well with toothbrushing. While most clients know they "should" floss, they may not fully appreciate the objective of cleaning interdentally with floss or other means. Flossing compliance remains poor with only about 10% to 30% of the population reporting doing so.[5,6] This situation is likely due to multiple factors including the cumbersome nature of the task. Dental hygienists recognize that even those who do floss do so with less than optimal technique, thereby diminishing the benefits.

Because most individuals do not achieve ideal oral hygiene through mechanical means alone, scientific groups recommend augmenting routines with oral chemotherapeutics.[7] It has been demonstrated that 65% to 75% of oral surfaces remain colonized by pathogenic microorganisms after brushing and flossing.[8] While toothbrushing and interdental cleansing are indispensable, therapeutic oral rinses are recommended as the third critical component for oral care because they reach virtually everywhere in the oral cavity in about thirty seconds.[9,10]

Oral rinses cause cell death, inhibit microbial reproduction, and hinder metabolism[9] and, in so doing, reduce biofilm, delay reformation, and reduce inflammation.[7] Highly rigorous trials conducted using American Dental Association (ADA) guidelines (Box 1) demonstrate the efficacy of specific rinse formulations in providing an additive benefit to mechanical cleansing.[11-13] From the literature, there are currently three antiseptic agents that have demonstrated therapeutic benefits: chlorhexidine gluconate (CHG), essential oil (EO) and cetylpyridinium chloride (CPC).

Box 1. ADA guidelines for clinical trials of chemotherapeutic mouthrinses[24]

ADA acceptance program for chemotherapeutic mouthrinses:

- 2 independent placebo-controlled studies, minimum 6 months
- demonstrate statistical significance in plaque and gingivitis reductions vs. control
- minimum of 15% gingivitis reductions in at least 1 study; average 20% across 2 studies

Systematic reviews, the highest level of evidence, have evaluated the clinical relevance of these key formulations, measuring plaque and inflammation reductions compared to placebo controls over six months, and have demonstrated that CHG and EO mouthrinses provide significant reductions. Studies of CPC rinses were less conclusive as they used different formulations.[14-17] Data from an earlier study,[11] showing the adjunctive benefit of an EO rinse (Listerine®) to daily mechanical methods on plaque and gingivitis recently underwent a post-hoc "site-wise analysis" in which the health of each gingival site, marginal and interproximal, was evaluated at six months. The site was considered "healthy" if the score was 0 or 1 on the MGI scale.[18] Strikingly, even the gingival health of proximal sites dramatically improved when the EO mouthrinse augmented toothbrushing and flossing (Box 2).

FEATURE

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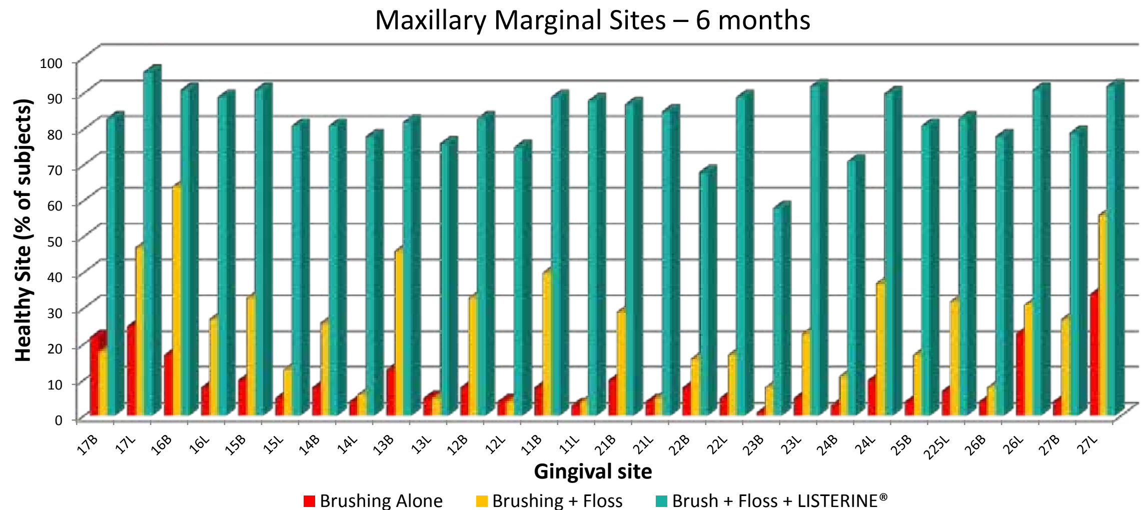
Box 2. Marginal and interproximal gingival health following toothbrushing, flossing, and therapeutic EO mouthrinse use



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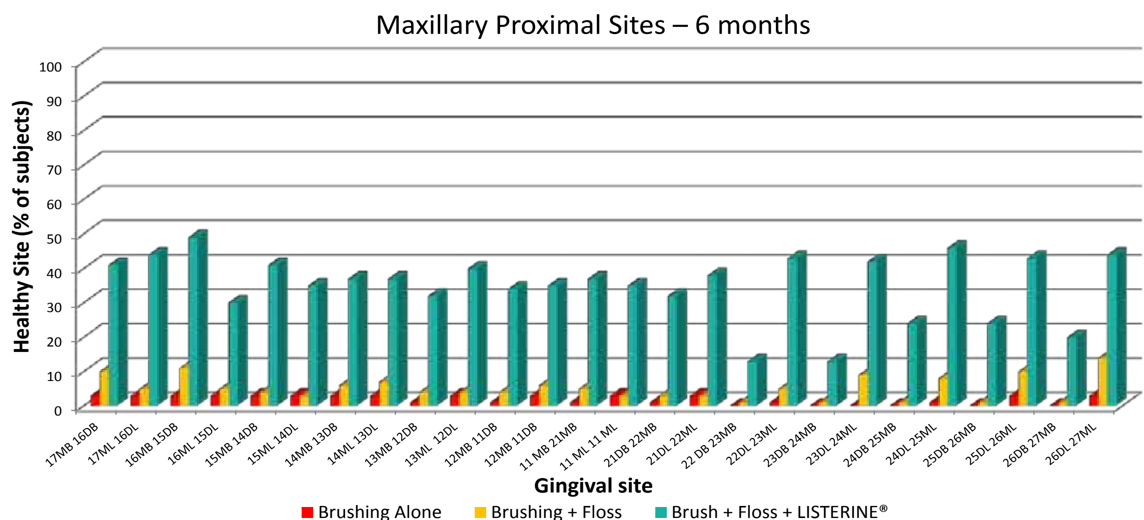

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INCORPORATING THERAPEUTIC RINSES INTO PRACTICE

The research is compelling in demonstrating that therapeutic rinses, such as EO and CHG, are safe and beneficial in reducing both plaque and gingival inflammation over and above toothbrushing and flossing alone. In addition, comparable inflammation reductions are shown with over-the-counter EO mouthrinse and CHG prescription rinse, with the former being free of the unacceptable side effects of the latter, like dental staining. Despite the solid body of evidence, dental hygienists do not routinely recommend the incorporation of a therapeutic oral rinse to their clients. Market research estimates current use of an essential oil mouthrinse to be approximately 20% of the population.[19] More concerning is information indicating that dental hygienists recommend a therapeutic oral rinse to 3 of 10 clients in comparison to 9 of 10 who recommend flossing.[19] There is clearly a gap between the evidence and dental hygiene practice.

One of the main problems afflicting health research is its failure to be integrated into practice. The broad field of knowledge translation has emerged to address this tendency, and most evidence suggests that health care providers are aware of current research but are prevented from applying it to practice by ambiguous influences.[20] This phenomenon occurs in what is sometimes referred to as the knowledge translation black box (Box 3), which is the unobservable cognitive space between knowledge acquisition and application to one's practice.[21] Much

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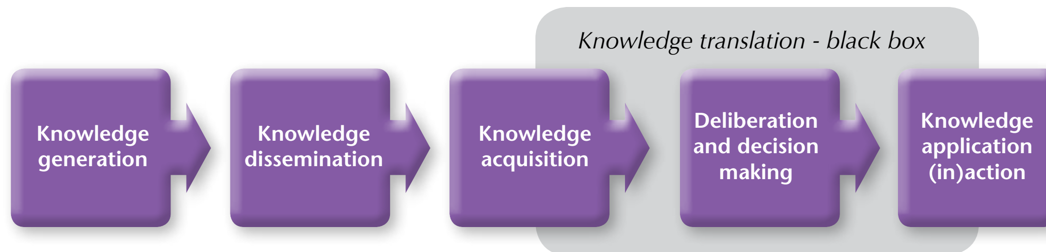
Box 3. Knowledge translation process*



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theorizing is occurring about the forces at play in the knowledge translation black box, mostly surrounding practice barriers and how to traverse them.

If most dental hygienists are aware of the benefits of incorporating therapeutic oral rinse into home care routines, then one must consider the potential explanations for its failure to be more widely applied to practice. For example, dental hygienists may:

- not be aware of the adjunctive benefits of oral rinsing over and above toothbrushing and flossing;
- be concerned that clients will discontinue mechanical cleansing efforts, such as they are, if an EO oral rinse is recommended;
- lack the time or confidence to explain research on therapeutic oral rinses to clients;
- need to convince an employer and peers before making changes to practice;
- be worried about convincing clients to add rinsing to their routines;
- remain skeptical, despite the research, because of long-held biases against the efficacy and safety of therapeutic oral rinses;
- be generally apathetic surrounding practice changes.

As competent dental hygienists, it is vital to be mindful of practice beliefs and biases and think about what might be preventing the implementation of current knowledge into client care as well as ways of overcoming such barriers. Health care providers often feel defensive when hearing information contradicting their own practice behaviours because it threatens their self-concept about competency.[22] Because a cognitive dissonance is created, practitioners find ways to mentally discount conflicting information and maintain positive self-perceptions,[22] such as disbelieving the credibility of the research(er), thinking it irrelevant or simply not thinking about it all.

What is important for the dental hygienist to consider is that feeling an internal dissonance is actually a sign potentially to improve one's practice rather than an indication that one is performing suboptimally. Dental hygienists can borrow from the Japanese "Continuous Quality Improvement" approach known as "Kaizen"—loosely meaning good change—which characterizes such moments as emotional pearls triggering reflection on practice, and making positive changes.[23]

While this metacognitive perspective on practise change is complex, it offers some interesting insights into changing behaviour and improving performance for those dental hygienists who choose simply to think more about practice thinking. The next phase is to apply changes to practice, by understanding and using innovative techniques to counsel clients and encourage their positive health behaviour changes. This will be the focus of Part II of this paper to be published in the next issue of *Oh Canada!*.

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