IFDH
INTERNATIONAL FEDERATION OF DENTAL HYGIENISTS

WHITE PAPER

Evidence-based self-care recommendations matter: Findings from IFDH global surveys

This IFDH White Paper identifies opportunities and strategies for dental hygienists to make even more impactful evidence-based preventive self-care recommendations based on global IFDH survey findings. These actions will help improve patients' periodontal health, positively impact their well-being, and contribute towards sustainable dentistry.

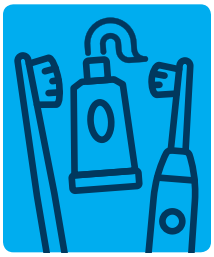
INTRODUCTION

Health promotion and disease prevention have been recognized as being critical to the maintenance of good oral health for decades. However, despite prevention being the hallmark of dental hygiene education globally, implementation of these strategies has continued to be a challenge. Support from a recent resolution of the 74th Assembly of the World Health Organization (WHO) urging oral health providers to focus more on a "health-centered preventive approach and less on a pathology-driven treatment approach"[1] may help bring more attention to the importance of prevention. This resolution led to further action by the WHO in their subsequent 2022 publication of a *"Global Oral Health Status Report: Towards universal health coverage for oral health by 2030"*.[2] This report states, "the primary focus of oral health professionals' activities should therefore be on delivering evidence-based preventive care and minimally invasive interventions, supporting patients in effective self-care practices and acting as advocates for policies to promote population oral health".[2] In addition, the report emphasized both cost and environmental benefits of such preventive efforts stating that "successful prevention strategies can lead to reduced practice visits, favor minimal intervention techniques & minimize oral health care waste, helping to improve the environment."[2]

Periodontal diseases are recognized as a major public health concern and estimated to affect around 1 billion cases worldwide.[3] Severe periodontitis has been labelled as the 6th most prevalent disease globally.[3] Another concern is the growing evidence on the associations of periodontal diseases with systemic diseases. Monsarrat et al.[4] conducted a systematic mapping of clinical trials investigating associations between periodontal diseases and systemic conditions and found 57 diseases currently underway hypothesized to be linked with periodontal diseases. In addition to the burden of disease caused by periodontitis and these potential systemic linkages, the economic impact is alarming. A recent study by Botelho and colleagues[5] estimated the economic burden to be $154.06 billion in the US and €158.64 billion in Europe.

It has been difficult to put a price on the effects of prevention until recently. Two *Economist Impact* reports published the results of a cost-benefit analysis of treatment versus prevention that included six European countries[6] and the United States.[7] From their analysis, their report determined that eliminating gingivitis through improved self-care would not only prevent progression to periodontitis, but would have a strong return on investment and could significantly reduce societal costs associated with disease compared to the current "business as usual" approach.[6,7]

A key component of prevention is daily self-care that includes effective evidence-based technologies such as electric toothbrushes (also referred to as power toothbrushes) and stannous fluoride toothpastes, that have been shown through a plethora of clinical trials to improve plaque biofilm control and periodontal health.[8–19] In addition, prevention minimizes the need for costly treatment and contributes to sustainable dentistry. The FDI in response to the *United Nations 2030 Agenda for Sustainable Development*,[20] developed a "sustainability in dentistry statement" that was a collaborative effort including the IFDH and numerous other stakeholders, and was adopted by the FDI General Assembly in Aug. 2017.[21] Their statement urges all stakeholders to recognize that prevention of oral diseases and the promotion of health is "the most sustainable way to ensure optimal, accessible and affordable oral health with minimal impact on the environment".[21]



Given that dental hygienists are the oral health professionals specifically specialized in health promotion and disease prevention, this is a unique opportunity for them to respond to these multiple calls for focusing on the provision of evidence-based self-care recommendations for their patients. As part of an ongoing survey series supported by Procter & Gamble, the International Federation of Dental Hygienists (IFDH) conducted 5 surveys specifically related to prevention (Toothpastes; Electric Toothbrushes; Oral-systemic Link; Sustainable Dentistry; and Oral Hygiene Instruction) to gather evidence on global dental hygienists' practices and beliefs around self-care recommendations.

The aim of this White Paper is to identify opportunities and recommend strategies to make even more impactful evidence-based preventive self-care recommendations, based on the survey findings, that will improve patients' periodontal health, which in turn will positively influence patients' overall health and contribute to sustainable dentistry.

SURVEY METHODOLOGY

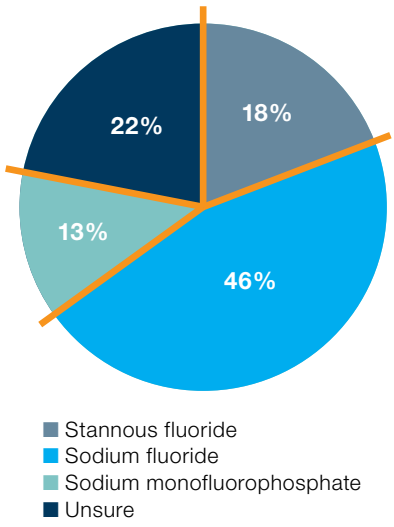
The methodology for each of the 5 surveys was the same. The International Federation of Dental Hygienists (IFDH), in conjunction with dental professionals from Procter & Gamble, developed the questions, specific to each survey, which was then programmed using the Toluna Start platform. The IFDH deployed each survey to their 34 member associations requesting distribution of the survey to their membership, along with posts on social media and the IFDH website. The timeline for completion of the surveys was approximately 4 weeks and survey findings were summarized and posted on the IFDH website. Descriptive statistics were used to analyze the surveys. All surveys were in the English language only. The Appendix table lists the year, topic, objective and top countries responding for each survey.

KEY SURVEY FINDINGS

Toothpaste Survey[22]

Interestingly, despite approximately 80% of respondents indicating that toothpaste plays an important role in oral health and choosing the right toothpaste is just as important as choosing the right toothbrush, almost half of respondents (40%) are not making a specific non-prescription fluoride toothpaste recommendation. Furthermore, of those who indicated making a specific non-prescription fluoride toothpaste recommendation, only 18% recommend stannous fluoride toothpaste most often, compared with 46% recommending sodium fluoride. (While the availability of different types of fluoride dentifrices may vary globally, the general trend was consistent across regions.) Thus, it was not surprising to find that 58% of respondents believed that "all fluorides provide similar benefits". This is contrary to current evidence which clearly shows that stannous fluoride offers many benefits beyond caries

Type of non-prescription fluoride toothpaste recommended most often



protection, including protection against gingivitis, plaque biofilm, erosion, dentinal hypersensitivity, and breath malodor, while other fluorides do not.[17–19,23,24] This indicates a knowledge gap that could be related to limited use of peer-reviewed journals as a resource. While 84% of respondents agreed that evidence from the literature was important, only 41% claimed to use peer-reviewed journals as a resource for making their toothpaste recommendations.

Electric Toothbrush Survey[25]

Although 96% of respondents indicated they recommend an electric toothbrush to their patients, only 16% believed that most patients who received recommendations actually purchased an electric toothbrush. This gap in compliance presents an opportunity to explore ways to improve acceptance of this recommendation. There was excellent agreement (90%) that patients who used electric toothbrushes had better gingival health compared with those using manual toothbrushes. This is consistent with a robust body of evidence demonstrating greater efficacy of electric over manual toothbrushes.[8–11,13,16] Seventy-two percent (72%) of respondents also indicated that their patients wanted more information comparing the efficacy of electric over manual toothbrushes and 69% wanted more information comparing the various types of electric toothbrushes available. Interestingly, and similar to the toothpaste survey results, only 52% claimed they used peer-reviewed journals such as the *International Journal of Dental Hygiene* as resources for their clinical decision-making regarding their electric toothbrush recommendations. This tied with those making recommendations based on feedback from colleagues, which was also 52%. These findings should serve as a call to action to revisit evidence-based clinical recommendations.

Oral-Systemic Link Survey[26]

There was strong agreement amongst respondents (≥90%) that there are established links between oral health and diabetes as well as cardiovascular disease. Eighty-seven percent (87%) were also in strong agreement that effective daily oral home care is important to reduce the risk of numerous systemic conditions, similar to smoking cessation. Of the available preventive oral health interventions, 91% of respondents agreed that regular plaque control with toothbrushing is extremely important for systemic disease risk reduction. However, only 25% indicated controlling plaque regrowth through use of antimicrobial toothpastes was extremely important for reducing systemic disease risk. Furthermore, even fewer (16%) believed that antimicrobial rinses were extremely important for systemic disease reduction. An opportunity presents itself for further education regarding the use of all available evidence-based products for plaque biofilm control to reduce the risk of periodontal diseases and potential systemic implications.

Sustainable Dentistry Survey[27]

Only 22% of respondents were either ‘very familiar’ or ‘extremely familiar’ with the concept of sustainable dentistry and interestingly, participants from Europe and other regions were more familiar with this concept than those from North America. After reading the definition of sustainable dentistry, 88% agreed that dental hygienists have a responsibility to contribute to sustainable dentistry and 77% agreed that “preventive oral care plays a role in reducing emissions”. In addition, 61% of respondents associate “preventive oral care as part of sustainable dentistry”. This belief might be a motivating factor for certain patients and/or practice owners to embrace prevention in their practices, given the current importance worldwide on the sustainability of our environment.

Oral Hygiene Instruction (OHI) Practices Survey[28]

On average, respondents indicated that they spend 5 to 10 minutes on OHI per patient. The most common OHI practices are demonstrating proper technique (87%), giving patients product samples to use at home (82%), and making general recommendations for home care products (82%). Over 90% of respondents agreed that prioritizing oral hygiene instruction provides long-term benefits to patients (e.g., better oral health, fewer long-term dental expenses), dental hygienists/therapists (e.g., healthier/happier patients, greater professional satisfaction) and practice owners (e.g., more satisfied patients, improved restorative outcomes). Interestingly, 81% of respondents said it's more important to make specific, evidence-based recommendations for home care than to tell patients to choose any product they like, yet only 64% said they regularly make specific brand-name recommendations for products that are backed by clinical evidence. This reinforces the previously identified gap in the use of evidence-based decision making for product recommendations. Moreover, 65% of respondents agree that power toothbrushes should be an integral part of OHI, but only 34% use trial brushes for OHI.

CALL TO ACTION

The need for Evidence-Based Recommendations

Making specific, customized recommendations for self-care provides a personalized approach to care that many patients desire. Given the information gleaned from these surveys, it has become apparent that most oral care recommendations, particularly findings from the toothbrush, toothpaste and OHI surveys, are not made based on current evidence. It was particularly revealing to find that only 52% of respondents in the electric toothbrush survey used peer-reviewed journals for their decision-making regarding patient recommendations and that a vast majority of respondents were unaware of the advantages of stannous fluoride compared to other fluorides based on the toothpaste survey (see Table 1). While personal experience and feedback from colleagues provide useful insights, by utilizing evidence-based recommendations we know that our actions and decisions are supported by the best available evidence, leading to more effective and efficient outcomes.

EVIDENCE-BASED care is the gold standard for oral care. Clinicians can only provide high quality care and recommendations when examining the research and acting accordingly.
—Jill Rethman, IFDH President-Elect

Gap in Evidence-based Decision-Making

A quick refresher on the "Evidence-Based Decision-Making" (EBDM) hierarchy to remind clinicians of the need to search for the highest levels of available evidence for making patient recommendations is illustrated at right. Both time constraints as well as difficulty with translation of knowledge from research articles to clinical practice may present barriers for clinicians. A focus on utilizing secondary or pre-appraised, or filtered studies such as Clinical Practice Guidelines, Systematic Reviews with Meta-Analysis or Umbrella Reviews of Systematic Reviews, would aid the clinician in the interpretation of the highest levels of evidence.

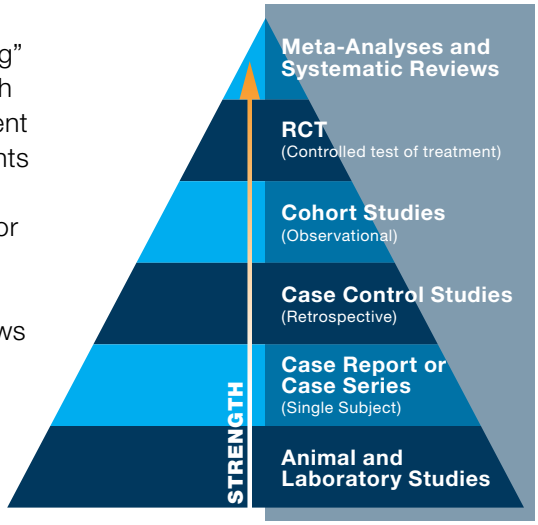
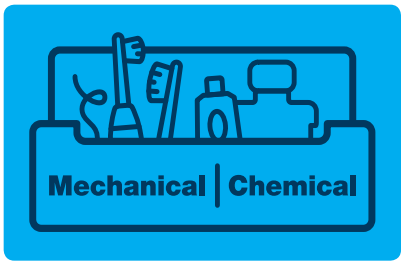


Table 1. Use of Scientific Evidence for Product Recommendations

Survey	Used Scientific Evidence	Used Personal Preference (PP) or Colleagues (C)
Toothpaste	41%	52% (PP) / 66% (C)
Electric Toothbrush	52%	52% (PP)

Following the Evidence for Plaque Biofilm Control and Oral Health

The evidence shows that both ***mechanical*** and ***chemical*** means of plaque biofilm control are critical for effective oral health. Mechanical devices remove plaque biofilm whereas chemical agents, depending on their properties, can inhibit plaque biofilm regrowth and/or reduce plaque virulence. Chemical agents with substantivity provide sustained plaque protection over time. The combination of mechanical and chemical plaque biofilm control provides comprehensive protection from plaque-induced oral diseases.



Mechanical

1. ***Electric Toothbrushes*** have been shown to provide better plaque biofilm control than manual toothbrushes in the vast majority of systematic reviews and meta-analyses published over the past 2 decades.[8–11,13,16] When comparing the various types of electric toothbrushes, the oscillating-rotating toothbrushes have been shown to have superior efficacy to other types of electric toothbrushes.[8,12–16]

Action: As part of routine patient education discussions, clinicians should inform patients of the evidence supporting the superiority of electric toothbrushes over manual toothbrushes. Additionally, they should inform them of the differences between the efficacy of the various toothbrush technologies, based on the evidence. This would directly address the gaps identified in the toothbrush survey. In-office trial toothbrushes allows patients to experience electric toothbrushes, helping to improve compliance with recommendations.

2. ***Interdental brushes*** have been shown through numerous systematic reviews and meta-analyses to be effective means of interproximal plaque biofilm control.[29] This of course will be based on individual patient need and preference, the basic tenets of EBDM. Other interdental tools include floss, toothpicks, water flossers, etc.

Chemical

1. ***Stannous Fluoride toothpastes*** help control plaque biofilm and gingivitis whereas other fluorides such as sodium fluoride and sodium monofluorophosphate, although providing anti-caries benefits, do not reduce plaque quantity or toxicity.[17,18,19,23,30,31] Numerous systematic reviews and meta-analyses show superior plaque biofilm inhibition and gingivitis reduction for stannous fluoride over other common fluorides, resulting in a 3.7x better odds of transitioning from gingivitis to a healthy gingival state with stannous fluoride.[17,18,19,23] Moreover, stannous fluoride uniquely provides protection from other oral conditions, including erosive tooth wear, dentinal hypersensitivity, and halitosis.[17,24]

	Type of Fluoride		
	Sodium Fluoride	Sodium Monofluorophosphate	Stannous Fluoride
Caries	✔	✔	✔
Plaque			✔
Gingivitis			✔
Erosion			✔
Sensitivity			✔
Halitosis			✔

Action: Clinicians, as part of their routine patient education discussions, should inform patients of the superiority of stannous fluoride toothpastes compared with other fluoridated toothpastes, based on the most current evidence.

Other antimicrobials such as oral rinses have also been shown to be beneficial when used in combination with electric toothbrushes, dental floss, and stannous fluoride toothpastes.[32]

How to make even more impactful recommendations

Although the first step in the process of making evidence-based recommendations may be followed by the dental hygienist, that does not necessarily mean that those recommendations will be followed by their patients.[33] Numerous factors must be taken into consideration, most importantly, the amount of time spent making the recommendation and how that recommendation is implemented.

WHAT to Recommend	• **FOLLOW THE EVIDENCE** • **Mechanical** – Electric Toothbrushes – Interdental Brushes, Floss, Irrigators, etc. • **Chemical** – Stannous Fluoride Toothpastes – Antimicrobial Rinses
HOW to Make Recommendations	• **Intentional** – Educate patient about the evidence – Oral Hygiene Education – Use "Show & Tell" • **Experiential** – Use Electric Toothbrush Trial Programs – Hand out product samples • ***USE BEHAVIOR CHANGE STRATEGIES***
FIND OUT What Motivates Your Patient	• ***USE STRATEGIES LIKE MOTIVATIONAL INTERVIEWING TO FIND OUT PATIENT MOTIVATION*** – Oral health? – Systemic health? – Attractive smile? – Personal contribution to sustainability?
CONTINUE ACTIVE LEARNING AT HOME	• **PROVIDE INTERACTIVE TOOLS** – Interactive electric toothbrush apps to track brushing behavior – Provide disclosing agents – Refer to trusted social media with dental information

One potential gap noted from the OHI survey findings is the average time spent on patient education being only 5–10 minutes. (It should be noted that this time does not take into account the average total appointment time, which may vary across and within countries.) Simple chairside instructions that are primarily passive or educational in nature, have not been shown to be as effective as following a more specific and intentional process using psychological theories.[33,34] There are numerous psychological 'behaviour change' models that have been tested[35,36] with several showing successful results, such as the Motivational Interviewing Model[37] and the more recent COM-B model that encompasses the Behaviour Change wheel.[38] These psychological theories typically require longer periods of time to implement.

Action: Dental hygienists should familiarize themselves with the literature regarding these various behaviour change models and select one that they are most comfortable with. Then, allocate sufficient appointment time to employ their selected model with their patients and follow their progress.

In addition to using ***intentional*** strategies, incorporating hands-on ***experiential*** strategies such as electric toothbrush intraoral demonstrations and trial programs as well as product sampling will provide patients with the opportunity to experience the recommendations.

Action: Dental hygienists should focus on providing experiential methods of product recommendations enabling the patients to experience hands-on use of both electric toothbrushes and stannous fluoride toothpastes that enable the clinician to observe and correct non-effective techniques.

Find out What Motivates your Patient

It is well-recognized that a change in behaviour will not occur unless the patient is motivated to do so. Thus, finding out what motivates the patient will be the key to success in helping them to follow the clinician's recommendations.

WHEN YOU CAN cite studies and clinical trials to show that your advice is evidence-based, your patients will value your advice, and act on it.
—Wanda Fedora, IFDH President

Action: Use strategies such as motivational interviewing or the COM-B model or other psychological tools to identify what motivates the patient. Once this is identified, setting goals with the patient and following up with their progress can ensure success.

Continuing Active Learning at Home

Once behavior change has been accomplished, it will be important to ensure that it is sustained. Some examples of such strategies include: use of interactive electric toothbrush apps, provision of tools such as disclosing agents to enable patients to measure their success and referring them to social media sites that provide credible preventive information.

OUR VALUES are established at a young age. Parents may need to be included in the toothbrushing lessons for their children to be able to offer proper home support.
—Wanda Fedora, IFDH President

CONCLUSION

In summary, the results of these 5 surveys have provided dental hygienists world-wide with the opportunity to address the Global Oral Health Recommendations made by the WHO. These surveys identified several gaps that have been addressed in the Call-to-Action section of this White Paper. As dental hygienists are considered prevention specialists, moving forward with this call to action has become a major opportunity to make a difference globally in improving oral health, overall health and environmental sustainability.

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Appendix

Table. Primary Survey Objectives and Top Country Participants

Year	**Topic/Objective:** *To better understand dental hygienists' knowledge, practices, and/or decision-making resources around…*	**Respondents:** *Top 3 countries with % of total respondents*
2019	Fluoride dentifrices	480 respondents from 20 countries — *Korea 26%, Switzerland 16%, Canada 16%*
2020	Electric toothbrushes	4,345 respondents from 36 countries — *USA 72%, Korea 5%, Italy 4%*
2021	Relationship between oral health and overall health	706 respondents from 23 countries — *UK 40%, Canada 14%, South Africa and Finland 7% each*
2022	Sustainable dentistry	295 respondents from 24 countries — *Canada 19%, USA 15%, Portugal 9%*
2023	Oral Hygiene Instruction	231 respondents from 26 countries — *Canada 15%, South Africa 11%, Ireland and Korea 9% each*

Links to IFDH Surveys

IFDH 2019 Toothpaste Survey

IFDH 2020 Electric Toothbrush Survey

IFDH 2021 Oral-Systemic Link Survey

IFDH 2022 Sustainable Dentistry Survey

IFDH 2023 Oral Hygiene Instruction Practices Survey

Recommended Continuing Education Resources

Campbell SL. Choosing a Toothpaste: What's the Big Deal? Dentalcare.com CE Course 565. https://www.dentalcare.com/en-us/ce-courses/ce565

Lukes SM. Re-examining the plaque-gingivitis connection and the role of stannous fluoride. dentalcare.com CE Course 579. https://www.dentalcare.com/en-us/ce-courses/ce579

McGovern Kupiec L, Forrest JL. Using an evidence-based approach to making patient recommendations for power toothbrushes. dentalcare.com CE Course 648. https://www.dentalcare.com/en-us/ce-courses/ce648

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