

Professional Whitening

By **Kristy Menage Bernie, RDH, BS, RYT**

In March 2008, the Standards for Clinical Dental Hygiene Practice were adopted by the Board of Trustees of the American Dental Hygienists' Association. The two stated purposes for this document are (1) "to assist dental hygiene clinicians in the provider-patient relationship" and (2) "to educate other health care providers, policy makers and the public about the clinical practice of dental hygiene." To access the full standards document, go to www.adha.org/downloads/adha_standards08.pdf. The following article on professional tooth whitening contains references that link back to the standards document. Readers who would like greater understanding of the standards are encouraged to read it alongside a copy of the standards document and make their own links to the information in the article. Readers who do so are encouraged to share their insights with Access.



Clearly, whitening will provide a tangible improvement in tooth color.

in the shape of a smile changes the blood flow to the brain and actually makes you feel happier. The fact that smiling itself boosts your mood has a further positive impact because smiling has a contagious effect. "When you smile, others are more likely to smile back, and are more drawn to you, thereby increasing your confidence and happiness even more."³

Clearly, whitening will provide a tangible improvement in tooth color. Professional whitening targets intrinsic stains that cannot be removed during thorough mechanical scaling and polishing and include stains related to age, trauma, certain medications and chromogenic foodstuffs.⁴ Additionally, with age, the enamel thins at the cervical areas, allowing more dentin to show through, making the teeth appear dark and even dingy. Extrinsic or surface stain, which is due to

p8 Standard 2. II

p7 Standard 1. III. b. and c.

The American Dental Hygienists' Association defines optimal oral health as a standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well-being and overall health.¹ Smile-enhancing procedures fit within this definition and as such are part of our clinical practice responsibilities. Professional tooth whitening provides the clinician the opportunity for easy aesthetic improvement and includes both in-office and professionally dispensed home systems. While in-office whitening options have grown and expanded in recent years, professionally dispensed take-home whitening continues to be a cornerstone in successful and long-term smile enhancement. With so many options available, the dental hygienist is a key professional on whom patients can rely to assist them in making the best and best-informed decision. From products administered chair-side to chewing gum, everything seems to be making claims about whitening today! This overview will provide key information on the best practices and clinical strategies for successful professionally supervised whitening.

p3 Introduction
p8 Standard 3. V.

exposure to foods, liquids or tobacco, must be professionally removed prior to proceeding with the whitening process for optimal results.

Professional whitening represents the quickest and most cost-effective smile-enhancing opportunity for patients today, and as a result the demand for professional whitening has increased. Surveys have also confirmed that patients who undergo aesthetic procedures such as whitening may be more inclined to maintain that result, thereby improving their daily oral care routines.⁵

p6 Dental Hygiene Process of Care, p10 Key Terms

Dental Hygiene Process of Care in Professional Whitening

The process of care for professional whitening includes promotion of and education about options offered by the practice, as well as pretreatment clinical procedures. Professionally supervised whitening is recommended over other options by the American Dental Association to assure patients are appropriately evaluated and treatment planned according to dental health, individual needs and use of effective tooth whitening systems.⁶ Clinicians can educate patients on various options through diverse sources, such as manufacturers' patient education brochures, fact sheets from professional organizations,⁷ such as the ADHA's Get the Facts on Tooth Whitening,⁸ and professional publications.⁹

p6 Dental Hygiene Process of Care
p6 Standard 1. II. d.

p8 Standard 4. III.

Of critical importance to whitening success is thorough pre-whitening instrumentation to remove extrinsic stain, calculus and plaque biofilm. Additionally, pre-whitening photos

Professional Whitening Rationale

Our professional responsibilities include, "Maintaining awareness of changing trends in dental hygiene, health and society that impact dental hygiene care."² In a recent article featured on www.SheKnows.com, titled "Smile More, Feel More Confident," psychologist Ann Demarais, PhD, explains, "When your teeth look white and sparkly, you can relax, be in the moment and laugh. You are more confident and radiant." Demarais adds that the mere act of putting your mouth

should be taken and shade determination made

p9 Standard 5. I.
p9 Standard 6. I.

once all stains and accretions have been eliminated. Taking impressions for custom trays will encourage patients to complete pre-whitening protocols even if they choose in-office whitening, as the trays will be useful for touch-up opportunities in the future.

The dental hygiene process of care should also include careful review of the whitening options available, their ef-

p6 Dental Hygiene Process of Care
p8 Standard 3. II.

fectiveness, how quickly whitening will be achieved, and safety. An

evaluation of sensitivity should also be included and pre-treatment use of prescription strength fluorides, such as Fluoridex Daily Defense or amorphous calcium phosphate (ACP) products, such as Relief® ACP Oral Care Gel will minimize or eliminate sensitivity during the whitening process. Professionally supervised whitening options include in-office systems such as Zoom by Philips, Opalescence Boost and Pola In-Office by SDI, which are designed to provide immediate results, and professionally dispensed tray systems designed for day or night use, such as Zoom NiteWhite and Zoom DayWhite by Philips, Opalescence by Ultradent and Pola Day and Night by SDI. Recommendation of which method to use should be based on the patient's expectation and needs.

Finally, the dental hygienist will have a key role in the maintenance of whitening results. Appropriate recare appointments that include thorough debridement as well as an evaluation of the need for touch-up tray whitening will assure optimal health and aesthetics. Recommendations for daily care habits, such as use of sonic toothbrush technology (Sonicare) have proven to minimize surface stain accumulation, thereby extending whitening results.¹⁰

p9 Standard 5. III.

Directions in Professional Whitening

Professionally dispensed whitening systems are based upon 20-year old technology known as vital night-guard bleaching. This is the safest and most extensively researched form of tooth whitening.^{11,12} Whitening is achieved through daily application of a peroxide-based agent via a custom tray or night-guard over a prescribed period of time or until the desired result is achieved. When peroxide-based agents come into contact with tooth surfaces, they break down and remove or dissolve stain within both the dentin and enamel surfaces through oxidation. Both external and internal stains deep in the tooth structure are impacted. As this process continues, the enamel surface becomes more opaque and reflects light, making the teeth appear whiter and brighter.¹³ While the initial protocols and agents required night wear, today options have expanded to include daytime wear systems, concentration and chemistry options as well as desensitizing agents to prevent or treat whitening sensitivity.

p6 Dental Hygiene Process of Care

p5 Professional Responsibilities and Considerations

Regardless of concentration or active agent, all professionally dispensed systems will whiten. As concentrations increase, a shortened time may be required for the desired result. On the other hand, more concentrated solutions may also increase tooth sensitivity.¹⁰ Understanding patients' expectations, limitations and willingness to follow a particular protocol will assist clinicians in determining the best system.

p6 Dental Hygiene Process of Care
p6 Standard 1. I. a.



Relief® ACP Oral Care Gel



Zoom NiteWhite and Zoom DayWhite by Philips



Zoom uses a bulb with a mix of ultraviolet (UV) and visible light to enhance the penetration of the whitening gel into teeth enamel

market, ACP, has been beneficial in decreasing sensitivity through a variety of actions.¹⁶ Tooth enamel is composed almost entirely (96 percent by weight) of a calcium phosphate mineral in the form of carbonated hydroxyapatite. Dentin is 70 percent by weight composed of hydroxyapatite. ACP then rapidly hydrolyzes to form hydroxyapatite within five minutes of application. If fluoride is present, a more acid resistant compound, fluor-apatite is formed. ACP also precipitates on the surface and within the lumens of open dentinal tubules to occlude them, resulting in decreased sensitivity.¹⁷ This also makes the exposed dentin more resistant to demineralization by acids.

The conversion of ACPs to crystalline calcium phosphates is an important part of the proposed surface-enhancement process. It is believed that after deposition onto the tooth surface, precipitated ACPs convert into apatite, filling microporosities and microscopic surface defects, thus improving the overall luster of the teeth.¹⁸ The enamel's smoothness and luster are improved in as little as two weeks. With the precipitation on the surface and within the lumens of the open dentinal tubules, patients will have decreased sensitivity due to less flow of fluid within the tubule. Currently there are only two professionally dispensed whitening products that contain ACP: Zoom NiteWhite and Zoom DayWhite by Philips; these whitening products also contain sodium fluoride and potassium nitrate to maximize patient comfort and enhance remineralization.

It's Consumer Driven!

Many agree that whitening has been popularized by the media, with consumers playing a major role in the demand for effective and

p5 Professional Responsibilities and Considerations

While home use peroxide-based products are readily available outside of professional dispensing, they are not always reliable due to many factors such as acidic and runny solutions that are easily swallowed and may damage enamel, as well as unproven

means to deliver the whitening agent through boil-and-bite mouth trays. In addition, many over-the-counter options have not undergone the rigorous testing seen with professionally dispensed products.¹⁴

Innovations in chemistry include the addition of desensitizing agents to the whitening agents. These may include sodium fluoride, potassium nitrate and amorphous calcium phosphate (ACP). Sodium fluoride has been shown to reduce sensitivity through mechanical means, while potassium nitrate chemically desensitizes by keeping nerve polarization from occurring.¹⁵ The latest to the

safe whitening options. As more patients log onto the Internet, they access any number of 'resources' to support their 'wants.' A recently launched website, www.getitright.info, targets consumers and provides key information regarding tooth whitening and the importance of the role of the dental professional in a healthy smile and successful whitening processes. This site is dedicated to promoting professional supervision as the only and best way to whiten, emphasizing the need to establish optimal oral health and that whitening success is contingent on thorough instrumentation and removal of surface stain, calculus and plaque biofilm. In addition, the site discusses the role of the dental professional in maintaining whitening results.

p5 Professional Responsibilities and Considerations

p4 Definition of Dental Hygiene Practice

Today, it's easier than ever to be confused by the plethora of products and promises. Our ADHA *Standards for Clinical Dental Hygiene Practice* and definition of optimal oral health remind us it is paramount to engage the patient in all aspects of oral health, including aesthetics. Integrating professional whitening into routine care will increase patient satisfaction and enhance overall oral health!

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■ Your Feedback Is Welcome!

In 2008, the ADHA Board of Trustees approved the current *Standards for Clinical Dental Hygiene Practice*. In her annual report, then President Jean Connor, RDH, wrote, "These standards reflect the dental hygiene process of care and will be instrumental in assisting clinicians in their daily delivery of patient care and educating the public, other care providers and policy makers on dental hygiene practice." Links to the standards document appear throughout this article on professional tooth whitening and are expanded on the opposite page.

The *Standards* are intentionally general so that they apply to all aspects of clinical dental hygiene care. If you have comments about or additions to the links made in this article, please write and let us know. ADHA intends for the *Standards* to be a living document, and we welcome your participation in the process. Send comments and comments to

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HOW THIS ARTICLE REFLECTS THE STANDARDS FOR CLINICAL DENTAL HYGIENE PRACTICE

- **The dental hygienist is a key professional on whom patients can rely to assist them in making the best and best-informed decision.**

The Introduction to the Standards (p3) states that dental hygienists must support the right of the individual to have the necessary information and provide opportunities for dialogue to allow the individual patient to make informed care decisions. Standard 3. V. (p8) reinforces that requirement by identifying as part of the dental hygiene treatment plan the explanation of treatment rationale, risks, benefits, anticipated outcomes, treatment alternatives, and prognosis. By conveying information about the whitening options available, the dental hygienist can help the patient understand and achieve their individual optimal outcome.

- **Clearly, whitening will provide a tangible improvement in tooth color.**

Standard 2. II. (p8) recognizes that part of dental hygiene diagnosis is to determine patient needs that can be improved by dental hygiene care. The need for cosmetic enhancement of a patient's smile can be addressed by professional whitening including appropriate pretreatment.

- **Extrinsic or surface stain is due to exposure to foods, liquids or tobacco.**

Standard 1. III. b. and c. (p7) cite tobacco exposure and dietary practices as examples of factors that should be evaluated to determine the level of risk; in this case, of extrinsic stain that the highest level of care dictates be removed prior to tooth-whitening procedures.

- **Professional whitening represents the quickest and most cost-effective smile-enhancing opportunity for patients today, and as a result the demand for professional whitening has increased.**

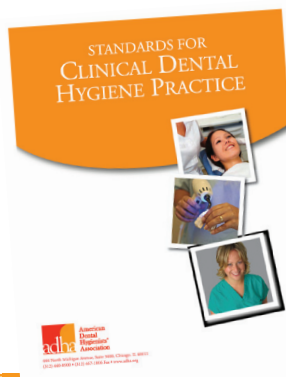
The Standards' Dental Hygiene Process of Care section (p6) states that the dental hygiene diagnosis and care plan includes cosmetic needs that the patient values. Key Terms (p10) defines "patient-centered" as approaching services from the perspective that the client's values, beliefs, and needs are of utmost importance in providing care. The increasing desire among dental hygienists' patients to have whiter teeth means that whitening is an increasingly important service.

- **Patients are appropriately evaluated and treatment planned according to dental health, individual needs and use of effective tooth whitening systems.**

The Standards' Dental Hygiene Process of Care section (p6) states that the purpose of the dental hygiene process of care is to provide a framework where the individualized needs of the patient can be met; and to identify the causative or influencing factors of a condition that can be reduced, eliminated, or prevented by the dental hygienist. Standard 1. II. d. (p6) makes it part of the assessment phase of dental hygiene care to perform a comprehensive clinical evaluation including hard tissue evaluation with charting of existing conditions and oral habits. In the case of whitening, patient-centered treatment requires both responding to a patient's desire for improved appearance and ensuring that the unique factors that have caused a less-than-desirable appearance are identified and addressed on an individual basis.

- **Clinicians can educate patients on various options through diverse sources, such as manufacturers' patient education brochures, fact sheets from professional organizations, such as the ADHA's Get the Facts on Tooth Whitening, and professional publications.**

Standard 4. III. p8 requires that dental hygienists communicate with patients in the style best suited to their learning. Having whitening information in diverse forms enhances dental hygienists' ability to meet this standard.



- **Pre-whitening photos should be taken and shade determination made.**

Standard 5. I. (p9) requires dental hygienists to use measurable assessment criteria to evaluate the outcomes of dental hygiene care, while Standard 6. I. (p9) requires documentation of all components of the dental hygiene process of care. Taking prewhitening photos and making a shade determination before performing whitening are dental hygiene responsibilities that meet these standards.

- **The dental hygiene process of care should include careful review of the whitening options available, their effectiveness, how quickly whitening will be achieved and safety.**

The Dental Hygiene Process of Care (p6) addresses the individualized needs of the patient, including identification of the causative or influencing factors of a condition that can be reduced, eliminated, or prevented by the dental hygienist. Standard 3. II. (p8) requires the coordination of resources to facilitate care, including current technologies and appropriate appointment sequencing. These requirements are reflected in the whitening process when the dental hygienist recommends the right system for the patient's needs and educates the individual so that the expectations are realistic and the outcomes are optimal.

- **Appropriate recare appointments that include thorough debridement as well as an evaluation of the need for touch-up tray whitening will assure optimal health and aesthetics.**

Standard 5. III. (p9) requires collaboration to determine the need for additional diagnostics, treatment, referral, education, and continuing care based on treatment outcomes and self-care behaviors. As the post-whitening patient continues as a patient in the practice, the dental hygienist and the oral health care team will work together to maintain that patient's health as well as appearance.

- **[Vital nightguard bleaching] is the safest and most extensively researched form of tooth whitening.**

The Dental Hygiene Process of Care (p6) speaks to this important point by requiring the dental hygienist to make evidence-based decisions. It is further underscored by the fact that...

- **Today options have expanded to include daytime wear systems, concentration and chemistry options as well as desensitizing agents to prevent or treat whitening sensitivity.**

Since the evidence supporting such new technology is always evolving, it is appropriate that the Professional Responsibilities and Considerations (p5) require the dental hygienist to maintain awareness of changing trends in dental hygiene, health and society that impact dental hygiene care.

- **Understanding clients' expectations, limitations and willingness to follow a particular protocol will assist clinicians in determining the best system.**

In addition to the Dental Hygiene Process of Care's focus on individualized patient needs, Standard 1. I. a. provides the mechanism for this aspect of the whitening process by requiring that dental hygienists record personal profile information such as demographics, values and beliefs, cultural influences, knowledge, skills and attitudes.

- **Acidic and runny solutions are easily swallowed and may damage enamel.**

Professional Responsibilities and Considerations (p5) include taking action to prevent situations where patient safety and well-being could potentially be compromised. Having the knowledge to select the safest effective product for whitening reflects this responsibility.

- **The importance of the role of the dental professional...**

Another Professional Responsibility is to articulate the roles and responsibilities of the dental hygienist to the patient, interdisciplinary team members, referring providers, and others. Promotion of websites like getright.info, along with direct patient communication, will help ensure that the dental hygienist is a recognized and valued authority on topics including whitening.

- **Whitening success is contingent on thorough instrumentation and removal of surface stain, calculus and plaque biofilm.**

The Definition of Dental Hygiene Practice (p4) includes removal of biofilm plaque and calculus from teeth as reflected in this important aspect of the whitening procedure.



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