

Transforming Teeth Whitening in Your Practice!

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Teeth Whitening services are one of the fastest growing sectors in dentistry. Globally, the recent statistics have indicated that they will balloon to an estimated value of USD 7.40 billion in the next decade.¹ This continual growth has been caused by increasing client demand and awareness through many social media platforms. The advertising industry has also continued marketing campaigns that focus on the “SMILE POWER” phenomenon.²

Our smile is considered one of our most important individual assets!² It is believable that when clients were asked, 99.7% agreed that improving their smile was a chief concern; and the easiest way is always “whiter and brighter!”³

The presentation of dental services needs to take into consideration the increased self-perception and self-awareness on our client’s well-being.² Health care systems are also recognizing that cosmetics can promote positive influences by improving self-confidence, self-image and physical attractiveness.² This raises the question of how effective are dental offices in presenting and executing teeth whitening services? Do we have the right options and solutions? There are so many different whitening options to choose from: in-office treatments, home care regimens, over-the-counter products and now, do-it-yourself treatments. The increased risks of tooth sensitivity and gingival irritation, contrasting with the desire to obtain optimal results, are our biggest concerns in educating our



clients with the right choices. Implementing a successful tooth whitening program will truly help our clients minimize risks, while achieving the greatest value and optimal benefits.⁴ We need to start to EMBRACE this change in esthetic demands and provide the framework to successfully integrate teeth whitening into our daily practice.

Why Whitening Works

Understanding how the whitening process works will help us achieve clinical success and optimal client

results. Whitening agents (peroxides) were actually found by accident in the 1980’s; they were originally used as an antiseptic agent to treat periodontal disease and over time, also lightened the tooth colour.⁶ Today, hydrogen peroxide (H_2O_2) is the key ingredient, however, carbamide peroxide (CP) is also used, as it is a more stable compound once manufactured. One of the biggest benefits of CP is that it has shown provide an active whitening effect that can span over 10 hours; this plays an integral part in our client’s successful outcome and maintenance strategies.⁷

This chemical process is known as an oxygenation, whereby H_2O_2 is broken down into oxygen free radicals and water. It is the free radicals that are able to adhere to the surface of stain molecules and break them down (See Figure 1). CP is a formulation of H_2O_2 and urea, however it will only break down to activate the whitening process once it is in contact with water (saliva).⁷ It is important to understand that the concentration effectiveness of CP to

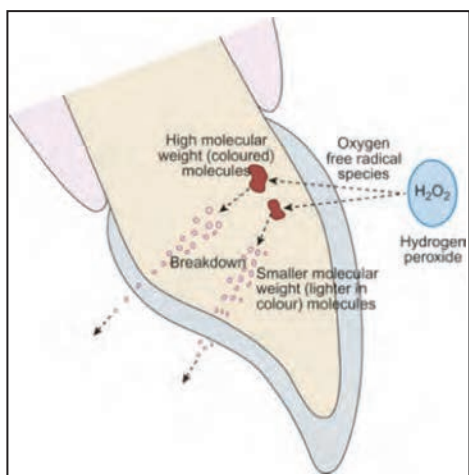


Fig. 1: Oxygenation process of hydrogen peroxide - retrieved from Pocket Dentistry Chapter 18

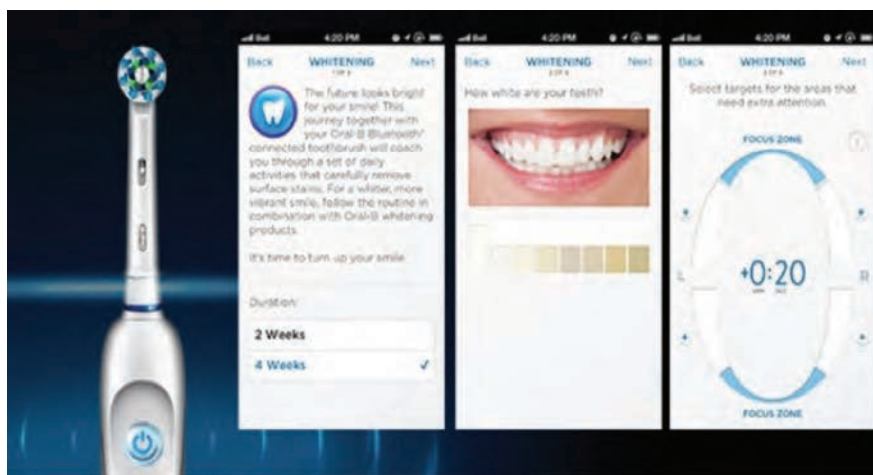


Fig. 2: Oral B Genius Power Brush and Whitening Journey App - image provided courtesy of Oral B

H_2O_2 is 3:1. This is pertinent in evaluating product effectiveness for the different types of stains. We can safely assume all whitening products are effective as long as this oxygenation process is achieved. However, to determine the true whitening effect of each product, concentration, proper contact and contact time must be considered and customized for each type of stain.⁸

Newer whitening concepts have modified the ingredients and concentrations and light-activated systems are now available. There has been much debate as to the effectiveness of light and whether it actually presents any benefits to this process itself. In 2012, an evidence-based assessment was conducted on the lights' effectiveness. Interestingly, the light has proven to show a quicker teeth whitening effect; it has also shown the potential to generate enough energy to destroy the bonding of stain molecules without using a whitening agent, thus providing added benefits to the whitening process.⁹ It is still very important to consider the type of stain and the maintenance value with regards to contact time and length of procedure with any light activated systems, to ensure stable and consistent results.

Activated charcoal is also an emerging ingredient as a whitening agent. There has yet to be properly conducted evidence-based literature to support its efficacy. The concept of using activated charcoal in a paste form is to use a prophylaxis approach in removing surface stains. In theory, this is effective, as we understand that the removal of plaque creates a more optimal oral environment that can minimize adhesion of stains. The biggest concern is that the abrasiveness of charcoal toothpastes can cause more harm, as they roughen the enamel surfaces, compromising the integrity of the tooth surface, which can then result in

more staining.¹⁰ If the goal is to remove superficial surface stains, using an electric toothbrush in our daily oral self-care can easily help achieve that goal. Oral B was one of the first power brushes that received the ADA Seal of Acceptance and validation by the Canadian Dental Association. Oral B currently presents their new Genius Power Brush with a Whitening Journey application to help their clients maintain and improve daily dental hygiene routines and achieve a whiter smile.

Thus, the biggest challenge should be in determining the right solution for our clients! This involves not only providing them the most current product information so they can make an informed decision, but more importantly creating a CUSTOMIZED treatment plan that addresses our client's specific concern.

Managing the Right Expectations

Whitening is a cosmetic and elective procedure that often requires client commitment, and a lack of client participation will affect whitening success. Managing our client's whitening expectations has always been our kryptonite. If it is true that all whitening systems work, then why is it so hard to predict the final outcome. We will take a different approach in our assessment phase and adapt our findings to help us better understand how to achieve an optimal whitening outcome. We need to evaluate the following aspects:

1. Client's type of stains (intrinsic vs extrinsic)
2. Client's starting shade
3. Client's oral condition – susceptibility to stains, oral hygiene, current oral health status
4. Client's teeth whitening history
5. Client's lifestyle choices



Fig. 3: VITAPAN Classical A1-D4 Shade Guide

The type of stain is critical in determining the concentration to select to achieve the best results. Intrinsic stains are always tougher stains to remove; these stains occur during the early stages of tooth development, relating more to genetic or systemic conditions, and/or medications.² On the other hand, extrinsic stains are connected to the tooth surface and are easier to manage and remove. Most of these external stains are considered superficial, which provides more flexibility with treatment options in regards to optimizing results. When considering the product, a thorough assessment of the type of stain will dictate our treatment modality.

With regards to documenting our client's starting shade, a baseline from your initial new patient exam is strongly recommended, even if they are not proceeding with teeth whitening treatments. There are many reasons why stains can occur, however it is a fact that natural tooth color will darken with age throughout our lives, due to the development of reparative dentin.^{2,8} Hence, regular annual monitoring is recommended to determine our client's susceptibility to shade change, as well as risk to staining factors over time. This will allow us to better relate our client's oral health condition and their susceptibility to respond positively to the whitening experience and process. For example, if our client has a starting shade of A3 during the first initial visit, and is still an A3 shade year after year, it may be safe to conclude that our client is not susceptible to stains. Should we decide to offer whitening to this client, the end result may be ineffective, as he/she has never demonstrated changes in shade resulting in non-existing stain molecules. Remember, whitening is an oxygenation process by which stain molecules are broken down. No stain molecules, no whitening effect. In comparison to a client that may have a starting shade of A1 and over the 5 years has darkened to a C1, we can safely conclude staining



Fig. 4: Sample of the Preloaded In-Office whitening system: Brilliance 20 - image provided by Synca Marketing

has occurred and the client will be more responsive to whitening. It may also be important to consider how quickly the shade changes are occurring, to help determine their resilience to the whitening process.

The VitaPan Classical Shade guide was first introduced as the baseline to determine your ideal restorative shade.¹¹ The normal arrangement is grouped into 4 categories of A, B, C, D; reddish-brown, reddish-yellow, gray, and reddish gray.¹² This grouping is then broken down to our whitening shade guide which is determined by its hue, chroma and value. Understanding

how to use to this guide is important in managing our client's expectations.

Last but not least, our client's previous whitening experiences need to be considered before we make our final recommendations. The importance for this assessment is to determine any history of sensitivity, resilience to the whitening effect, and most importantly, compliance to the proposed whitening treatment. Sensitivity management is one of the key elements in a successful whitening experience; many new whitening systems are incorporating desensitizing agents such as potassium nitrate during the gel application, to prevent post treatment sensitivity. In addition, post care follow-up for shade stabilization will incorporate a touch up schedule that is fundamental to maintain the final whitening outcome over time. Lifestyle choices must be considered in developing the best maintenance schedule. Commitment to this maintenance schedule is what will provide our clients the best value from their whitening treatment. Careful consideration to frequency and type of touch up process will help us effectively support our clients in maintaining their whiter and brighter smile, improve their oral health and overall health.



Fig. 5: Clinical Images provided courtesy of Synca

Making the Right Decision

Once we have defined our client's whitening expectation, we can then take our clinical findings and plan a successful whitening treatment. The criteria to be considered in our recommendations needs to suit not only the client's needs, but also meet the expectations of our daily practice. We all work in different environments with different demographics; the balance of both clinician and client needs should be equally considered. These criteria are as follows²:

1. Efficacy
2. Sensitivity
3. Cost
4. Speed
5. Resilience

Efficacy, in my opinion is one of the most important aspect. There are two ways of looking at efficacy: the end result for the client and ease of use for the clinician. Results are very important, as this determines the trust and value in the treatment provided. As indicated earlier, all whitening systems are effective in their own way. Hence the concentration of the product, the number of applications needed and application time is strongly correlated to our client's starting shade.⁸ Some place more attention on the resulting sensitivity treatment as the most important factor. What is important for us to understand is the higher the concentration, the greater the risk in

stimulating sensitivity. This is why managing our client's expectations and what is most important to them during the procedure will dictate how aggressive the treatment concentration and application time should be.

Efficiency in the procedure will also help us manage the cost and speed of components in our whitening treatment. This truly plays into the latest trends of tray based systems. Preloaded trays have now eliminated the need to take impressions and pour up models for custom made trays; which in turn is minimizing our overall cost and chair time.¹² In addition, isolation techniques are simplified and still offer the protection needed for client comfort. By reducing the cost, increasing the speed, whitening treatments can be more affordable for our clients. Affordability has been one of the biggest factors in case acceptance and will place us more competitively against e-commerce options.¹³

The final step in achieving a long-lasting outcome to any whitening procedure is to minimize the resilience factor. According to the CDA position statement, teeth whitening procedures can be expected to last up to 2 years depending on lifestyle habits, hence touch up and maintenance schedules should be customized to prolong the whitening effect.¹⁴ When all factors are considered, we should be able to provide a clinically-supported, customized treatment plan with greater confidence, that will help our clients achieve their brighter and whiter smile!



Fig. 6: Clinical Images provided courtesy of Synca



Fig. 7: Clinical Images provided courtesy of Synca Marketing

Clinical Cases Using the Brilliance 20 In-Office Whitening System

Case 1: Female, 24yrs old

- Starting Shade: C2
- Ending Shade B1
- One tray application, ½ hour treatment time, no post treatment sensitivity
- Recommended 2 days of post care shade stabilization and to maintain a white diet for the next 48hrs
- Follow up home care maintenance at next 4-month dental hygiene – minimum of 2-3x touch up treatments after visit.

Case 2: Female 38yrs Old

- Starting Shade: C2
- Ending Shade: B1
- 2 tray application recommended due to frequent coffee drinker, first time whitening, and teeth grinder, 1 hr treatment time, no post treatment sensitivity
- Recommended 3 days of post care shade stabilization and maintain white diet for the next 72hrs
- Follow Up home care maintenance at next 3 month dental hygiene, final touch up schedule to be determined at next visit.

Case 3: Male 55yrs old

- Starting Shade A3
- Ending Shade B2

- Last whitening procedure over 4 years ago, no touch up completed, colour has rebounded, drinks red wine daily as well as 2-3 cups of tea or coffee
- 2 tray application, 1-hour treatment time, no post treatment sensitivity
- Recommended 5 days post care shade stabilization and a white diet for duration of post care touch up.
- Follow up 1 week – and at next hygiene visit to determine proper touch up schedule.

Final Thoughts

Social media undeniably has been one of the biggest drivers in promoting the “WHITER AND BRIGHTER” smile as a social norm. This awareness is great for our industry as it provides more information for our clients, but also increases the risk of ill-informed decisions. It is our due diligence to present our clients with the best options that help minimize exposure and risk for sensitivity, gingival irritation, or products that may be ineffective for them, based on their tooth color or unacceptable oral health condition. Understanding this uphill battle in client education and presenting their best options is what truly will help us succeed and continue to build trust with our clients. We need to start by assessing our clients more effectively, then by making the right product selection and maintenance schedule. By achieving a more comprehensive approach based on our client’s clinical evidence, we can then be more confident in achieving optimal clinical outcomes. Take the first step by truly accepting teeth whitening as a critical part of your daily hygiene practice.

Embrace and educate our clients with their choices to a more customized solution that best meets their needs. Don't be limited to just the product you have, but offer the best options for everyone! Accept the challenge and let's create a successful whitening program that truly is impactful for our client's oral health and overall health! ■

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