

Digital intraoral scanner applications for comprehensive dentistry: Building healthy and confident smiles.

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A smile is defined as “a happy or friendly expression on the face in which the ends of the mouth curve up slightly, often with the lips moving apart so that the teeth can be seen.”¹ A basic, universal expression of communication that has been associated with reduced stress levels, increased health, and mood enhancing hormone levels.² Dentistry is a wonderful profession that helps people un-tap their power of smiling. In many instances, the work we do changes people’s lives.

The following case demonstrates how the dental team can utilize the iTero Element® scanner and its software to educate, engage and empower patients to recognize how clear Invisalign® aligner therapy can improve their smile. As dental professionals, one of our goals is to ensure patients love their smile so that they can always feel confident. Having a malocclusion can be detrimental to desired longevity, health, and beautiful smiles. Angeline recently came to the practice as a new patient with one major concern: she was not happy with her smile. She also reported that she experienced discomfort in her jaw. Most memorable though, was that this young professional woman often spoke with her hand raised to her mouth and head slightly tilted, often seen to compensate for one’s inability to smile with confidence fully (Figure 1).

Orthodontics is fundamental to oral health and should be considered as a standard of care rather than an afterthought. Looking at Angeline’s teeth, if orthodontics had not been a part of her treatment, she would have undergone tooth reduction and several costly, unpredictable dental procedures to attempt creating an aesthetic smile (Figure 2). Crowding of teeth is one of the most common forms of malocclusion often observed in the lower incisor region.³ Absent of any defects or wear, Angeline’s teeth are beautiful... just in the wrong place. From the dentist’s perspective, the insufficient space as a result of an improper arch form with a high palate and improper tongue posture is the cause for the crowding. The solution was to provide Angeline with a U-shaped arch to create space allowing for proper tooth alignment, canine guidance, and posterior disclusion.

To help Angeline visualize the goals of treatment, we take a quick scan and utilize the Invisalign Outcome Simulator software.

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Figure 1



Figure 2

By placing a picture of Angeline's current dentition next to a simulated outcome, she can see the projected changes to correct alignment, eliminate the crowding and address her chief concern with aesthetics. The power of "seeing is believing" is generated through the iTero Element® visualization tools creating a vital driver for patient treatment acceptance. Patients can

be shown a corrected tooth alignment from different perspectives to appreciate the overall improvements (Figures 3, 4 and 5). Angeline viewed the potential outcome of how her teeth may look at the end of Invisalign® treatment with elation.

The Invisalign Outcome Simulations can also be shared with the patient via email right at chairside. The ability to view the

simulation after an office visit can assist with communication with family members regarding the benefits of proposed treatment, allow patients to reflect on their dental appointment and perhaps even share it with others as a "wow" dental experience.

By using the iTero Element Occlusogram we remove the need to "tell" patients they need treatment, but instead "show" them why. Let's look at Angeline's Occlusogram (Figure 6). We explain to Angeline that the color map of the Occlusogram allows us to identify the size of tooth contact, location, symmetry, and intensity of her bite. We can see that the heavier forces are located on the molars, decreasing contact on the premolars and none on the protective canines. Fortunately, Angeline is young and has not experienced

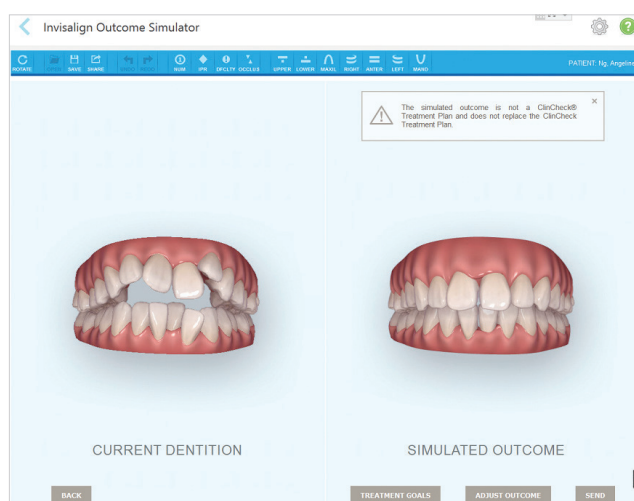


Figure 3

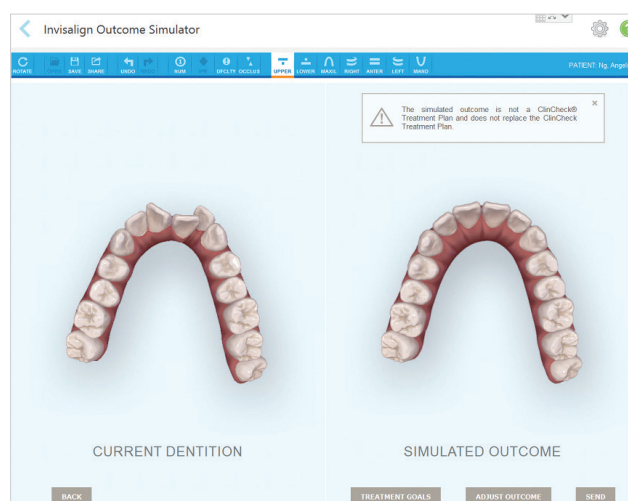


Figure 4



Figure 5

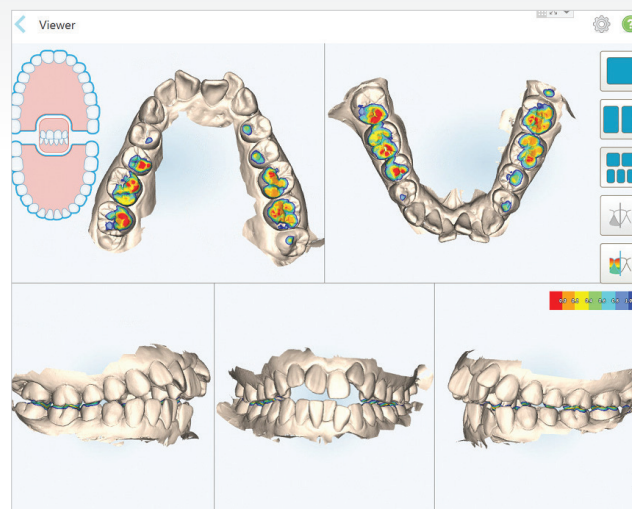


Figure 6

any permanent deterioration as a result of the “bad bite.” However, left untreated we have to postulate how the soft and hard tissue will adapt with time and age. From the dental hygienist’s perspective, it will be more difficult to keep her teeth clean, the various axial inclinations will not be kind to the soft tissue and bone, and the progression of crowding will only intensify Angeline’s lack of self-esteem. The progressive nature of these conditions presents a valid condition for all orthodontic elimination of anterior crowding as an integral part of preventive periodontics.⁴ From the dentist’s perspective, over time pressure primarily on molars will lead to significant irreversible wear, and the crowding increases the chance of decay. The Occlusogram provides an instant relatable

visual to the patient to see areas that are at risk and create awareness for potential prevention plans. Today’s patients seek a customized experience. Leveraging technology helps to make the complicated and sometimes overwhelming diagnosis more manageable and easier to understand.

Angeline completed her clear aligner therapy with 31-Invisalign® aligners.* Utilizing the TimeLapse feature, we can see that although the teeth moved significantly to achieve alignment, there was no detriment to the supporting soft tissue (Figures 7, 8). The best part, we did not only change the teeth, but we also changed a life! Angeline does not have to hide behind her hand any longer to speak or smile. The bite forces were re-distributed to support good future teeth, bone and

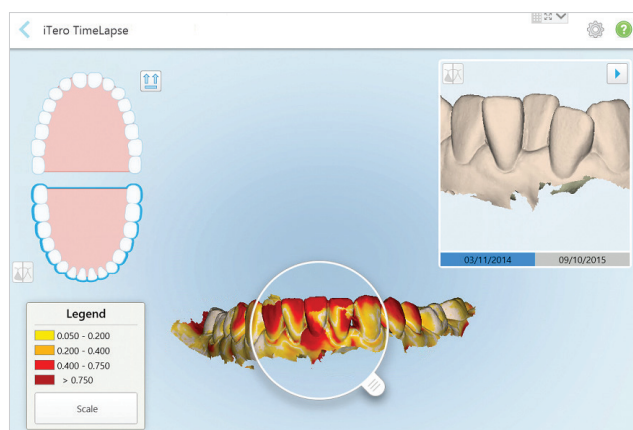


Figure 7

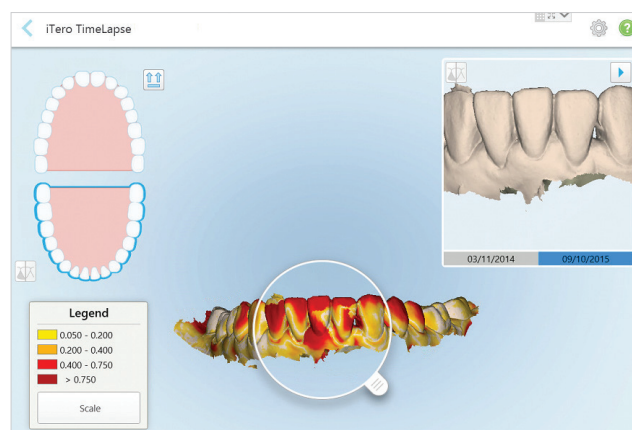


Figure 8



Figure 9



Figure 10

gum health. By correcting the horizontal, vertical and buccal/lingual inclination discrepancies, we have not only created a beautiful smile but a maintainable, healthy one for several decades to come (Figures 9, 10).

A confident, healthy smile has the power to increase overall wellness which we all strive to achieve as dental health professionals. We have the technology available at our fingertips with the iTero Element® scanner to revolutionize dentistry with smile changing technology right now.

References

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4. Abdulwahab, B. Lower Arch Crowding In Relation To Periodontal Disease. MDJ. Volume:5 No.:2, 2008;154-158

* Treatment times may vary depending on case complexity and must be determined by the doctor

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