Integrating 3D Technologies Into My New Patient Exam Process

by David Alpan, DDS

After my formal education ended in 1999, my exam process started with an initial case screening. The patient then scheduled full records and a follow-up consultation. This was a two-appointment process, sometimes three. I saw the value in a one-appointment process to allow patients to start treatment faster. My visual aids were a mirror, typodont, my hands and fingers, or some before-and-after books. But I changed things by incorporating cutting-edge technology into my practice. My visual aids, now, are images on a large flat screen, with a 3D digital scan and image of the teeth and bite. I find this makes for a more precise initial conversation. When I introduced patient images and 3D digital images to my new patient exam process, I found it led to an increase in conversions.

My first introduction to a workable 3D image was ClinCheck. Visualizing a 3D diagnostic setup allowed for more precise treatment planning with increased options to show the patient. This interactive process taught me how my treatment decisions could help to create a better finish. The ability to project the end result before treating the patient was equivalent to a diagnostic set up with no cost and multiple options. I introduced the iTero Intra-oral Digital Impression System for my Invisalign patients in 2012. The treatment simulator was incredible, but required a lot of time at the initial exam for it to be a huge selling tool. We ended up just showing the patient ClinCheck at the second appointment, because it was more representative of the final finish.

3D digital scanners store the image files as an Steriolthography (STL) file, which can be used to manufacture orthodontic appliances. A lab would use this STL file with a stereolithography machine to produce the model for fabricating an appliance. What is stereolithography? It is also known as optical fabrication, photo-solidification, solid free-form fabrication or solid imaging. It is utilized in additive manufacturing or 3D printing technology used for producing models, prototypes, patterns and production parts up one layer at a time by curing a photo-reactive resin with a UV laser or another similar power source.[1]

Currently Ormco, AOA lab, 3M and Align can use a STL file to make orthodontic appliances. Starting from the initial scan, I can create a diagnosis, and a custom treatment plan with Insignia's fully customized indirect brackets, wires and placement trays. The Insignia approver uses the 3D image from the Lythos scan and integrates it into the Insignia approver software. Insignia approver allows for 3D

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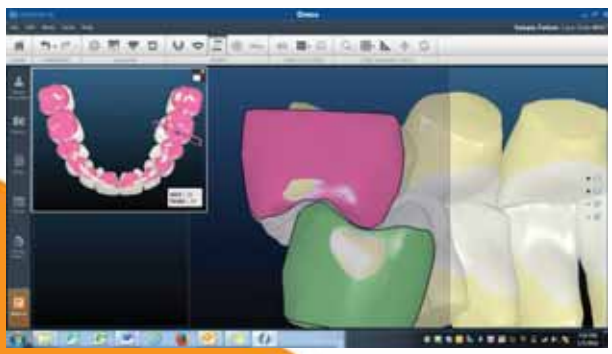
Fig 1. Dr. Alpan showing images to a patient on a flat screen during an initial exam.

Fig 2. Dr. Alpan showing Lythos Scanned image to a patient at the initial exam.

Fig 3. Insignia Advanced Smile Design



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visualization of my proposed treatment plan. The approver has a feature that shows doctors how to control the amount of interproximal and occlusal contact in 3D.

I have found that since we have introduced this technology we are delivering more accurate and precise orthodontic appliances that ultimately reduce treatment time, chairtime and improve the overall comfort and experience for the patient and the team. We love our Lythos Digital Impression system, and incorporating it with Insignia has made for a perfect relationship of technology and clinical improvements.

Fig 4. Dr. Alpan showing a patient ClinCheck at a second consultation.

Our patients prefer to be scanned using Lythos than taking a traditional impression. My Lythos was introduced into my practice in August 2013. We are now scanning all our old study models, our existing and previously treated patients. There is a learning curve for any team or team member when starting a new procedure. Training and consistent practice is the key to becoming efficient with any system. Once trained, our technicians can do intra-oral scans in 10-15 minutes.

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The 3D image is now the hub of our dental data. We can easily diagnose and treatment plan various malocclusions with this accurate 3D model. The combination of Lythos and Insignia has made for a seamless integration into our daily practice. We can construct various orthodontic appliances from this data. As a doctor, I feel it is my job to educate my patients, and 3D images now give me more detail to discuss their existing condition and our proposed future plans. I have found that with the introduction of 3D digital technologies into my exam process, we have increased our conversions. ■

Fig 5. The Lythos Scanner

1. *Wikipedia Definition of Stereolithography*

Have you integrated 3D into your exam process? Visit Orthotown.com/magazine.aspx and comment on this article.

Author's Bio

Dr. David Alpan received a DDS degree and license in California and Nevada in 1996. He earned an Orthodontic Specialty Certificate in 1998 and was awarded an MSD for his research on TMJ. Dr. Alpan founded his private practices, Alpan Orthodontics, in Los Angeles, Beverly Hills and Las Vegas in 1999. He played an integral role for Align Technologies Clinical Education Department, participated as a consultant and was a speaker for six years. Digital orthodontics is his passion, so he has incorporated Lythos/Insignia, Invisalign and Incognito into his daily practice. He spends his free time with his wife, Mary and son, Zephyr. Contact him at dalpan@earthlink.net.