

Advancements in Dentistry

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As medical fields have advanced over time, the technologies used in medicine have been forced to evolve as well. This remains true for dentist and the technology they have used as the profession has changed and grown. As the dental industry has evolved it has seen a lot of change and growth in regard to X-Ray and imaging devices for the mouth. There have also been many new products introduced for general dentist. These products either make their jobs easier in some sense or allow the dentist to be more efficient with a procedure. There has also been the creation of brand-new technologies that have revolutionized how dentistry is practiced. Finally, there has also been advancements in at home care options for patients. Both, more effective treatments, and easier access and use of at home technologies.

Along the lines of X-ray technologies, the use of Digital X-Rays in dentistry has become a very popular practice. Luckily for dentist technology around Digital X-Rays continues to evolve, making it a more efficient imaging technology. Digital X-Rays are efficient for dentist because the image is taken and directly uploaded to computer software for viewing almost immediately. Digital X-Rays are also safer for patients. This is because they contain less radiation than traditional X-Ray. Digital X-Rays are also more useful for dentist because it allows them to zoom or manipulate the X-Ray on the computer, whereas in the past with normal X-Rays they received a 2-D image and that was all. Some new technologies have also emerged in the line of intraoral imaging. For example, the creation of an intraoral camera has provided dentist with an alternative tool for taking pictures of patient's mouths. This emerging tool allows dentist to gain precise and well-defined pictures of hard to see areas of patient's mouths. It also allows dentist to take pictures before, during, and post procedure to explain to their patients what has happened. Two new devices, VELscope and DIAGNOdent are gaining popularity. VELscope is a new special light that dentist shine in a patient's mouth to detect any abnormalities. It is effective in detecting early forms of cancer or disease during an oral screening. DIAGNOdent is a state-

of-the-art device that detects cavities that are hiding in places that regular X-Rays cannot detect. It ensures that a patient's mouth has been thoroughly checked for early signs of cavities ("Top 10 New Technologies in Dentistry"). Lastly, the newest emerging technology revolving around dental imagery is the use of 3D-imaging technology. Technically speaking, it's the use of Cone Beam 3d Imaging. It's a relatively new technique that allows dentist to see clear, detailed, three dimensional images of patient's teeth, bone, and the soft tissues that surround them. The 3D images that are gathered are more precise, more efficient, and more in-depth than traditional imaging techniques. What is nice about these 3D images, is the images can be manipulated on multiple axis to allow various viewing angles. These 3D images can also be marked by dentist with measurements for various procedures, allowing them to be more accurate going in to a procedure than previous imaging technologies ("The Future of Dentistry: Benefits of 3D Dentistry and CBCT Machines").

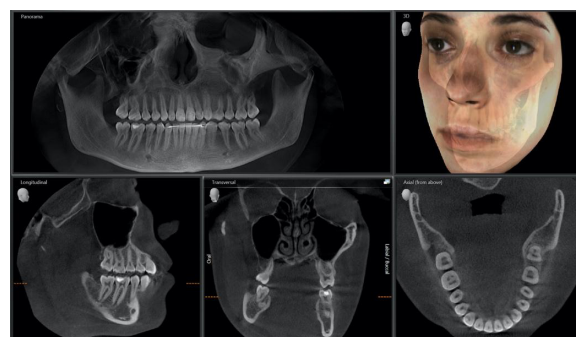


Image 1: 3D Dental Image from Thomas Melanson DDS

Moving on to advancements in General Dentistry. General dentistry has seen the improvement in many things within the industry, as well as the introduction of new technologies. For example, the use of laser dentistry has started to emerge. Laser dentistry is used to improve the efficiency of the dentist, as well as eliminate discomfort in various dental procedures. Some procedures where laser dentistry has been effective include, cavity

fillings, reducing tooth sensitivity, excising tumors from the mouth, and whitening teeth.

Laser dentistry is fast, painless, and can effectively eliminate any form of bacteria during the procedure to help protect against further complications. Also, the emergence of technologies such as Invisalign has changed the tooth straightening game. Products such as Invisalign offer an alternative technique to braces to straighten teeth. Invisalign are clear, nearly invisible mouth guards that slowly adjust and straighten teeth. These products tend to be more comfortable for patients, and also much more affordable. Dentistry has also seen great improvements in the field of oral surgery in terms of dental implants. Dental implants are screw replacements for the root portion of missing teeth. Dental implants can be used to replace missing teeth as well as full sets of dentures. As technologies in dental implants have improved, so have the success rates of implant procedures, making them a viable option for many patients ("Top 10 New Technologies in Dentistry"). A new and patient friendly technique has emerged for applying anesthesia for dentistry. It is known as Comfort-In and is a versatile needle free injection system for numbing medicine in the mouth. This product is great for patients who are scared of needles or can't stand the pain of needle injections in the mouth. This allows dentist to be more efficient in numbing patients and saves them time in the long run ("Needle Free Dental Injections"). Finally, the use of robotics has started to emerge in the dental profession. The Yomi Robotic System was used in China to complete a dental implant procedure. Yomi is the first and only FDA-cleared robotic device for dental implant surgery. It provides haptic robot guidance to augment the clinical expertise of skilled implant dentist and deliver repeatable precision ("Yomi Robotic System for dental implant surgery: Neocis Inc").



Image 2: Comfort-In Needle Anesthesia Injection from Needle Free Dental Injections



Image 3: Yomi Dental Implant Procedure Robot (Parmar 2017)

Lastly, two new products have emerged for in home use by patients. Zoom! Whitening and HealOzone. These two products have started to grow in popularity and allows patients to see changes in their own home. Zoom! Whitening is a new state of the art whitening treatment. It provides patients with fast and easy results. Often requires only one use to see a noticeable change in tooth color. It serves as a useful alternative of visiting your dentist in office for whitening treatments. HealOzone is a new at home product that is a fast, easy, and painless way to eliminate tooth decay. The product contains ozone O₃, which is a common natural gas that effectively kills bacteria and fungus. It serves as a great tool to detect and get rid of any early signs of tooth decay before it progresses to more advanced stage and a visit to your dentist is necessary ("Top 10 New Technologies in Dentistry").

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