

Advances in Dental Technologies Aids Patients in Improving Quality of Life

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Abstract: Once in a while, new innovations emerge in the world of restorative dentistry. The emergence of new bonding agents, dental liners and bases, and adaptive capabilities of components offer new opportunities. Dental liner materials have improved tremendously over the last few years. They are applied in a thin layer to seal the walls of the cavity or minimize the influx of bacteria following restorative procedures. On the other hand, dental bases are applied in thick layers and support a restorative material during the placement as well as function. The dental liners and bases are widely used to improve the outcome of dental caries treatment and several dental restoration procedures. Apart from this, dental technology has improved a lot over the last few years and will continue to advance the field and benefit patients and healthcare professionals alike. While Covid-19 presented various uncertainties during the pandemic, it is safe to say that the pandemic increased patient awareness about safety measures and sanitation, which will boost the demand for dental technologies. Here are some of the dental technologies which will be a big hit in the coming years.

Keywords: restorative dentistry, dental liners, pandemic.

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Dental implants and Robotics

There is a variety of dental implants available in the market including subperiosteal implants, endosteal implants, implant overdentures, all-on-4 dental implants, and implant-supported bridges. While these implants have been improving the standard of life of the patient, the most highlighting part is the use of robotics in implantation. It is expected that healthcare professionals will get assistance from robots in the future.

Robotics has entered also every sector across the globe and has been proven to be effective as assistance to chefs, factory workers, and even surgeons. Now, robotics will enter dentistry to assist and improve physicians' knowledge. While it is quite difficult to entirely replace dentists, physicians will experience improved surgical results with the aid of robotic technologies.

With the help of robotics, physicians will get improved accuracy, workflows, precision, and results for patients. The demand for dental implants has increased and although the success rate of dental implants is great, there are some inherent risks. There are always the risks of implant failure and nerve damage which can occur during or after the surgery. This is where robotics can come into the picture. Robotics and navigational surgery technology can help healthcare professionals in boosting the success rate of dental implants and guide the surgeons throughout the procedure with improved precision and consistency.

Dentistry is a science to help patients lead better life. Thus, tools such as robotics can help physicians deliver better results, and their demand is bound to increase in the coming years, especially when it comes to complex dental procedures and dental implants.

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Digital X-Rays

Medical x-rays are nothing new but they have come a long way since their invention. Compared to traditional x-rays, digital x-rays are definitely an upgrade. The digital dental x-rays are similar but expose patients to less radiation. Moreover, the images go straight to the computer where healthcare professionals can look at them instantly. More importantly, dentists can pull them up on the computer and examine the target areas more closely, even the areas inside and below the tooth that would otherwise not be visible.

Digital dental x-rays can be extraoral or intraoral. Thus, it helps in identifying any decay around the tooth and whether there is a need for crowning or filling. Today, patients can get bite-wing or periapical x-rays. A bite-wing x-ray offers a snapshot of a specific area when you bite down and periapical x-rays show the entire tooth and bone surrounding the tooth for any bone loss or abscesses due to gum disease.

On the other hand, extraoral x-rays help capture photos of all teeth and help assess jaw issues, wisdom teeth, or dental implants. This technology has improved tremendously and will continue to evolve, offering dentists more insights regarding teeth and gum issues.

Dental liners and Bases

According to Allied Market Research, the global dental liners and bases market is expected to reach \$1.99 billion by 2030, growing at a CAGR of 4.1% from 2021 to 2030. The use of dental liners and bases has changed. At first, their use was limited only after the placement of final dental restoration to protect tooth and pulp. However, over the years, the applications of dental liners and bases have improved and their toxic effects are minimized. They are necessary to minimize the risk of bacterial infection after the procedure and limit postoperative pulpal inflammation.

The materials of dental liners, bases, and cement are constantly improving and changing. New formulae come into the light depending upon the need of the procedure. Thus, one must consult their doctors regarding the chemical makeup of the liners and bases and choose the most suitable post-operation.

The current formulations of dental liners and bases are effective and offer a stronger bond to the dentin compared to traditional glass ionomers, which led to leakage under the composite. However, the new, improved liners and base products seal the tooth and bond strongly to the restoration, which

ultimately reduces the incidence of microleakage between tooth and restoration.

There are varieties of liners and bases, in different forms and delivery systems. Several manufacturers offer the dispensing option which helps reduce preparation time. On the other hand, some materials can be mixed beforehand to offer consistency and the same chemical makeup during every use.

A proper dental restoration using advanced liners and bases prevents leakage underneath the restoration, which eliminates the risk of bacterial infection. Moreover, the uptake of fluoride by tooth tissue led to the reduction of artificial root surface caries.

LED light for teeth whitening

Teeth whitening has been an important aspect for patients. There are already various ways to whiten the teeth including using certain toothpaste to seeking the help of dentists. Now, there are LED technology-based teeth whitening procedures available that eliminate the need for potentially painful procedures and inconsistent results. Moreover, these procedures do not need the use of hydrogen peroxide, which can hamper the health of the teeth. Such teeth whitening procedures will gain popularity in the coming years as the results are better than the conventional ways.

Intraoral Scanner

Sometimes, only a dental x-ray is not enough to understand the health of the teeth. Thus, healthcare professionals seek intraoral scanner, which has improved tremendously over the last few years.

For years, dentists had to ask patients to bite into a tray filled with disgusting material which was gag-inducing. However, the intraoral scanner completely eliminates the need for such impressions as the device can scan a patient's mouth to create a digital impression. The procedure is pain-free and quick and helps in dental restoration surgeries. Moreover, it can help patients to understand how their teeth will look after dental implants, braces, or any other restorative dental procedure they aim to have.

CONCLUSION

The fields of medicine and technology have been evolving at a rapid pace. For any dental professional, it is important to give the best possible care to the patient as the health of the teeth directly impacts the quality of life. The help of novel dental technology is a vital part of offering better care. Thus, it is important to stay informed about the

latest trends, innovations, and updates in dental technologies. For patients, it is tough to understand the pros and cons of all dental procedures. However, such innovations keep them updated regarding the options they have when it comes to routine cleanings, teeth whitening, dental implants, and orthodontia.

Author's Bio

Swamini Kulkarni holds a bachelor's degree in Instrumentation and control engineering from Pune University and works as a content writer at

Allied Market Research. She is deeply fascinated by the impact of technology on human life and loves to talk about science and mythology. When she is not glued to the computer, she loves to read, travel and daydream about her areas of interest.

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