GO AHEAD AND SMILE
FREE DENTAL REPORT SERIES:

HOW TECHNOLOGY PROVIDES VALUE & COMFORT TO DENTISTRY

A Consumer's Guide To Quality Dental Care

Provided By:

SERENITY DENTAL
GO AHEAD AND SMILE

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INTRODUCTION

New technology offers the dentist powerful tools to diagnose and treat various dental problems earlier and with virtually no discomfort to the patient. Similar advances in medicine have occurred with MRI (Magnetic Resonance Imaging) and CT Scan (Computer Tomography) that pushed technology far beyond various conventional x-rays. Although conventional x-rays are much less expensive, it is obvious that the educated consumer would choose the newer technology, MRI or CT Scan, to diagnose a serious aliment, such as a brain tumor.

Choosing newer technology to diagnose and treat oral health problems or for cosmetic procedures should be no different than choosing a CT Scan over an x-ray. The advantages of technology becomes clear when the patient understands the significant advances in the dental field, such as the laser caries detector, digital computerized x-rays, computer-assisted anesthetic machines, computer driven education systems, soft-tissue lasers, advances in dental materials, and many more high-tech tools that will be discussed later in this report.

Modern dental technology allows for early diagnosis and treatment, which in turn creates value. The sooner cavities can be detected, for instance, the smaller the filling will have to be to remove the cavities. The smaller the filling, the minimal the cost and the longer it will last. This provides the best overall value to the patient.

HISTORY OF DENTAL TECHNOLOGY

Man has been making dental restorations for health and beauty from as early as the 7th century when the Chinese used "silver paste" containing mercury to fill decayed teeth. The Etruscans—people from the ancient country of Etruria in western Italy—made skillfully designed false teeth out of ivory and bone, secured by gold bridgework, as early as 700 B.C. Unfortunately, this level of sophistication was not recaptured until the 1800s.

1850's Dental Tools

By the 1850's, more skill and time was required to satisfy an increasingly more demanding public. Dentists developed reputations as skilled craftsmen. An evolution occurred where dentists, machinists, and goldsmiths, worked together in an increasingly defined separate industry. The demand for specialized technicians grew, and more and more individuals entered the field directly, trained by existing technicians.

The advent of computer technology in the 21st century has continued to revolutionize dentistry in many ways. Due to technological advancements from computer controlled anesthesia to Web-based patient education systems, the patient is not only more comfortable visiting the modern dentist, but also more empowered with knowledge of their own oral health. The more the patient learns, the more they are motivated to make anticipatory necessary behavioral changes. Without those changes, the patient will never be on a path toward prevention.

MODERN TECHNOLOGY:

COMPUTER CONTROLLED ANESTHESIA

Computer controlled local anesthesia, like the WAND (Compudent), allows the administration of injections with virtually no discomfort. The needle injection is one of the most feared parts of dentistry with over half of all patients showing apprehension toward the often-painful procedure.

The WAND administers the flow and volume of anesthetic and assures it is delivered slowly, below the pain threshold. The system even places a drop of anesthetic at the site of injection, preparing an anesthetized pathway.

The Wand: Computer Controlled Local Anesthesia

AIR ABRASION

Another exciting technological breakthrough is air-abrasion. Air-abrasion allows the preparing of teeth for fillings without the need for anesthesia or a drill, again eliminating another common fear of seeing the dentist.

The device uses high airflow combined with small particles to remove decay without using conventional anesthetic or drill. Fillings are much smaller; therefore, they last longer and are of a better value.

Air Abrasion

LASER TECHNOLOGY

Laser technology has emerged having a tremendous impact on how dentistry is performed. Lasers are an effective new technology that allows faster work completion and provides more precise control during procedures. Those treatments would include cosmetic gum recontouring, periodontal treatment and other gum related surgeries. The result is faster healing and considerably less discomfort for the patient.

DIAGNOdent Laser

Lasers can now detect cavities long before the stick of the explorer or seen on x-ray. The Diagnodent, an ADA approved device, changed the diagnostic paradigm of many dental practices. This low-level laser device conducts a quick, painless, and highly accurate tooth decay diagnosis. Because the Diagnodent helps find decay early in its development, more extensive damage can be prevented resulting in smaller and less costly restorations, and more of the natural healthy tooth can be preserved.

ELECTRONIC RECORDS

The patient chart has always been a roadmap for a patient's care, and electronic dental records have also helped revolutionize dentistry. The dentist and staff can store all records, including images, directly to a database for instant retrieval.

Electronic Records

Many charting systems allow mapping and archiving existing conditions, completed dental work, and recommended treatments, as well as the ability to attach images to the chart. Often, a separate window can be used by the dentist to view the radiograph, images, notes, and letters from specialists, laboratory sheets and anything else that may be pertinent to a patient's dental work. Treatment planning can be done from the chart and the chart can automatically change to reflect completed work. Profoundly efficient, this system allows for a traditional patient chart to be displayed or printed.

DIGITAL PHOTOGRAPHY

Digital photography has enhanced traditional clinical examinations by providing the dentist detailed and close-up views of the oral health of the patient. Digital photos are often taken in a series to give a complete oral view for the dentist and patients alike.

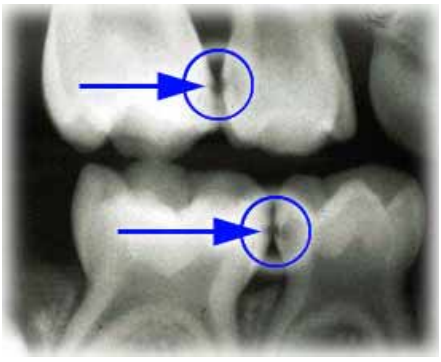
The dentist can also use an intraoral camera to show real-time images on the computer monitor to locate and explain the patient's condition. An intraoral camera is an indispensable diagnostic and educational tool. The tiny device is a video camera that explores the inside of the mouth and generates a tooth-by-tooth video exam. The images can be stored, and later enlarged and printed. This digital documentation of the teeth allows for the dentist to build a comprehensive patient profile. The intraoral camera is a great patient education tool and allows the patient to be actively involved in his or her own treatment decisions.

Intraoral Camera

DIGITAL RADIOGRAPHY

Digital radiography is the cornerstone of the digital clinical record because it allows images to appear to the dentist in various formats. It is a computer-assisted system that uses up to 90% less radiation than traditional x-rays.

With the format being digital, the dentist can instantaneously enhance and magnify images with software. The dentist can compare images to previous radiographs for help in diagnostics. Simultaneously, the patient's knowledge base is enhanced through easily viewed images on the



Digital Radiography

computer monitor, while taking advantage of a patient's time since the dentist can review findings quickly and directly with the patient. So there is the added value of time and education.

The orthopantomograph is often used to take a full-mouth x-ray of the entire jaw structure. This technical marvel will locate cysts, jaw fractures, cancerous lesions and other abnormalities of the bone and tissues in and around the oral cavity that the smaller routine x-ray could never see. By detecting abnormalities early, the patient faces minimal discomfort and significant cost reduction overall than if a condition goes undiagnosed and untreated.

Orthopantomograph

CEREC-CAD/CAM

CEREC Restorations are the latest form of porcelain restorations being made by utilizing a new technology called CAD-CAM (Computerized Assisted Design- Computerized Assisted Milled).

The CEREC system dates back to about 1985 when Dr. Werner Mormann marketed his dental CAD-CIM machine with Siemens Dental. Since that time the CEREC system has survived several overhauls and critics to become the premiere dental CAD/CAM device sold anywhere in the world

today. There are many reasons for this, but the simplest being that the system works and it's fast.

The CEREC system's advantage is not that it does restorations better than conventional impression and laboratory made restorations, but rather that the process of milling is done in the office eliminating the need for a second appointment and reducing wait time. This technology is very promising and will be something to watch as other issues are resolved.

EDUCATIONAL SYSTEMS

Some technologically savvy practitioners will have Web-based patient educational systems. These state-of-the-art continuing education systems allow the patient to be informed in every aspect of dental care. This can be a valuable and efficient resource for drawings, models, and photographs and can cover multiple procedures in formats that a layperson can understand.

Knowledge is power and these educational systems allow the patient to make the best and most informed decision possible. Education is the only real hope of allowing patients to make the necessary behavior changes that allow the patient to prevent rather than treat. Education is also the most effective way to control patients' costs early. Knowledge is necessary and made possible by these educational systems.

STERILIZATION CENTERS

Sterilization Center

A sterilization center is engineered to make proper sterilization technique an absolute certainty. Third party monitors are essential for verification and absolute assurance that all instruments are completely sterile. These certified third parties should monitor the sterilization center monthly. Also, for pure water, some practices use DentaPure and point of source water filtering systems to supply fresh, pure water through the dental equipment for each patient.

A detail like a sterilization center in the modern dentist office provides value to the patient in many intangible ways. Taking the extra steps to help prevent patients from infections helps ensure that the patient has little to no down time due to illness.

MERCURY-FREE FILLINGS

This is a controversial subject due to the fact that two government agencies have different views on the subject. The Environmental Protection Agency mandates that dentists no longer throw the old leftover silver mercury filling, or amalgam, away in the trash. Dentists have to treat it as a toxic material putting the left over material in a special sealed container and secure a biohazard company to pick it up for proper disposal.

The American Dental Association, on the other hand, still approves the usage of silver mercury filling materials. If it is not safe for our land fills how can it be safe for our mouths?

Mercury for use in fillings is from the dark ages. Mercury is one of the most toxic substances known to man and is a cumulative poison, which may only result in symptoms becoming apparent after many years.

Dental technology has discovered new materials, such as glass ionomers, quartz resins, and better ceramics that are far more appropriate for use in patients. These materials are not only more attractive and natural looking, but also the overall costs saved by possibly preventing adverse health effects are priceless.

Mercury is the cheapest material for filling use. Similarly, lead-based paints are pretty cheap, but no one would want to paint their rooms with it.

MAGNIFICATION

Magnification Loupes

The use of magnification glasses, or surgical loupes, allows the doctor to see three times larger than normal. The advantage of magnification allows the dentist to provide a much higher level of dental care and allows the dentist to see what might have otherwise been missed with normal vision.

MULTI-MEDIA PRACTICES

Not only do some dental practices take full use of technology to provide a more pleasant at-home atmosphere, such as satellite programming, DVDs, large screen plasma TVs, computer monitors, but also the multi-media technology helps to better educate patients as well as facilitate relaxation during dental treatment. Often, this is the technology that is most centric for comfort from the patient's point of view.

CONCLUSION

Technology has undoubtedly helped with the diagnosis and treatment of dental health and has made the modern dentist more accurate and efficient. The patient is also more comfortable and more educated than ever before.

As explained in this document, electronic dental records have helped revolutionize dentistry by allowing the dentist and staff to store all records, including images, directly to a database for instant retrieval. Digital photography has helped the clinical examination by providing the dentist detailed and close-up views of the oral health of the patient, as with the use of an intraoral camera.

Digital radiography is the cornerstone of the digital clinical record and uses up to 90% less radiation than traditional x-rays. A sophisticated tool called the Orthopantomograph is used to locate cysts, jaw fractures, cancerous lesions and other abnormalities of the bone and tissues in and around the oral cavity.

Lasers are an effective new technology that allows work to be completed faster and with more precise control over procedures, resulting in faster healing and much less discomfort to the patient. The Diagnodent laser is a device that conducts a quick, comfortable, and highly accurate tooth decay diagnosis.

Computer controlled local anesthesia allows the administration of injections with little to no discomfort, which abates the fear of needle injections for the patient. Air-abrasion allows the preparing of teeth for fillings without the need for a drill, again eliminating another common fear of seeing the dentist.

Knowledge is power and educational systems allow for the patient to better make informed decisions. Education is the only real hope of allowing patients to make the necessary behavior changes that allow the patient to prevent rather than treat. Education is also the only way to control patients' costs early.

A sterilization center, water purifier, and magnification are also important new tools in dentistry. Often, multi-media practices also help with the patients overall comfort.

With the help of technology, dentists are able to deliver treatment virtually without pain or discomfort and provide a higher-quality and more conservative restoration that will last longer and, therefore, be a better long-term value.

A WORD FROM THE DOCTOR

Dear Reader:

Thank you for requesting this article. Finding a dental office that uses more of what modern technology can offer is not the only way to grade your dental office but it does offer you a great benchmark.

There is another article, *10 Questions You Must Ask Before Choosing a Dentist*, that can be requested at our Web site, www.goaheadandsmile.com, that can give you a greater understanding of the questions (and answers) that will allow you to find the right dental team for you.

I hope you have found this article informative. Please keep it on file for your reference, or pass it along to a friend. Any comments or additional questions can be forwarded to drt@goaheadandsmile.com.

Hoping The Best For You And Your Family,

Dr. Ed Trizzino

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