# Using Visual Technology for Case Presentation

The most direct path to treatment acceptance is hastened using visual technology.

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Case presentations that use visual technology can become the integral component of success for the modern day practice. Our patients must be able to clearly see their existing conditions, understand treatment recommendations, and visualize the anticipated results before they can accept and approve treatment.

Historically, dentists have used complicated dental terminology, x-rays, and study models to communicate a proposed treatment plan. Patients were expected to accept recommendations without being able to visualize the anticipated results. Patients often left the dental office confused about treatment recommendations and uncertain about the final outcome.

The most important aspect of case presentation is the ability to clearly communicate the treatment goals to the patient in a manner that will help them make a decision toward treatment acceptance. The most direct path to treatment acceptance is hastened using visual technology. The use of digital photography, upgraded display monitors, and computer imaging can create dramatic case presentations that will result in scheduled appointments for needed treatment. There is nothing more revealing than a close-up view of your own teeth or a full-face view of your own smile. Using this new format of case presentation, patients will become engaged in a co-diagnosis type of conversation and they will begin to ask for treatment. Clinicians can avoid most sales tactics and rehearsed scripts once the patient sees their case presentation with their own eyes. They see the existing condition of their teeth and the image of the anticipated result. This creates immediate desire and answers many of their concerns that had been getting in the way of case acceptance.

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## Digital Camera Systems

The evolution of digital photography has been rapid; it is now the mainstream for even the most discriminating professional photographer. The author remembers using a 3.0 megapixel camera as recently as 2002 for computer imaging. He was always less than impressed with the resolution and relied on 35-mm slides for lectures and marketing use. Many manufacturers now offer cameras that can capture 12.0 to 14.0 megapixels of information in the blink of an eye. This article will discuss a few basic features that should be considered as this technology relates to case presentation.

The first and foremost would be to invest in a "through the lens" (TTL) camera body. Examples of these include the Nikon D-90 (Nikon Inc, www.nikonusa.com) and the Canon EOS 50D (Canon Inc, www.usa.canon.com) (Figure 1 and Figure 2). Both of these cameras feature a 3" monitor. The Canon EOS 50D has a 22.3 mm x 14.9 mm sensor that captures 15.1 megapixels. The Nikon D90 has a 15.8 x 23.6 mm sensor that captures 12.3 effective megapixels. An ISO setting of 200 and a large image file (fine) should be used. These cameras are user-friendly and can capture more than enough detail for the dental case presentation.

The next component to consider is a good quality macro lens coupled to a dedicated flash. A ring flash or side-by-side flash is best for close-up dental shots, while moving the flash away from the lens is desired for portrait photography. The author uses the Nikkor 105-mm lens (Nikon Inc) with a removable ring-flash coupled with the Nikon D-90 (Figure 3). There are several resources available for more information on these systems, such as National Camera Company, Clini Pix, Dental Learning Center, Norman Camera, PhotoMed, and Lester Dine.

It is recommended to shoot dental photographs in the aperture priority mode so that the shutter speed will be adjusted by the camera. The focal




FIG. 1


FIG. 2

**TTL CAMERA BODIES (1. & 2.)** The Nikon D-90 and Canon EOS 50D TTL cameras.

length also can be set using the lens ratios so that all photographs will have the same basic dimensions. Using the appropriate f-stop will provide an adequate depth of field (the closer the shot, the higher the f-stop). The following are some basic camera settings:

- Setting for portrait: 1:12/f-stop, 13/flash on high power away from the lens
- Setting for close-up: 1:2.5/f-stop, 32/1/4 power ring flash to lens

> "There is nothing more revealing than a close up view of your own teeth or a full-face view of your own smile."

## Upgraded Monitors

Plasma technology was popular for a few years but has lost its appeal because of burn in. LCD screens have now become the gold standard for high-quality resolution. The greatest "wow" effect can be achieved using the newer widescreen format technology. The 16:10 aspect ratio can accommodate up to 2,560 x 1,600 pixels. The author uses a 32" Samsung monitor. It makes sense to invest in a high-grade monitor for dramatic case presentation. The monitor cable is also a key component in high-quality resolution. The older style VGA (HD 15) cables cannot support resolutions above 1,024 x 768. Either an HDMI or DVI cable must be run to send native resolution up to the full potential of an upgraded monitor.

The next component to ensure maximum resolution is the video card inside the computer. Many of the traditional video cards will not support the 16:10 aspect ratio and do not have DVI outputs for a digital signal. If the computer does not have an upgraded video card with DVI outputs, an upgraded monitor will be useless. Most consultation rooms will allow a viewing distance of 3 to 6 feet from the monitor to the patient. This distance will be best suited by a 26" to 32" inch monitor. Greater distances can be served by larger monitors (Figure 4).

## Computer Imaging Software

The final piece of this technology puzzle is arguably the most important of all. The author has seen the evolution of computer imaging since 1986. His first imaging system, purchased in 1987, used a professional-grade video camera, umbrella shielded lighting, and a digitizer pad. The system required laborious drawing motions and complex software tools to achieve a less than natural-looking image. Each image took more than 40 minutes to complete and could not be easily delegated to staff members. The author found these limitations too difficult to image very many patients per week. This newfound technology was effective for case acceptance, but it required too much non-clinical time to be cost-effective.

The second generation of computer imaging software came along in the early 1990s (ie, Image FX; DICOM, PracticeWorks, www.practiceworks.com; ViperSoft®, Integra Medical Systems, www.vipersoft.com; and Dentrix Image®, Dentrix Dental Systems, www.dentrix.com). These systems had much more user-friendly software that could be used by a trained staff member. They introduced the concept of a smile library to quickly overlay a completed smile onto the preoperative photograph. This was a major step forward: a more realistic image could be delivered in about 20 minutes.

This technology was effective in the author's practice for several years but, in his opinion, it sometimes lacked anatomical correctness. The author felt that the weakest link was the early digital cameras that only captured 2.0 megapixels; the digital camera technology currently available has obviated this issue.

The Envision A Smile software (www.envisonasmile.com) is now the author's personal choice for its ease of use and anatomically correct images. This software company has innovative techniques to image both frontal and lateral views. These images also can be done in about 15 minutes using a versatile smile library. The author now provides artistic consultation only for the image during the process to be sure that the image portrays the desired result and that it can be achieved clinically.

Stand-alone programs which allow the doctor to integrate the art form of cosmetic imaging into the office are available. Visora (CIEOS, www.cieos.com), DICOM, and Envision A Smile


FIG. 3

FIG. 4

**LENSES AND MONITORS (3.)** Nikkor 105-mm lens with removable ring-flash coupled with the Nikon D-90 camera body. **(4.)** A viewing distance of 3 to 6 feet will be best suited by a 26" to 32" inch monitor.

are a few that this author is aware of. Incorporating imaging into your practice to promote the possibilities to your patients of what they can look like provides many advantages to the development of the cosmetically directed practice. The obvious advantage is case acceptance of more esthetic/functional cases. Providing a means for staff growth and esteem also is important. Delegating this art form to a staff member allows them to expand their knowledge, abilities, and productivity within the practice. As they become better and more fulfilled, so does the quality and productivity of the practice.

Cosmetic imaging can also be done through imaging services. Envision A Smile, Smile Vision (smilevision.net), SmilePix (www.smilepix.com), and youreasysmile.com provide a service which enables the doctor to send photographs to be imaged on a per-photo basis. The photographs are typically e-mailed to the service and a fee is accessed for that service. Advantages to this are limited. The doctor does not have a hand in the design of the imaging, which is a tremendous advantage when imaging is done within the office. Additionally, not all imaging services provide frontal 1:2 and lateral 1:2 smile views. Often they are limited to just the full-face view. These additional views are significant in communication with the patient and can impact case acceptance.

## Conclusion

The author's observation of computer imaging technology over the last 22 years has led to his conclusion that it is prudent to offer this visual type of case presentation for increased case acceptance. It is surprising that this art form is not used more often by dentists performing cosmetic and restorative procedures. A better informed and educated patient results in greater trust. Anatomically correct computer-generated imaging clearly communicates the possibilities to the patient and significantly impacts case acceptance and esthetic case predictability which, in the end, is the goal.