

# Create a Bridge of Trust Between You & Your Patients



*Using digital photography  
in patient communication*

By Robert D. Shorey, DDS

*Digital imaging can be a  
powerful communication  
tool to help create a bridge  
of trust between you and  
your patients that supports  
your verbal communication.*

Human beings are incredibly visual. Nearly half the human brain is dedicated to interpreting visual information. “Seeing is believing” is a metaphor that has stood the test of time as a testament to the persuasive power of visual communication. Most dentists understand trust is a vital part of providing quality care to our patients; a foundation for trust is connecting with your patients through unambiguous and honest communication. Digital-clinical photography is clear and understandable communication that can help dentists better connect with their patients. Using digital photography during your new patient examination will support your clinical findings discussion.

You don’t need special proprietary software to make digital photography an integral part of your daily practice of dentistry. Windows XP, more than previous PC operating system platforms, has been optimized for digital photography. The ability to efficiently import images from your digital camera, store and view those images is easily accomplished without special software. Current digital SLR (single-lens reflex) Macro Photography cameras are now an affordable adjunctive tool for your clinical diagnosis. The information gained through the use of clinical photography may prove to be as important for diagnosis and communication as study models and dental radiography.

Oral imaging is not a completely new concept. Since the 1980s, intraoral videocams and close-up Polaroid photos have been

used to reveal the condition of teeth during a patient’s dental visit. The intraoral video systems are generally awkward to maneuver and the close-up nature of these images is often confusing to the patient. Moreover, many patients have difficulty understanding the orientation of the viewed image in the mouth and usually don’t want you to produce further images that will no doubt show other problem sites. The digital SLR camera with macro-lens is a powerful alternative to intraoral videocams. The digital SLR lens allows a greater panoramic view (i.e. full arch) of the oral cavity with clarity and high resolution helping your patient understand the anatomy and orientation of the subject area. The high resolution allows you to considerably magnify images to achieve a close-up view for further illustration.

What is different about clinical digital photography compared to the commonly used intraoral videocams? Some advantages to clinical photography over videocam imaging:

1. Higher resolution; and therefore, greater image definition than videocams.
2. With appropriately composed clinical images the digital clinical image provides easier-to-understand patient orientation of the teeth being viewed. The full-dental-arch image can be viewed in total, and then magnified for closer viewing and details. Viewing teeth in the mouth becomes an *easy-to-read road map* for most patients.
3. Portability to multiple treatment rooms is equal or better than intraoral videocams.

4. Images can be easily imported into most dental software or computer file folders using an USB (universal serial bus) port connection or memory card reader.
5. The cost of a quality digital SLR with Macro Lens and Ring Flash is generally half of a typical intraoral videocam system.

Here are some disadvantages to clinical photography compared to intraoral videocams:

1. You need computers in the examination operatories to take full advantage of efficiently viewing digital images.
2. You must learn how to acquire intraoral photographs using photographic dental mirrors, appropriate lens magnification and proper lighting.
3. The camera body may be cumbersome for small-framed dental assistants and dentists.

Utilizing the American Academy of Cosmetic Dentistry standards for clinical photography is one of the most ideal systematic methods of acquiring clinical images. If you wish to limit your time gathering clinical images, using three popular views from the AACD photography regimen can impart a mountain of useful clinical information for patient and dentist discussion of clinical findings. I recommend using the upper occlusal, lower occlusal and anterior views as a good starting regimen.

The efficiency of making dental photography a regular part of your daily clinical routine requires practice. Here are some tips that may help to make things more efficient. Have staff members practice on each other until an efficient routine is established. Use *two cameras* so that you don't have to make substantial changes in your camera shutter speed and aperture settings during your photography shoots. I use one (less expensive) camera set to its automatic setting for my portrait (full facial) views of my patients. You can use a good-quality, box-style camera (4 MegaPixel or greater) or a good quality prosumer, which means a quality between "professional" and "consumer," (permanently attached lens) digital camera for these photographs. Sufficient lighting in your operatory will be necessary; plus the use of a blue or black flat finish background (placed behind the patient) to produce quality photographs without heavy shadows and dental equipment showing in the portrait images. My sec-

ond camera is a Digital SLR with Macro Lens and ring flash. Fuji, Nikon and Canon are top providers of these cameras. Dental macro photography requires a 90 to 105 mm macro lens.

Some prosumer cameras have been specifically outfitted by dental specialty companies to also shoot intraoral clinical photography. The main advantage to a Digital SLR camera over the prosumer digital cameras is the greater depth of field that can be achieved with the Digital SLR lens systems. Most prosumer cameras have limited f-Stop (aperture) settings. A limited f-Stop is not generally a problem for regular distance and facial photography; however, with a limited aperture setting for close-up macro photography the subject tooth may be in perfect focus while the teeth behind and in front of the subject quickly drop out of focus. A digital SLR will provide an f-Stop of 28-32, which allows for the proper depth-of-field focus needed for intraoral close-up images. This means the teeth at both the front and the back of the mouth will be in focus.

Our office staff will generally take a clinical photographic series during adult new-patient examinations. We set aside about an hour and a half to provide visual charting of the restorative, occlusion and joint-function, oral-cancer screening and periodontal findings; as well as take a complete series of radiographs. The last step of our examination process is the clinical photograph series. During the examination process we promise our patients we will turn our dental charting jargon into regular plain English as we review their dental photographic images.

To share our clinical digital photos our office uses a wall-mounted computer monitor for patient viewing while he/she is reposed in our examination operator. This arrangement allows us to gather clinical information including digital photos and share some of our findings with our patients using the three predominant clinical views. The occlusal views allow us to provide a tour of our patient's mouth like an oral road map review of our clinical findings. A brief discussion of anatomic orientation sets the stage for a complete visual discussion. It is difficult to impossible for our patients to ignore the close relationships that make up the comprehensive nature of oral health. The concept that only one tooth has a problem is less distinct while

## Process Sequence



SLR camera, lip retractors and photographic mirrors.



Doctor and assistant taking occlusal image of patient's teeth.



Transfer images to computer using CF card reader.



Move images into patient image file folder.



Review images with patient using WinXP Image Viewer.

continued on page 50



### Equipment Needed:

- Digital SLR equipped with Macro Lens and Ring Flash
- Lip retractors
- Intraoral photographic mirrors
- Microsoft Win XP Professional (Multimedia Edition or Home Edition)
- Windows XP with XP Image Viewer
- Digital memory card reader or USB port
- Monitor mounted conveniently for patient and doctor viewing



### Recommendations for Clinical Photography

#### Digital SLR Camera

- Canon 20D, 30D, Digital Rebel, Digital Rebel XT with 100mm macro lens and 14EX Flash system
- Nikon D70, Nikon D50 with Nikkor 105 mm Macro and Nikon R1 ring flash or SB29 TTL ring flash
- Fuji S2 or Fuji S3 Pro 105 mm Macro and Nikon SB29 TTL ring flash

#### Prosumer Camera

(for secondary portrait camera):

- Canon PowerShot G6, Canon PowerShot Pro1
- Konica Minolta Dimage Z5
- Sony Cyber-Shot DSC-H1

#### Box Camera

(for secondary portrait camera):

- Nikon CoolPix 5600



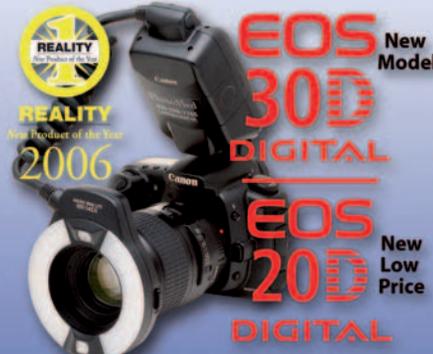
### Tips I've Learned the Hard Way

- Digital SLR Camera – The photographic mirrors used in digital clinical photography scratch easily when rubbed with most soft cloths or paper towels. Purchase micro-fiber towels from an automotive store or Costco to wipe your mirrors – they are non-abrasive and will polish the mirrors and camera lens without making scratches.
- Presentation Tip Pearl –When using the operatory monitor to display an intraoral image the use of your mouse pointer is adequate, but you can enlarge your mouse pointer size using windows “system settings” or you can use a separate laser pointer for greater emphasis.

continued on page 52

# Beyond Film

## PhotoMed/Canon Dental Cameras



**PhotoMed**  
INTERNATIONAL

800-998-7765 [www.photomed.net](http://www.photomed.net)

*Simply the Best for Dental Photography*

Want to know when new cameras are released? Subscribe to our newsletter and we'll keep you up to date: [www.photomed.net/newsletter.htm](http://www.photomed.net/newsletter.htm)



Image from patient/top computer monitor for mutual doctor/patient viewing.



Magnified view of image above. Anterior Image for patient viewing and discussion.



Upper occlusal view mirror image.



Close-up of image right side (mirror image).



Close-up occlusal view left side.

other issues become clearly apparent using a complete occlusal photographic view. *Digital Photography lends substantial support to the concept of comprehensive oral health.*

This anterior view illustrates the type of clinical images we project on our mutually-viewed computer screen. It is important to use the tools available such as the magnifier and rotation tools. These menu tools are used to zoom down for closer views or rotate images when necessary.

Using Win XP viewer and its magnifier tool allows the close-up view seen in the second photograph on this page. This image easily and with good definition shows extrusion of #15 and the leakage of the existing amalgam filling is clearly evident. Notice how you are drawn to the recession on #10 in the same image. As a dentist you might additionally discuss the bite characteristics. The comprehensive issues exceed the capacity to view only one tooth at a time which draws your patient to a more complete view of his/her oral health condition.

We next project the upper occlusal view. Again we will use the magnifying tool to look more closely and reveal our clinical findings to our patient.

Notice how easily the broken tooth can be examined. We can describe the additional cracks on the mesial ridge as well as the evidence of leakage around the filling. The patient can see the many weakened areas and begins to understand why this tooth cannot be refilled. The canine tooth has decay at the margin of its filling that is easy to discuss and is effortlessly noted while looking at the molar.

Evidence for treatment needs viewed on the contra-lateral side of the mouth is easily demonstrated. The idea of treating these teeth one tooth at a time seems less appropriate to your patient when restorative needs and teeth proximity are clearly seen and understood. A review of the lower occlusal view would be performed in a similar manner.

Utilizing clinical digital images at the initial patient examination visit is a useful and powerful method of communicating your

clinical diagnostic findings to your patients for cases with minimal to moderate treatment needs. Complex treatment needs will require additional planning, review of diagnostic models as well as further review of radiographs and clinical images. The case we have used in this demonstration actually has complex needs; for instance, as we start to look more closely at our patient's occlusion, lack of posterior bite support and heavy occlusal wear on the left side. Such needs will ultimately necessitate a comprehensive consultation visit. The ability to clearly demonstrate substantial needs facilitated our patient's acceptance of scheduling a consultation visit before moving ahead with any treatment. *We will utilize our images with PowerPoint presentation software to cover the full comprehensive treatment suggestions at a future visit with this patient.*

### In summary:

Visual communication, such as digital photography, is a powerful, persuasive medium that can be used during your initial patient examination.

It is my opinion that digital photography is more conducive to a comprehensive treatment perspective than intraoral video-cam imaging and has greater resolution and clarity. Making clinical photography a regimented portion of your complete clinical examination will provide communication tools that can be shared with your patient to substantiate your clinical findings. After treatment is delivered, the photographs provide clear clinical evidence to dental insurance, substantiating benefit claims as well as excellent visual communication for any laboratory procedures requiring shade, shape and surface texture matching.

#### Resources:

- "Digital Photography" by Michael Wright
- "Digital Photography Hacks" by Derrick Story
- "Digital and Conventional Dental Photography, A Practical Clinical Manual" by Irfan Ahmad
- Photographic Information Website – <http://www.steves-digicams.com>
- Dental Photographic Guidelines – American Academy of Cosmetic Dentistry [https://www.aacd.com/credentialing/resources/guides\\_order.aspx](https://www.aacd.com/credentialing/resources/guides_order.aspx)



*Dr. Shorey maintains a private practice in Roseville, Calif. He graduated from the University of Southern California School of Dentistry. He is a member of the American Academy of Cosmetic Dentistry.*