Uses of Dental Photography

Diagnostic
- Evaluation of all smile components
- Measurement of tooth dimensions
- Pre-Planning desired results
- Advanced cases

Patient Communication
- Mouth mirror is ineffective
- Allows them to see what we see
- Educates with facts
- Before & After Procedure pages
- Imaged full-face smiles
- Your treatment capabilities

Laboratory Communication
- Remaking and re-contouring crowns
- Adjacent teeth and tooth structure
- Relative color & texture
- Crown try-in color
- Porcelain laminate veneer try-in
- Depth & contour
- Abutments
- Multiple anterior crowns
- Porcelain laminate veneers

Communication with Specialists
- Periodontists, Orthodontists, Endodontists, Oral Surgeons, Pathologists
- Email with specialists

Communication with Insurance Co
- Necessary treatment invisible to radiographic examination
- Fractured porcelain invisible to radiographic examination
- Documentation
- Filing accident reports

Medical/Legal

Self Evaluation
- Denture tryins
- Learning from every case

Lectures, Publications, Accreditation
- ASDA
- AACD
- AAED
Digital Photographic Principles

Lens
- Focal length
- Shorter the focal length the wider the field of view
- 24-35mm–wide angle -“fish eye”
- 50mm-standard view
- 85-300-telephoto view-“flat image”
- Dental lens is 85-105mm telephoto macro

Exposure
- Quantity of light that reaches the sensor
- Shutter in flash photography is set to be entirely open long enough to allow all of flash to reach sensor
- In flash photography length of exposure is determined by the amount of time the flash is illuminated
- Digital TTL metering uses a pre-flash to pre-determine appropriate time for flash
- Proper Tooth Exposure: Camera attempts to balance light for all pictures
- Need to overexpose +1 f stops to compensate for white teeth

Flash
- Ring flash gives more even distribution of light-used for intra-oral views
- Point flash away from lens eliminates red eye and is more 3 dimensional-used for full face views
- Dual point flash best for facial texture of anterior teeth
- Aperture is size of the opening of a lens
- Diameter of opening divided by focal length equals f stop

Aperture
- Aperture is size of the opening of a lens
- Diameter of opening divided by focal length equals f stop
- Smaller the diameter of the opening larger is the number
- Larger the diameter of the opening smaller is the number
- Smaller number f/stop (larger opening) makes it easier for focusing
- Larger number f/stop (smaller opening) gives greater depth of field

Standardized Magnification
- Magnification refers to the ratio of image size to object size
- 1:2 means object size is double the size of the image
- 1:1 means image on film is same as image
- Most digital sensors are smaller & magnify image by approximately 1.5
- Standard 35mm film is 24mm x 36mm
- 1:3 printed digital image is equivalent to 1:2 film image
- Multiply desired magnification by 1.5 for digital settings
File Formats
- RAW-ability to fully manipulate exposure
- TIFF-better detail
- JPEG-generally most widely used

Memory Cards
- SD w high speed-Compact Flash
- Eye-Fi-wireless to Wi Fi

Digital Dental Cameras
Consumer-Fixed Lens
- Cheap

Modified-Consumer Fixed Lens
- Easy
- Canon G-16

Dental Specialty
- Easy
- Ideal for staff
- Shofu Eye Special C-II

Single Lens Reflex (SLR)
- Quality
- Nikon 3300-24 MP 1080 p HD video
- Nikon D-7100-24 MP 1080- p HD video
- Canon T-5-18 MP 1080 p HD video
- Canon T-5i-18 MP 1080- p HD video higher res screen
- Canon 70-D-20 MP metal case-dental fx programmable
- Canon 5-D Mark III-26 MP-full frame sensor-expensive

Lens
- Sigma EX 105mm f 2.8 DG macro (w or w/o added guide) (no longer manufactured)
- Tokina AT-X M-100 100mm f/2.8 macro
- Canon EF 100mm f 2.8 macro
- Canon EF 100mm f 2.8L macro w/image stabilization
- Nikon AF-S VR105mm f 2.8 macro

Flash
- Sigma EM 140-DG Dual Point Flash
- Metz MS-1 Wireless Dual Point Flash
- Canon MR14-EX-Ring
- Canon MT 24-EX-Twin Point Flash
- Canon 270-EX II Wireless Twin Point Flash
- Nikon R1 Wireless Twin Point Flash
Accessories

- Occlusal Mirror, Buccal Mirror, Combination Mirror
- Full & split cheek retractors
- Metal retractors
- One-piece cheek retractors

Sources

- Local w/dental specialists (Ric Spalding National Camera Exchange 877-600-4497)
- Internet: www.BHPhotoVideo.com (800-947-5525)
- Specialized dental camera companies
- Clinipix (866-254-6749)-Lester Dine (800-624-9103)-Photo-Med (800-998-7765)

Downloading & Manipulating Images

Direct Input

Wizard

- Proprietary dental software

Memory card Input

- Memory Card reader
- Direct ports
- Eye Fi-SD card format

Imaging Programs

- Photoshop Elements
- Paint Shop Pro
- Microsoft Digital Image Suite
- Photoshop

Dental Imaging Programs

- Viper Soft- Sci Cam Image Fx-Digident Digital Dentist
- Dental Imaging Libraries
- Proportion-based imaging
- Smile-Vision-Valley Dental Arts

Exposing a “Full Series” of Photographs

Exposure Preparation

- **STEP 1-Turn on camera and flash** (Av mode, ISO 200 or 400 ,TTL+1)
- **STEP 2-Set the aperture** \(f/8, f/11\) full face \(f/22\) all others
- **STEP 3-Set the magnification** (manual focus, pre-set magnification)
- **STEP 4-Position the patient** (place retractors & mirror if needed)
- **STEP 5-Move to focus and SHOOT**

Image standardization-Standard views

Proper positioning for each view-Common mistakes
Hands-On Photographic Protocol

200 or 400 ASA-speed
TTL flash setting with Av-Aperture Priority +1
1/250 second-shutter speed
Manual focus-preset magnification

Full Face View 1:10
f/8 or f11
(1:15 digital SLR)

Frontal Retracted View 1:2 f/22
(1:3 digital SLR)

Maxillary Anterior Lateral View 1:1 f/22
(1:1.5 digital SLR)

Full Smile View 1:2
f/22
(1:3 digital SLR)

Lateral Retracted View 1:2 f/22
(1:3 digital SLR)

Maxillary Occlusal View 1:2
f/22
(1:3 digital SLR)

Full Smile Lateral View 1:2 f/22
(1:3 digital SLR)

Maxillary Anterior Frontal View 1:1 f/22
(1:1.5 digital SLR)

Mandibular Occlusal View 1:2
f/22
(1:3 digital SLR)