

DMD2 Dental Photography

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Topics

- ◆ Learning outcomes
- ◆ Photography Theory
- ◆ Processing
- ◆ Clinical Hints/Tips

- ◆ Demonstration of Techniques
- ◆ Practice in the clinic

- ◆ Submit a “Dental Photography Essay”
via LMS



Lecture Learning outcomes

- ◇ Understand and outline photographic theory as it applies to dental photography.
- ◇ Understand concepts in using an SLR camera for dental photography.
- ◇ Describe the equipment and items needed to take dental photographs in a clinical setting.
- ◇ Understand concepts in photographic editing along with file and image management.
- ◇ **In-Clinic practical session:**
 - ◇ **Observe a demonstration in extra-oral and intra-oral techniques for dental photography.**
 - ◇ **Practice taking photographs on a patient, as an assistant and a patient**





Photography Theory

- ◊ Why photo?
- ◊ Why is dental photography so unique?
- ◊ Limitations
- ◊ Equipment
- ◊ Photographic parameters



Why Photo?

◆ Like Dental Radiography, Dental Photography is an integral diagnostic, record-keeping & communication tool





Photographic images complement
Radiographic images



Why photo?

◆ “A picture is worth a thousand words”

◆ “One look is worth a thousand words” Frederick R Barnard 1921

<https://www.phrases.org.uk/meanings/a-picture-is-worth-a-thousand-words.html>



In words...

This is an intra-oral photograph depicting the mandibular arch....

- ◆ Tooth 37 partially in view has an amalgam restoration
- ◆ Tooth 36 has a stainless steel orthodontic band, pink/orange restoration likely Fuji VII. There is an occlusal access cavity type restoration in the mesial two-thirds
- ◆ Tooth 35 is tilted mesial
- ◆ Tooth 34 is missing and the space is closed, likely from previous orthodontic treatment.
- ◆ Tooth 33 is lingually displaced and rotated
- ◆ There is mild mandibular anterior crowding in the incisors and mild incisal wear.
- ◆ Tooth 44 is missing and the space is closed, likely from previous orthodontic treatment.
- ◆ Tooth 45 is tilted mesially
- ◆ Tooth 46 appears to be a full coverage ceramic crown,
- ◆ Tooth 48 partially in view has an amalgam restoration
- ◆ The frenal attachments are in view
- ◆ The anterior dorsal aspect of the tongue is visible and appears healthy and pink with normal papilla



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Why photo?

- ◆ Communication

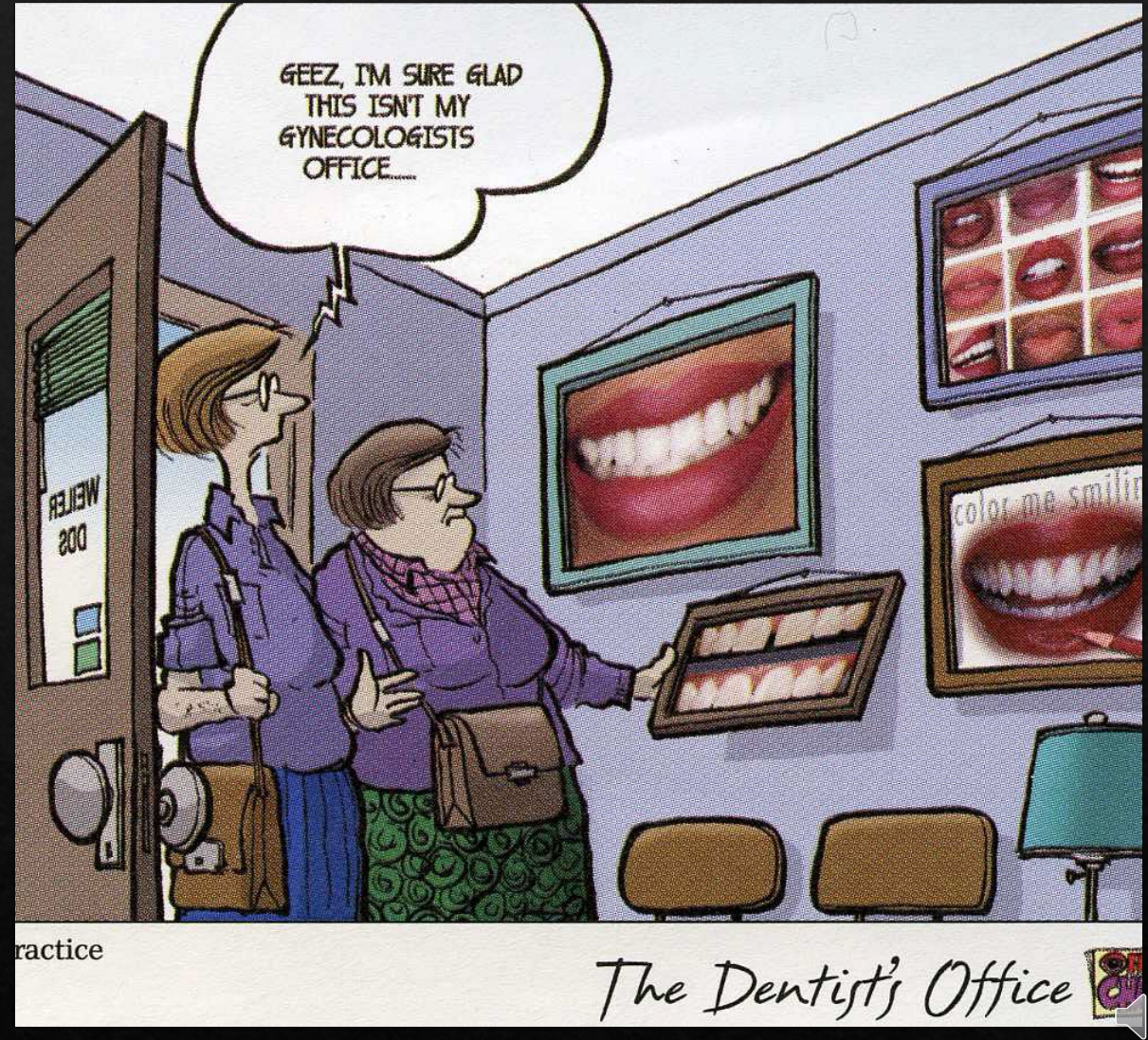
- ◆ Patients

- ◆ Education

- ◆ Motivation

- ◆ Other clinicians

- ◆ **Treatment planning**



Why photo?



◇ Records

◇ Monitoring

◇ Medico-legal

◇ Trauma



Why photo?



◇ Records

◇ **Monitoring**

◇ Medico-legal

◇ Trauma



Why photo?



- ◆ Records
- ◆ Monitoring
- ◆ Medico-legal
- ◆ Trauma



Why photo?



- ◇ Records
- ◇ Monitoring
- ◇ Medico-legal
- ◇ Trauma



Communicate treatment planning



Convey and record aspects of treatment

Tooth investigation-restoration removal



Convey and record aspects of treatment

Stump shade



Why is Dental Photography so unique?

- ◊ Access difficulties and obstructions
 - ◊ Lips, cheeks
 - ◊ Tongue
 - ◊ Other teeth
 - ◊ Facial hair
- ◊ Light
 - ◊ Too Little (dark/poor detail/grainy)
 - ◊ Too much (reflection/over-exposure)
- ◊ Saliva/humidity →
 - ◊ mask detail
 - ◊ condensation
- ◊ Objects at different distances
- ◊ Infection control
- ◊ Positioning
 - ◊ operator,
 - ◊ patient,
 - ◊ assistant



What is a good (dental) photo?



- ◆ Area of interest
- ◆ In Focus
- ◆ Correct (lighting) brightness
- ◆ Clear/contrast
- ◆ Obstructions
- ◆ Context/Story



What's wrong
with this
image



What's wrong with this image

- ◇ Colour → too red
- ◇ No retractors
 - ◇ Lip covers anteriors
- ◇ Poor angulation, can't see palato-incisal surfaces
- ◇ Mirror not centered
- ◇ Taken too far away
 - ◇ Upper lip in view
- ◇ Remains as mirror image
 - ◇ Not flipped



After cropping and adjustments





What's wrong
with this
image?



Magic.....



- ◆ Flipped
- ◆ Cropped
- ◆ Area of interest changes
- ◆ Colours/brightness/contrast



Shadows and Reduced illumination posterior segments



Mirror Fog/saliva



Reflection/Over-exposed

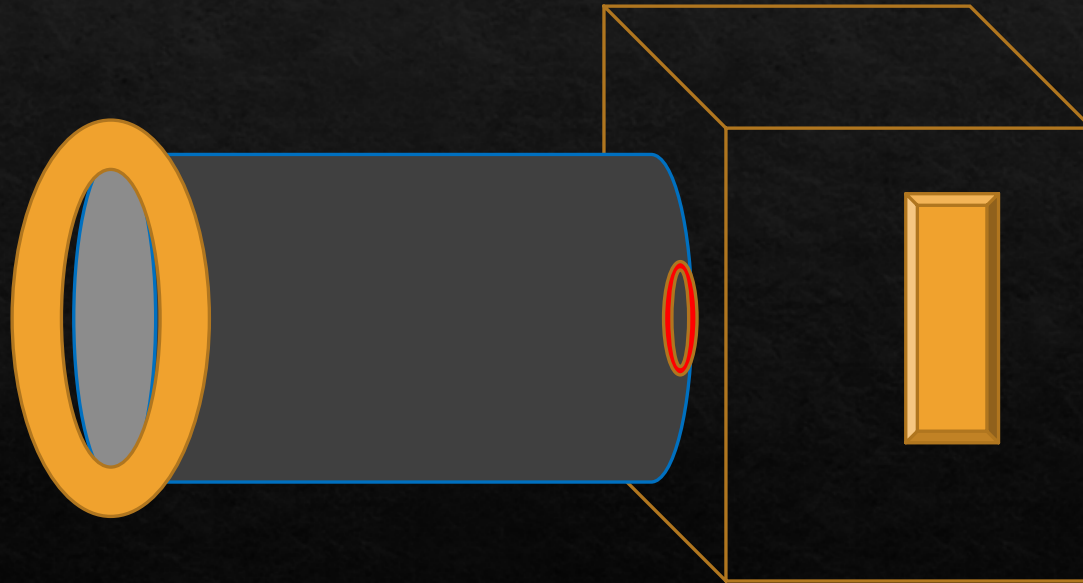


Limitations of Dental photography

- ◆ Time
- ◆ Cumbersome
 - ◆ Positioning
 - ◆ Equipment
- ◆ Patient
- ◆ Two-dimensional recording – no perception of depth

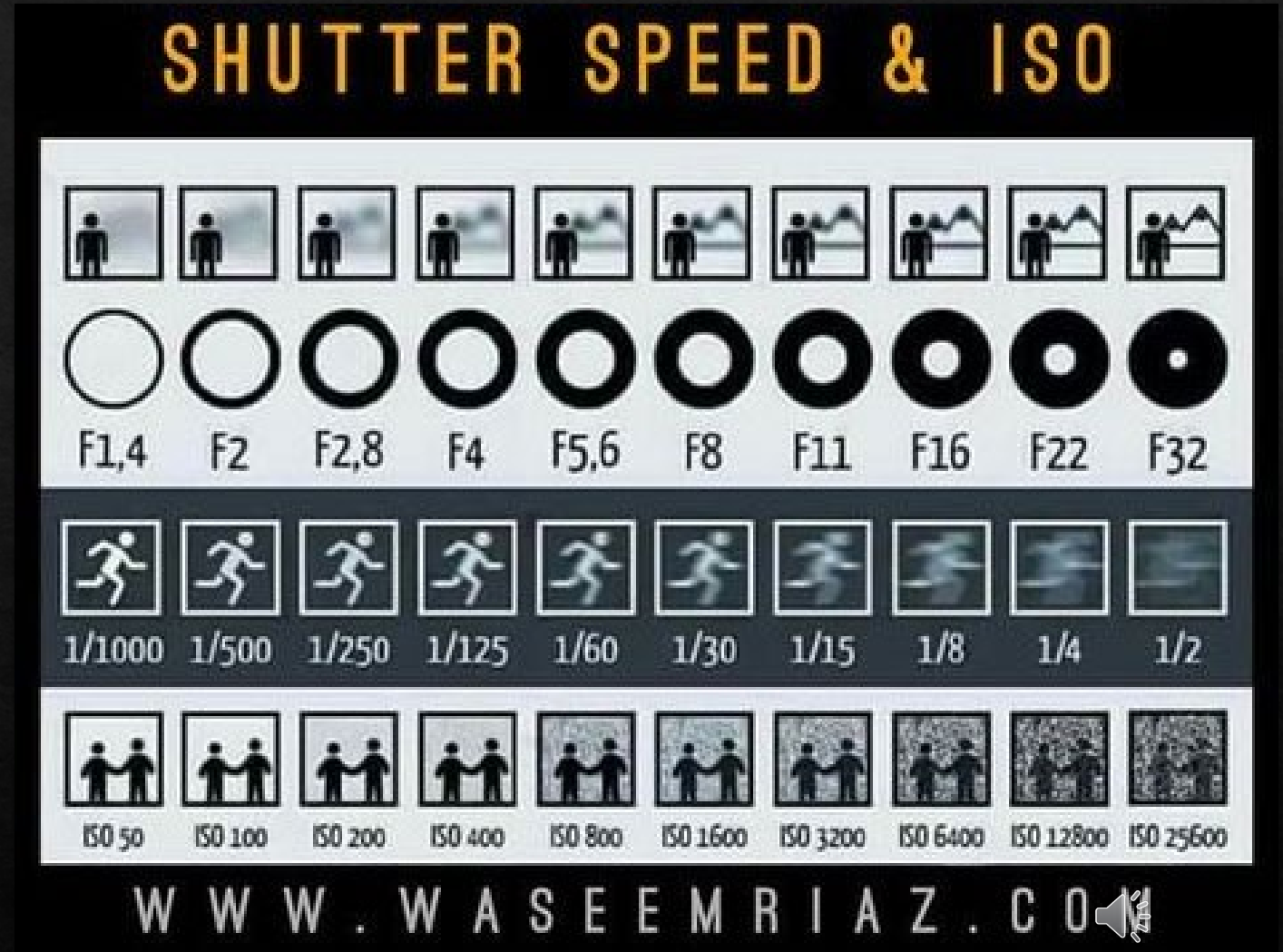


Equipment - camera



Photographic Parameters

- ◆(ISO)
- ◆Lighting (ring flash)
- ◆Shutter speed
- ◆Aperture
- ◆Composition/Area of Interest

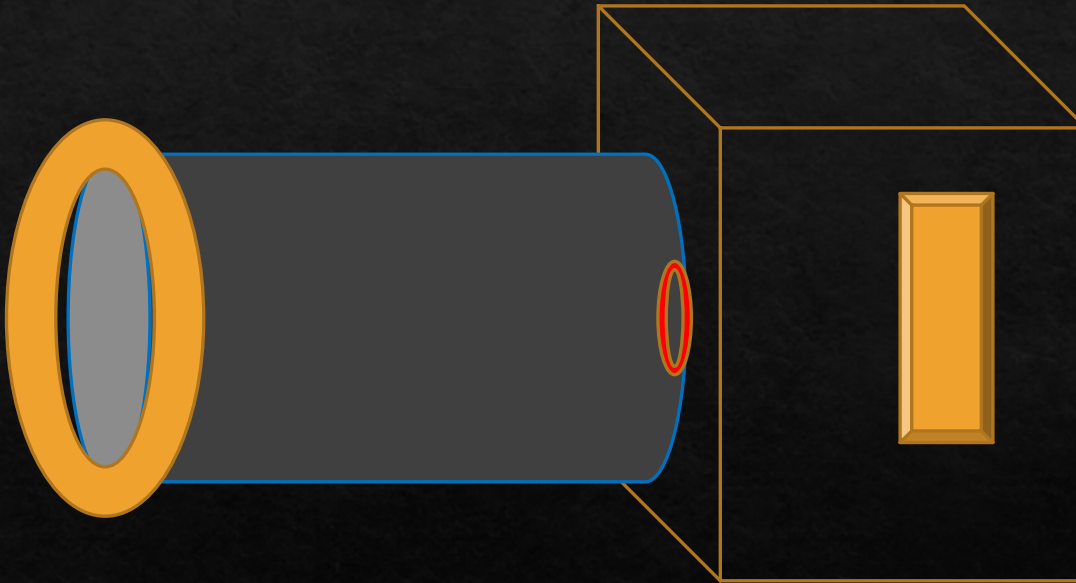




Out of focus



Equipment - camera



- ◇ Camera on 'M' for manual settings
 - ◇ (ISO) 100-200
 - ◇ Lighting (ring flash) Max or + 1/3
 - ◇ Shutter speed 1/125-1/200
 - ◇ Aperture
 - ◇ F11 for face/profile
 - ◇ F22 to 25 to 32 for close smile/intra-oral
 - ◇ Composition/Area of Interest as close as possible to area of interest
- 🔊
- ◇ Manual zoom (or auto if novice user)

Camera settings

<https://bit.ly/uwadentphotosettings>



Equipment



Equipment-Photography mirrors

- ◆ Mirrors allow images to be taken perpendicular to occlusal plane
- ◆ Bypass anatomical limitations
 - ◆ Mandibular opening
 - ◆ Soft tissues



<https://images.app.goo.gl/7pfXBghVX6TRrfBh6>



<https://images.app.goo.gl/doEYKU4PGJQHb5Kf7>



<https://images.app.goo.gl/ynZQsvoWNw84fg2KA>



Photography mirrors

- ◈ Occlusal – various sizes
- ◈ Buccal
- ◈ *Lingual



<https://images.app.goo.gl/6pVDpnsGEHpgZ8LR7>

Retractors

- ◆ Plastic vs Metal
- ◆ Metal (wire) retractors → surgery
- ◆ Plastic better at cheek retraction and supporting lips



<https://images.app.goo.gl/KPHcXhTXeAAAnVdLG9>

Processing and Clinical Hints/Tips

- ◇ Chairside
- ◇ File Handling
- ◇ Image Handling



Chairside

- ◇ Media consent via TOHM
- ◇ Take the right photo first time
 - ◇ Avoids time consuming image manipulation later
 - ◇ Accuracy
- ◇ Infection control
 - ◇ You stay 'clean' – don't touch patient
 - ◇ Nurse/assistant stays 'dirty'
 - ◇ Patient to hold retractors/mirrors



Media Consent via TOHM e-forms

Media Consent

Tutorial, ScanX (TEMP108949) In Progress



THE UNIVERSITY OF
**WESTERN
AUSTRALIA**



Oral Health Centre
of Western Australia

Media Consent

I agree to my dental records being accessed by staff involved in my care and for it to be used for approved teaching and/or quality assurance activities, including clinical audits. I understand that any clinical images collected for treatment and/or teaching purposes will not be identifiable as my mine.

Signature

Tutorial, ScanX (TEMP108949)

[Sign](#)

[Cancel](#) [Save & Print](#) [Save & Complete](#) [Save](#)



File handling

- ◆ Students to purchase own Memory (SD) card
- ◆ Download images from memory card as soon as possible
- ◆ Take a photo of patient name/screen capture
- ◆ Label files with both date of image and patient number and name
- ◆ Delete files from SD card after upload
 - ◆ Avoids delays as camera/image software attempts to catalogue files in memory card
 - ◆ Backup images to UWA student OneDrive account.
- ◆ Upload files to Romexis
- ◆ “Images not to leave OHCWA premises”
 - ◆ Privacy concerns



Image handling

- ◆ Crop unwanted data/excess information from image
- ◆ Re-size maintaining aspect ratio
- ◆ Flip mirror images
 - ◆ Vertical for occlusal photos
 - ◆ Horizontal for buccal/lateral views



Mirror images

- ◆ Ensure these are flipped, not rotated, why?
- ◆ Crop out retractors
- ◆ Crop out mirror
- ◆ Crop out “non-mirror” teeth



Original images – as taken



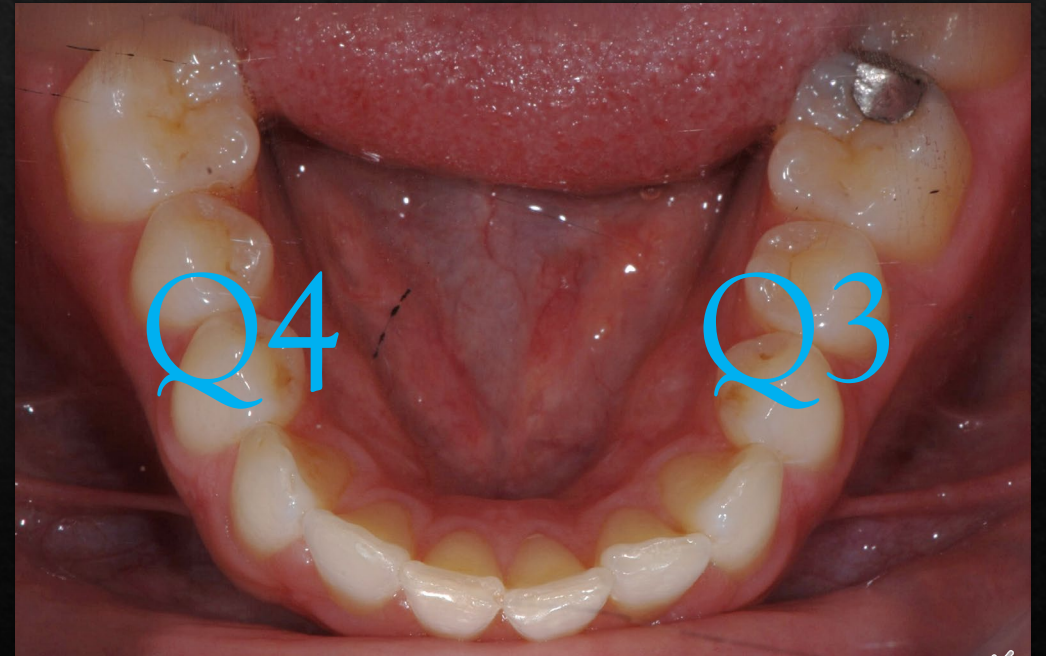
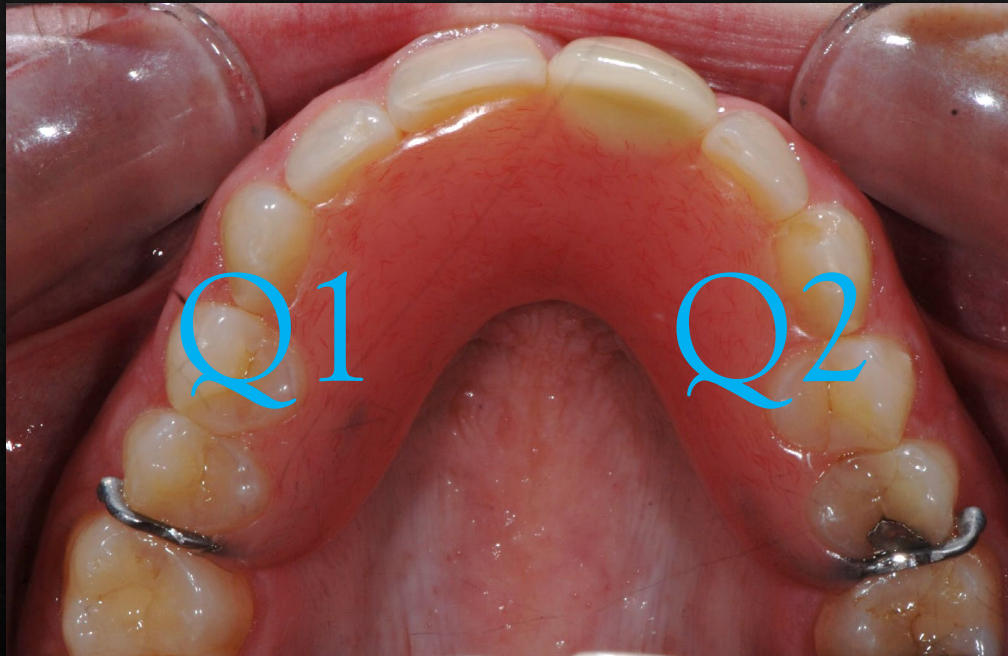
Flipped and cropped



Flipped and cropped



Flipped and cropped



Software

- ◆ Windows 10/11
 - ◆ Paint
 - ◆ Photos
 - ◆ Powerpoint
 - ◆ Adobe Photoshop/Lightroom
- ◆ Mac



Image handling

- ◆ Process your images and upload to Romexis/Sidexis regularly
 - ◆ You must do it, because no one else will.
 - ◆ This is patient information so handle accordingly with privacy & respect
- ◆ Do not leave to the end of semester
 - ◆ Karma
 - ◆ You will see the impact of not having the data you need to make a diagnosis
 - ◆ Do not do this to others.



Clinical Hints and Tips



“

Get the right shot... (duh!)

”

Tip 1



Get the right shot...

- ◆ Digital photography allows for multiple re-takes
- ◆ But
 - ◆ Patients get tired
 - ◆ Each image takes time to handle, look at, and process
 - ◆ Takes up less storage
- ◆ Set yourself and the patient up to get it right
 - ◆ Positioning
 - ◆ Lighting
 - ◆ Retraction of soft tissues



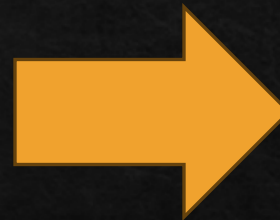
“

Get in close

”

Tip 2





“

Watch the background

”

Tip 3





Even intra-orally



“

Subject to take 3 to 4 steps from background

”

Tip 4





“

Photos before alginates or plaque score

”

Tip 5







“

Watch the angulation of the anterior image

”

Tip 6







Questions?



Thanks



Dental Photography Clinical Practice Session

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Knowing the camera

- ◊ Which camera am I using?
- ◊ Which flash am I using?
- ◊ Turning camera on and off
- ◊ Turning flash on and off
- ◊ Setting M mode
- ◊ How to set Aperture, shutter speed and ISO
- ◊ Camera battery in and out
- ◊ Flash batteries in and out
- ◊ SD card in and out



Demonstration of Techniques

- ◇ Extra-oral
 - ◇ Face
 - ◇ Profile
 - ◇ Smiling
 - ◇ At rest
 - ◇ Smile only
- ◇ Intra-oral
 - ◇ Anterior
 - ◇ Anterior edge-to-edge
 - ◇ Lateral/buccal
 - ◇ Occlusal
 - ◇ *palatal/lingual



Compulsory Formative activity

- ◆ Photo Essay
- ◆ Submit the photographs obtained during your practice session with the template from LMS
- ◆ IF you do not have photos from your practice session, include photos taken from an OHCWA patient but attach the patient's TOHM media consent.
- ◆ Appraise and write reflective comments on the photographs you have taken suggesting areas for improvement

