Standardization in Dental Photography

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Photographic documentation of any case in dentistry looses its value when a particular image is taken but it does not look like the one taken before.

This is where STANDARDIZATION in dentistry is extremely helpful and it can lead to a better documentation of any case

Standardization in dental photography means following a particular protocol EVERY time we are "making" images for any case.

This includes Standardization of:
• Equipment
• Patient position, posture and appearance
• Composition of images
• Camera / Flash Settings

Standardization with respect to Equipment

This includes Standardization of:
• Camera (Any DSLR)
• Lens (100 mm)
• Flash (Dual Point Flash System)
• Tripod use for Extra oral photography
• Background standardization and use of "Slave" Flash
• Standardized equipment for retraction and contrastors

Any entry level camera is good for dental photography

A wise decision is to be made by buying entry level camera and investing money on a great flash system instead. "LIGHT is the heart and soul of photography"

A 100 mm MACRO lens is IDEAL for dental photography

This lens ensures sufficient distance between the dentist and the subject even at close up rage at a magnification of 1:1

Other options for macro lenses are 85 mm. 90 mm and 105 mm.

It is important to NOTICE that 18 – 105, 75 – 300 etc. ALSO have 100 mm focal length in between but these are NOT macro lens and hold NO usage in dentistry.

**A dual point flash system "MT24 EX" By canon is by far the most ideal fro dental photography**

This flash is extremely versatile and accurate in terms of TTL metering.

The flash ensures High degree of standardization with respect to:
• Standardization of Movements of both the flashes (Metered by 15 degree increments in all the 3 axes.
• Standardization of power output and extreme consistence of flash out put at any particular flash setting.
• The most important feature however is the presence of an extra CONSTANT source of light which is a boon for dentists in photography and videography

Using a Tripod for extraoral photography
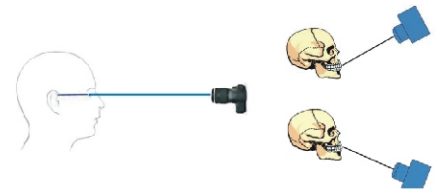
Tripods ensure that the camera is exactly at the eye level because verification becomes very easy and the position does not change.

This also ensures that there aren't any subtle ANGULAR changes in the dentists holding the camera which can easily spoil any composition without the dentist even noticing it.

Always using a WHITE background for extra oral photography
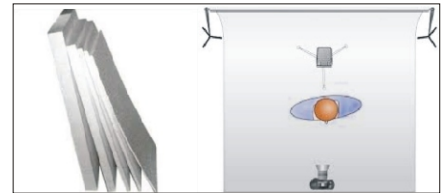
The slave flash kept behind the patient ensures that the final image has NO shadows on the white background because of the MASTER flash on the camera

A white background is the best choice because it easily sets – off the patient and the important anatomical landmarks which stand out well unlike with a black background which would mask the hairline.

**Standardized equipment for retraction and contrastors**

• Always use transparent retractors for retraction.
• Using half retractors is a better option for certain shots.

- Retraction has to be Laterally and forwards and not backwards.
- Using black contrastors for a black background where ever permissible.

Patient Factors

Patient position posture and appearance.
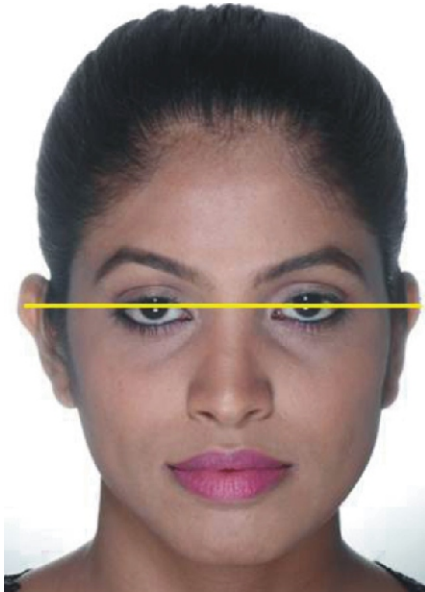
Ideal requirements for good standardization include -
- Patient to be seated with back perfectly erect on a chair. (NOT DENTAL CHAIR)
- Interpupillary line parallel to the floor (and the horizontal edge of the view finder).
- Hair neatly tied behind the head to completely exposé the ears and neck which are important landmarks.
- If possible no make up and no jewelry (or body art.)

For intra oral images the position is completely reclined position of the chair to ensure maximum standardization.

Composition of Images

Ideal requirements for good standardization include :
- Equal amount of space above the head and on both sides of the ears.
- No shadow below the eyes, on either sides of the nose or below the chin.
- Interpupillary line parallel to the horizontal plane at all times for all images.
- No hair covering the ears or the neck.
- At least upper margin of the shoulder to be visible.

- Equal amount of ears to be seen on both sides. Constant magnification of 1:10 / 1:15.

For intra Oral
- Ensure complete absence of saliva/ blood whenever possible.
- AT any COST avoid fingers / any other instruments like mirrors unless the add to the meaning of the image.
- Retraction always with transparent retractors.
- Magnification range from 1:4 / 1:2 / 1:1 for full arch / aesthetic and extreme close up images.

Camera Settings

Camera settings are the KEY to near perfect standardization with respect to image exposure and colors.

Important camera settings that just need to be set once and need not be changed later-

- Always use the camera in manual mode.
- Always work on manual focus.
- Always select AF (Autofocus point wisely).
- Always Half click before shooting.
- Always use fixed magnifications.
- Shutter speed 1/200.
- ISO 100.
- White Balance – Day light.
- Picture style – Neutral except while shade matching where we also use picture style Monochrome (Black and white) to appreciate the Value of the shades. While shade matching always align the incisal edges of the guide to the incisal edges of the tooth. Always use 3 shade guides at a time. Shade tab number should be visible at all times. Wet the tooth surface with a thin layer of K Y jelly before shade matching and photography.
- AF mode – Single shot.
- Always shoot at RAW + jpeg file format.
- Only variable for the dentist is Aperture (f stop) (Approx For extra oral 18 and intraoral 25).

Flash Settings
- Always use flash in Manual mode.
- Use 1/1 power for extra oral.
- Use diffusers on the flash so that light is soft and to avoid harsh shadows.
- For intra oral images a power of ¼ should be adequate to get the desired camera settings related results.
- For extra oral shots the third flash kept behind the patient has to be kept at slave

(S) mode pointing toward the white wall and with a power of ¼.
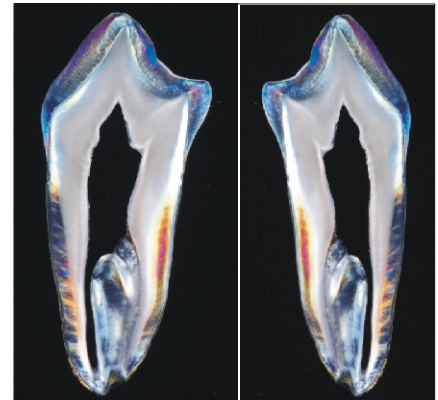
Lastly

Always fix a protocol for the NUMBER of images to be clicked.

You may refer to UCLA / AACD guidelines for the images .

However it is completely the dentists choice to select any protocol which suites his / her professional needs.

ALWAYS use the same software for Image editing and viewing.

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