Syrian Private University
Faculty of Dentistry
Department of Oral Medicine

Quality assurance & Infection control

Lecture 5

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Quality Assurance in oral radiology

A series of procedures designed to ensure optimal and consistent operation of each component in the imaging chain.

High-quality radiographs made with low exposure to patients and office personnel.

Tasks to ensure excellent radiographs

- Most of these tasks refer to film processing.
- Digital sensors greatly simplifies these tasks.
- Anyhow, most of these steps are quickly accomplished.
- Daily / weekly / monthly / yearly tasks.

Tasks to ensure excellent radiographs

Daily tasks

- Check processing by comparing radiographs with reference film, step wedge, or sensitometry and densitometry.

Tasks to ensure excellent radiographs

Daily tasks

- Replenish processing solutions.
- Check temperature of processing solutions (20° / 28° C).
- Run larger roller transport clean-up film through automatic processor.
- Enter causes of retakes in a log.

Tasks to ensure excellent radiographs

Weekly tasks

- Replace processing solutions (every week / every other week): size-using covers/temperature of the solutions
- Clean processing equipment (tanks and rollers).
- Clean view-boxes.
- Review retake log.

Tasks to ensure excellent radiographs

Monthly tasks

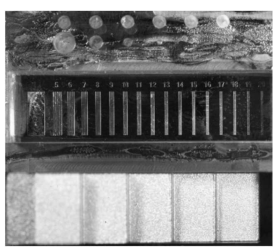
- Examine photostimulable phosphor plates for scratches.
- Check darkroom safelighting and for light leaks.
- Clean intensifying screens.
- Rotate film stock.
- Inspect leaded aprons and thyroid collars for damage such as cracks or tears (don’t fold when not in use).

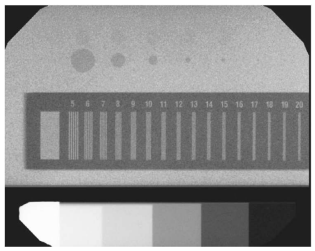
Tasks to ensure excellent radiographs

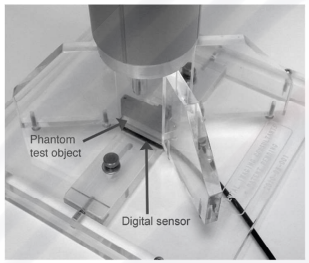
Yearly tasks

- Verify digital sensors with quality assurance apparatus.
- Calibrate x-ray machine.

Tasks to ensure excellent radiographs







Tasks to ensure excellent radiographs

X-ray machine checking

- **Dental service companies or health physicists. Specialized equipment and knowledge (reproducibility/ accuracy):**
- **X-ray output.**
- **Collimation and beam alignment.**
- **Beam energy/ timer/ mA (when 2 or more settings exist).**
- **Focal spot size (heat).**

Quality Assurance: Benefits

1. **Improved diagnosis**
2. **Reduced patient exposure**
3. **Time savings**
4. **Cost savings**

Reference radiograph

Take film (double film pack) and process after processor cleaned and solutions changed. Compare subsequent films to this "reference" radiograph.

Darkroom

Light-tight

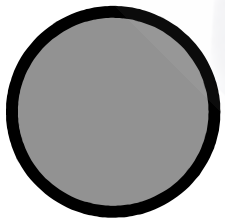
Hot/cold water (mixer)

Clean

Adequate size

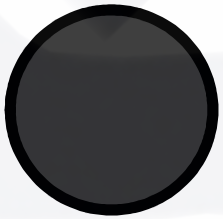
Safelight

Safelight Filters



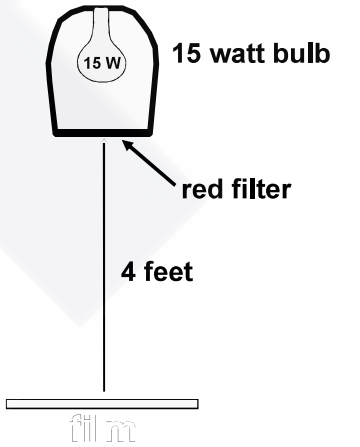
Morlite

D-speed



GBX-2

Intraoral,
Extraoral
(all films)



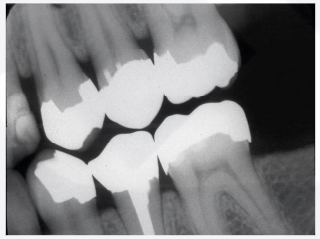
The safelight should have a 15-watt bulb (older style safelight) and be mounted to the wall or ceiling at least 4 feet from the area where the films are unwrapped and loaded into the film processor.

Safelight filter must be red (GBX-2, LED)

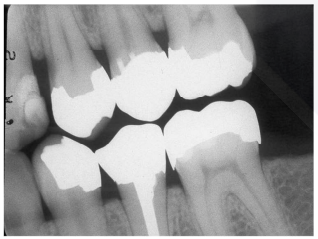
Duplicate film shows dirt, fingerprints readily

Duplicating machine

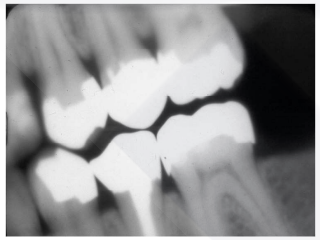
Dentsply Rinn



Duplicate



Original



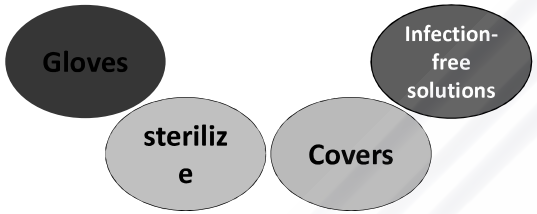
Infection control

- The primary goal of infection control procedures is to prevent cross-contamination and disease transmission from patient to staff, from staff to patient, and from patient to patient.
- Standard precaution: All human blood and saliva are treated as if known to be infectious for HIV and hepatitis B virus.

Infection control

The potential for cross-contamination in dental radiography is great.

4 rules of infection control.



Infection control

1- Wear gloves during all radiographic procedures.

Between patient and staff member.

Taking radiograph/ handling the film/ removing barrier protection from surfaces…

Infection control

2- Disinfect and cover contact surfaces & X-ray receptors.

- **X-ray machine and control panel, chair-side computer, beam alignment device, the switch, dental chair and headrest, leaded apron, thyroid collar, and surfaces on which clean film is placed.**

Infection control

2- Disinfect and cover contact surfaces & X-ray receptors.

- **Sensors should be disinfected and wrapped.**
- **Films may be used with plastic envelop.**

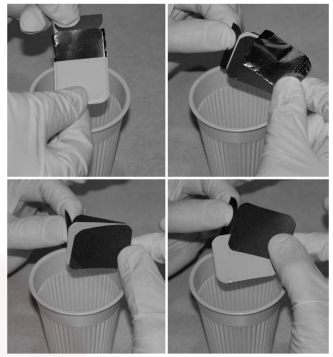
Infection control

3- Sterilize non-disposable instruments.

- **Film-holding devices (follow manufacture instructions).**

Infection control

4- Prevent contamination of processing equipment.



- **Wear new gloves.**
- **Follow steps in fig. or disinfect with NaOCl (5.25%) for 30s.**

THE END