

XDR ECAT Contract: SPE2DE-17-D-0003

Anatomic Sensor Placement Technique

Important notes before capturing intraoral X-Rays

- Prior to placing the sensor in the patient's mouth always be aware of your relative position to the connected sensor cable. It would be awkward to cross over the cable after placement of the sensor.
- Prepare a few cotton rolls and gauze pads as part of your FMX set up. These items can help protect sensitive areas, such as lingual tori. The cotton rolls can also be used to help stabilize the sensor holder when placed on the incisal or occlusal surfaces.
- Using the operatory overhead light will make visualizing where you are placing the sensor in the patient's mouth easier, while also making the experience more comfortable for the patient. Usually patient discomfort is caused by the pressure of the sensor impinging on the soft tissue of the oral cavity, especially on the lingual aspect of the mandible.
- Before placing the sensor, ask the patient to move their mandible into a cross bite (steps #6, #10 and #12 below). This will create more room to accommodate the sensor and will help with patient comfort.
- Placing the sensor at the patient's mid-line (step #12 below) allows for utilizing the maximum height in the palatal area.
- Always pay attention to the patient's facial expression or eyes when placing the sensor in the patient's mouth. If you see a look of discomfort, take the sensor out of the mouth and ask them, "Where is the area of discomfort?". So, you can avoid that area or cushion it with a cotton roll or gauze pad to improve the patient experience.
- **"Be the Beam"** Before positioning your X-ray cone (steps #13 and #14 below), visualize where the X-ray beam will image the patient's anatomy. If you cannot see the teeth you want to capture through the aiming ring of the sensor holder or see the teeth you want to capture **in front** of the white surface of the sensor, you will probably NOT capture the desired image.
- After each exposure, check the exposure meter in the XDR graphic user interface (GUI), the black indicator should be between the 30-50% mark in the green section. Based on the meter reading, modify the exposure time accordingly. Always apply the ALARA (As Low As Reasonably Achievable) principal.

STEPS TO SENSOR POSITIONING AND CAPTURING INTRAORAL X-RAYS

1. Prepare the sensor with a barrier cover and the sensor holder assembly prior to use. Always follow the CDC Universal Precaution Rules, and the CDC's recommendations on infection control and barrier use regarding semi-critical devices that cannot be reprocessed by heat sterilization or high-level disinfection.
2. Position the patient upright in the chair, ensure the occlusal plane of the patient is parallel to the floor. It is helpful in positioning the PID (X-ray cone) to have the patient chair *raised* for mandibular arch views, and *lower* the chair for maxillary arch views.
3. Use the overhead light to examine the patient's mouth BEFORE placing the sensor. Look for anything that may modify the sensor placement (missing teeth, tori, large tongue, shallow palate).
4. Visualize the anatomy and how you will capture the subject teeth in the radiographic image. Think about what angle you will position the PID (X-Ray cone) relative to the teeth.
5. Adjust the exposure time on your X-ray machine according to the exposure chart.
6. Explain to the patient what you are about to perform. Let them know where in their mouth you will be taking the X-ray(s). Do not ask the patient to "bite down" instead ask them to "slowly or gently close down". For greater patient comfort, demonstrate to the patient how to move their lower jaw into a crossbite towards the X-ray cone when closing onto the sensor holder bite block. Help the patient practice going into crossbite before placing the sensor in their mouth.



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7. BE AWARE OF WHICH SIDE OF THE SENSOR CABLE YOU ARE STANDING ON BEFORE YOU PLACE THE SENSOR IN THE PATIENT'S MOUTH. YOU SHOULD BE ON THE OUTSIDE OF WHERE THE CABLE IS PLUGGED INTO THE PC FOR EASIER MANUVERABILITY AROUND THE PATIENT.
8. Before you start the exam, advise the patient to relax and breathe through their mouth or nose, whichever is more comfortable for them.
9. Use the overhead light to better visualize the placement of the sensor. Lead with the distal or apical end depending on the sensor orientation and rotate the sensor into position. Place the sensor at the patient's midline, relative to the lingual aspect of the teeth you are trying to capture.
10. Position the sensor cord to avoid the patient biting on the cord. Ask the patient to "slowly or gently close down", you may use the cross-bite technique mentioned earlier. Beware not to have the sensor impinge on the soft tissue on the contralateral side, especially in the anterior region. Use cotton rolls or gauze pads to cushion sensitive areas.
11. When the patient's teeth are engaging the bite block, check that the patient is not directly biting on the cable.
12. For an anterior periapical views, push the tongue distally with the sensor holder, or place the sensor on top of the tongue. Keep the sensor at the midline of the patient. Ask the patient to protrude their mandible into an anterior crossbite as they are closing down.
13. Use the overhead light to visually check the teeth you are imaging are centered on the bite block. Look through the aiming ring of the holder. "Be the Beam" You must visualize the teeth you want to capture through the aiming ring of the holder.
14. Position the PID (X-ray cone) relative to the vertical axis at about 25-30 degrees for maxillary molars, 15 degrees for maxillary pre-molars, and about 10 degrees for maxillary anterior PA's. Position the PID at 0 degrees for mandibular and bitewing views. A slight mesial tilt will help open up the maxillary interproximal contacts.
*** For ALL Periapical views, you want to image the apicies plus 2mm ***
15. Finally, check for the proper exposure time on your exposure technique chart. Activate the X-ray Machine and expose the sensor, making sure to depress the dead man switch for the entire duration of the exposure.
16. After each exposure, check the exposure meter in the XDR GUI. Based on the meter reading, modify the exposure time accordingly. Always apply the ALARA principal - As Low As Reasonably Achievable.
17. To avoid unnecessary retakes, ensure the proper alignment of the sensor and holder assembly relative to the teeth. Also, follow the recommended exposure times from the exposure technique chart.



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