



CLINICAL

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How to Comfortably Place Digital Intraoral Sensors

An overview of working with digital X-ray sensor equipment

I'll never forget the day the doctor I was working for announced "we're getting digital X-ray sensors." I had mixed emotions about it; this was a progressive office and I knew I had to give it my best shot. Little did I know that this transition into technology would not only put the fun back into dentistry for me, but that it would also change my professional life forever.

I have been a clinical product trainer and sensor placement specialist for 16 years and have had the unique opportunity to watch digital imaging grow into an essential part of an ever-increasing number of dental practices. More and more dental professionals are discovering that digital radiography offers better patient comfort, increases patient understanding and acceptance, and is easier and faster to use than taking film X-rays. Today more than half of all general dentists in the United States use digital imaging—and that number is much higher in certain areas of the country. We are living in a technology-oriented society and it is now expected in a dental office as the standard of care.

I have experienced dentistry practiced in all possible forms, including large group practices, small private practices, prisons, hospitals, universities and all branches of the military. I have taught doctors, dental staff and dental students in all specialties across the dental field how to use Schick by Sirona

digital intraoral sensors (See Figure 1, opposite page) and this has given me the opportunity to develop and hone a vast array of tips and techniques to help make capturing images with digital intraoral sensors more comfortable and more consistent than ever before.

Before we get into specific sensor placement tips, here are some general best practices dental professionals should know.

Positioning Devices: Holder sets help keep the sensor in place and guarantee a good image every time. I recommend using a paralleling device such as the arm and ring positioning system for accuracy and consistency in placement. Eyeballing is not recommended.

Sensor Size: Patients' mouths come in all different sizes. Make sure to choose the correct sensor size for comfort and maximum diagnostic imaging. We want to adhere to the ALARA principal at all times.

Exposure Settings: Make sure the exposure settings are correct on the X-ray source (65–70 KVP suggested). You will need to adjust exposure times (or pulses), depending on the X-ray source, the physical size of the patient, and the region of the oral cavity to be imaged. Remember that maxillary molar images need the most exposure time to penetrate the zygomatic arch and mandibular anterior images need



Figure 1: Schick by Sirona modular platform, including AimRight autoclavable sensor holder system and disposable sticky tab holders. Digital systems are available in multiple configurations with several options for parallel positioning.



Figure 2: Maxillary Anterior.



Figure 3: Mandibular Anterior.

the least amount of time because we are imaging above the mandible. Remember to place the ring against the face and the X-ray unit cone against the ring for consistent radiation with every image.

Sensitive Patients: Everyone has sensitive patients. I like to use the foamy cushions called Edge-Ease for my patients with tori in the lower posterior area. I have been successful using a technique with mouthwash for my patients who gag easily. I fill a cup up with mouthwash and dip two gloved fingers into the mouthwash and spread it on the covered sensor. This technique seems to stop the gag reflex every time.

Language: Eliminate the word “bite” from your vocabulary; when you tell a patient to bite they chomp down and push the sensor into the palate or sulcus. Tell the patient to “close to pressure” in a soft voice instead and you will have a much more comfortable and happy patient.

Communicate: It always helps to explain to the patient exactly what you are doing and why in terms they can understand. Remind the patient how low dose the radiation is with the sensor. Emphasize the positives and you will get a positive response. Please do not use negative words.

Visibility: Use the operatory light and chair position for better visibility.

Placement tips

Follow these tips to learn optimal sensor placement to take all intraoral images, including vertical bitewings and endodontic images.

Maxillary Anterior: Use a rolling (ice cream) scoop motion to place the sensor into the patient’s mouth—it should go



about halfway back with the distal edge placed against the palate. Center the bite block on the maxillary central incisors and make sure the teeth are towards the forward edge of the tab (away from the sensor) to eliminate distortion. The sensor should be parallel to the long axis of the maxillary anterior teeth if placed properly but not necessarily up against the teeth. For added stability, you can use a cotton roll under the tab or have the patient hold the metal positioning arm at the bend. (see Figure 2, page 19)

Mandibular Anterior: Ask the patient to touch the tip of their tongue to the lingual of the mandibular anterior teeth. Take control of the tongue by placing your index finger on top of it if necessary. Place the sensor flat on top of the tongue so that the distal edge of the sensor is even with the mesial of the first molars. This is where the lower jaw widens. Roll the sensor into an upright position making sure the bend in the metal bar is even with the center of the nostrils. Think of a bird in a bird bath and use the wrist firmly to push the tongue down into place so the sensor is on top of the tongue but parallel to the lower anterior teeth. The tongue acts as a cushion and blocks out any tori and thin tissue issues, such as with the frenum. My patients have told me this is much more comfortable than placing under the tongue where the tissue is very thin and something you couldn't do with film as it is too flexible. (See Figure 3, page 19)

Maxillary Posterior: Retract the cheek (fish hook) and guide the sensor into the mouth between teeth #8 and #9. This is where the vault is in the palate and will give you plenty of room. Push the sensor back until it is level with the de-



Figure 4: Maxillary Posterior.

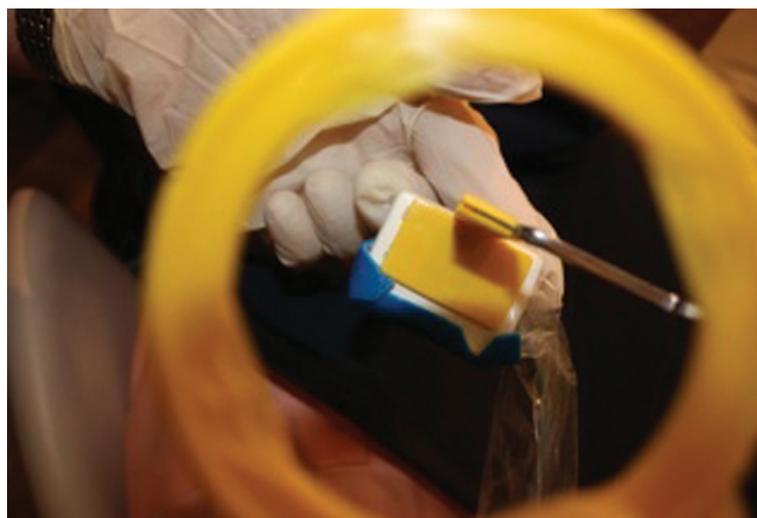


Figure 5: Mandibular Posterior.



➤ Figure 6: Horizontal Bitewing.

sired teeth (molars or pre-molars) and have the patient close on the bite tab/block, angling the sensor slightly past the midline of the mouth. This will allow the rigid sensor to follow the curves of the maxillary roots and ensure 2 mm to 3 mm beyond the apices. (See Figure 4, page 20)

Mandibular Posterior: Retract the cheek so you can see what you are doing. Place the front edge of the sensor into the mouth between the tongue and the teeth at a 45 degree downward angle (dive into the swimming pool) for comfort and then slowly slide the sensor back toward the molar area centering the second molar on the center of the bite tab. Use an Edge-Ease if the patient has tori. (See Figure 5, page 20)

Horizontal Bitewing: The sensor and aiming device for a horizontal bite-wing image should be placed between the tongue and the teeth, with the tab resting on the teeth. Place the sensor wire to the other side of the mouth for comfort and visibility, and tell the patient to close on their back teeth. As they do so, “open the door,” swinging the front edge of the aiming device toward the lateral incisor, allowing the sensor to follow the curve of the spee (lower jaw), which will ensure contacts are open. (See Figure 6, page 20)

Vertical Bitewing: Place the sensor in the mouth horizontally, then roll it into a vertical position once past the incisors, using the ring of the aiming device as a steering wheel. Make sure the cone of the X-ray source is parallel to the arm of the holder and directed at the center of the aiming ring. I always use an Edge-Ease taking my vertical bitewings. (See Figure 7, right)

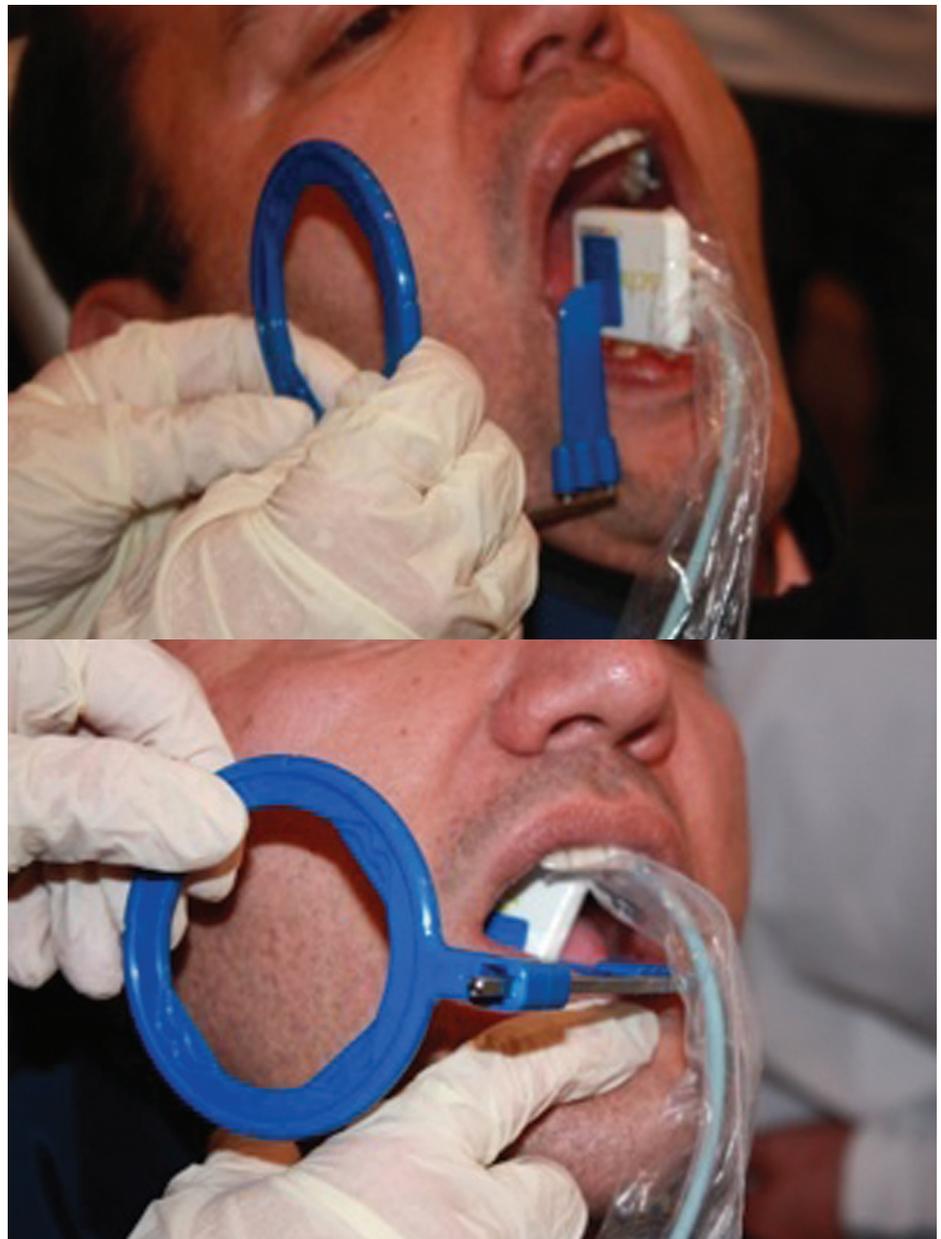


Figure 7: Vertical Bitewing.

These are the tricks and tips to make every image more comfortable for your patients—all you need is to master optimal sensor placement. A comfortable patient will enable you to get a better digital image. Remember to “think outside the box” when placing a digital sensor and do whatever you need to do to keep your patient comfortable but get a good diagnostic digital image. Please feel free to share any tricks or tips with me you have discovered. ❖

Mary Ann Rupertus has been with Sirona Dental for 16 years as a clinical specialist. She graduated from the dental assisting program at Delaware Technical Community College in 1985 and worked chairside as a dental assistant for 13 years in private practice. She is a current member of the ADAA. She may be contacted at MaryAnn.Rupertus@sirona.com.