28th Anniversary

REALITY

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FirstLook

CARIES DETECTING DEVICES

Spectra

Air Techniques

www.airtechniques.com

PRICE
$3,995.00

WARRANTY
3 years

Caries detection aid that looks and operates like an intra-oral camera. It uses a 405nm light, which is still in the blue light range but borders on violet. When a tooth is exposed to this light, the porphyrins (pigments derived from hemoglobin and chlorophyll) in cariogenic bacteria will fluoresce blue, red, orange, or yellow, while healthy enamel appears green. This colorized tooth map is comparable what you see in a weather report when viewing a Doppler radar image the meteorologists love to use. Besides the color differentiation, it also gives a numerical score between 0-5 to each colorized area. The higher the number, the deeper the lesion is supposed to be.

Not only does it do its magic on intact teeth, but it presumably will tell you when you have removed all the infected dentin during a cavity preparation. This feature may be its most valuable, since it could prevent you from overprepping a cavity and it eliminates having to use messy dyes that may not even give you accurate feedback anyway.

But that's still not all! It claims to be able to discriminate between a merely stained restorative margin and one that is leaking and allowing carious activity to be festering underneath. And a recent study even found that it can detect a carious lesion under a clear sealant.

Setting up the system is pretty much plug and play. You load the drivers using the supplied DVD or, if your computer does not have an optical drive, then you can merely download them. You connect the camera to your computer via USB and the TWAIN (technology without an interesting name) interface allows you to view and save the images into any graphics program you may be using in your practice. For example, in this preview, we used our Dexis program.

The camera is reasonably lightweight (3.8oz/107.7g), which is slightly heavier than a highspeed, air-powered handpiece but lighter than an electric version. It features a matte, light gray plastic-clad, tapering cylindrical handle and a glossy gray triangular center section that extends to the front end terminating in the squarish lens, which is bordered on three sides with six LEDs emitting the blue-violet illumination.

The backend of the handle is where the cord inserts, but this connection can be quickly and easily removed if you ever need to replace either the camera or the cord.

The top of the handle includes a rectangular-like, wrap-around, black rubberized section that includes two raised buttons. Press the top button to capture an image and press it again to go back to live scanning. Press the bot-

tom button to save a captured image and then go back to live scanning.

On the bottom of the handle is another black rubberized button that is the power control. The USB cord is 10.0ft/3.0m long.

To use, you first open (as noted previously) any imaging software you may be using with other devices such as digital x-ray sensors or intraoral cameras. Once the program is open, you would activate the camera by pushing the power button and install the barrier and autoclavable, rubber-like positioner over the tip. The positioner acts as a spacer between the tooth surface and tip so the camera will always be the proper distance from the tooth.

Be sure the teeth are clean and free of debris before scanning their surfaces. Then place the handpiece in the mouth and go tooth to tooth looking for carious lesions. You can save all images or just those with identified carious lesions.

Spectra competes in the caries detecting market with devices such as Diagnodent, which also gives you a digital score and has an audio component that can sound like a Geiger counter, which means it really wails away when a gross carious lesion is discovered. While Spectra doesn't have this feature, its polychromatic tooth mapping along with stamping each section of a tooth with the aforementioned score is quite impressive. And its ability to tell you when to stop removing carious tooth structure when preparing a cavity definitely gives it an advantage over the competition. Although it is not inexpensive, it certainly appears to have the potential to be an extremely valuable clinical diagnostic aid.

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