28th Anniversary

REALITY

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2014

The Ratings | CANCER DETECTING DEVICES

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REALITY'S CHOICES

(4.5)

VELscope Vx

INTRODUCTION/MANUFACTURER'S CLAIMS

When the original VELscope was introduced in 2006, it was promoted to be a modality that would make a profound difference in our practices when it came to oral cancer detection. For the first time, dental professionals had a device that promised to reveal oral lesions using soft tissue fluorescence, which was stated to be more discriminating than a purely visible and palpation exam. But just like other ground breaking technology, this first generation model was somewhat cumbersome to use with its corded handpiece attached to a base unit that was a nuisance to transport from room to room. It was also quite expensive.

Now, eight years later, it has been redesigned as the cordless VELscope Vx. While it still delivers blue light to induce fluorescence of soft tissue, the source of that light is 16 LEDs instead of the metal halide bulb in the original model. The blue light "excites" the soft tissue, causing it to fluoresce. Using special filters, healthy tissue viewed through the handpiece should glow a bright green, whereas areas that may be malignant or premalignant will appear darker.

BASE UNIT/BATTERY CHARGER

The console-like base unit of the original model has given way to a relatively small, cream-colored, cast magnesium alloy charging stand. As noted, it functions as a base unit and charging stand, similar to those with LED curing lights.

Even though it's relatively lightweight (see below), its four rubber-like feet keep it reasonably stable and allow the handpiece to be docked and retrieved with only one hand. There is no power switch — the base unit is always "on" once you plug it into an electric outlet. All evaluators except one really liked the design of the base unit, with the lone holdout thinking it was acceptable.

The handpiece inserts vertically into the oblong-like recess in the middle of the top of the base unit. There is only one way to insert the handpiece — the LED side is facing away from you — and you must exert moderate seating pressure to be sure that the charging port in the backend of the handpiece is inserted completely into the charging module extending up from the bottom of the recess. While this is certainly not a difficult maneuver, you can't just drop the handpiece into the recess and expect it to be charging.

RAVES & RANTS

- \+ **Cordless handpiece**
- \+ **Patient doesn't need to swish with anything**
- – **Charging patients to cover its cost is questionable**
- – **Still learning curve viewing tissue under fluorescing light**

MANUFACTURER

LED Dental
www.leddental.com

PRICES

Unit
$2,749.99
Vx Camera
$599.99
Vx VELcaps
$230.40/128 ($1.80 ea)
Vx VELsheaths
$39.95/250 ($0.16 ea)

WARRANTY

1 year

A publication member of the American Association of Dental Editors

Nevertheless, all evaluators found docking and retrieving the handpiece to be easy. One evaluator noted that the handpiece does not bind when removing or placing it into the base, while another stated that the handpiece fits snugly in the base.

BASE UNIT DIMENSIONS

Height	9.6in/24.5cm (with the handpiece docked)
Width	4.0in/10.2cm
Depth	6.5in/16.5cm (including the power cord connection in the rear)

All evaluators thought the size was acceptable. Three evaluators commented on its small footprint being nice and compact.

BASE UNIT WEIGHT

1.6lbs/0.7kg All evaluators considered its weight to be acceptable. Two evaluators noted that the base unit has enough weight to keep it from moving when docking the handpiece, while another found it to be lightweight and easy to move around if necessary.

HANDPIECE

The star of the show. It is clad in the same powder-coated cast magnesium alloy as the base unit, both of which have a semi-gloss finish. The tubular-like top section is the area that emits the light and contains the lens of the scope through which you view the tissue. This section measures about 3.4in/8.6cm from front to back. The rear viewing port is round, measures 0.95in/24.2mm in diameter, and sits in the center of a black, plastic casing that allows you to stabilize it against your face. Most evaluators (71%) really liked the overall design of the handpiece, while the other 29% felt it was acceptable.

The front features a mirror-like ring around the viewing port, but when the instrument is activated, it quickly becomes obvious that the ring is not a mirror at all, but the lens over the 16 LEDs (1 watt ea) emitting blue light in the 400-460 nm range. On the top of the handpiece near the front surface are two silver-like vents with circular perforations that act as exhaust valves for the cooling fan.

Supporting the top section is the handle, which is shaped like a rounded triangle in cross section. This design means the handle is widest at the rear and, along with two, bilateral, gray rubber-like inserts running length-wise, should fit most clinicians' hands in a comfortable manner. The length of the handpiece from top to the bottom is about 9.25in/23.5cm (with the VELcap installed — see below).

All evaluators found its size to be acceptable. Two evaluators noted that it handled easily, another felt it was well-balanced, and a third found the size to be perfect.

The soft touch, rubberized, rectangular gray activation button is on the front of the top of the handle, which is a position that makes it a convenient location for your index finger. Due to its relatively large size, it is easy to locate without having to look at the handpiece. Activating the device does require moderate finger pressure, but it should be well within the ability of most operators and should also prevent unintended activation. All evaluators found activating the unit to be easy. Several evaluators commented that the button is easy to press and the unit is simple to activate.

On the top of the handle on the back side are three LED indicator lights. The left LED is the battery indicator, which flashes green during charging and turns solid green when fully charged. This indicator will deactivate when the handpiece is retrieved from the base unit, although it will start to flash when the battery has only about two minutes of power remaining.

The middle LED is white and merely indicates the handpiece is connected to an electrical outlet, either directly or through the base unit. The right LED is amber and presumably indicates something is wrong with the handpiece. During our evaluation, this amber light started flashing for a few seconds immediately before the handpiece shut down at the 11-minute mark.

HANDPIECE WEIGHT

15.1oz/428.1g. This is certainly not incidental, but it doesn't really feel heavy. All evaluators considered this weight to be acceptable. Nevertheless, two evaluators commented that it is somewhat on the heavy side, but its balance tends to mitigate the weight issue, while another didn't even think it was heavy at all.

BATTERY

According to the manufacturer, the lithium ion battery will power the handpiece for 12 minutes. Our test revealed the unit shut down (just the LEDs — not the fan) after 11 minutes from an absolutely cold start (beginning of the day). A second test later in the day but again with a full battery charge found it cut off at 8.75 minutes. Therefore, we were never able to achieve the 12 minutes we expected. We found that fully recharging it took about 45 minutes in one test and only 35 minutes in a second test, both of which were significantly faster than the stated recharging time of one hour.

Note: If you totally run out of battery power and can't wait for it to recharge, merely remove the power cord from the rear of the base unit and plug it directly into the bottom of the handle. You will then be able to use it as a corded handpiece until you get a chance to recharge it.

After using the handpiece and returning it to the base for charging, the green flashing light will not start right away until the handpiece has cooled down sufficiently.

FAN

As mentioned previously, the handpiece has a built-in cooling fan, similar to those in halogen curing lights and a few LED curing lights. For the VELscope Vx, the fan activates simultaneously with the handpiece and stays on for about an additional 10 seconds after you deactivate it if your exam lasts for 60 seconds. The fan itself is somewhat noisy but is evidently necessary to keep the LEDs cool. Most evaluators (71%) thought it was pretty loud but it didn't bother them, 14.5% stated it was loud and did bother them, and 14.5% didn't even notice the fan.

USE

To set-up the device, place a custom-made, clear plastic barrier called VELsheath over the handpiece. This barrier, which is mainly for the handle, has openings in the top section for the fan vents and viewing areas.

Then mount a disposable VELcap on the front of the handpiece. This cap consists of a clear lens cover mounted inside a black plastic ring, which is then attached to a cardboard ring with eight extensions facing inward. When the VELcap is placed over the front of the handpiece, these extensions lock into a circular groove, securing the VELcap. There is also a black plastic extension in one area of the VELcap. This extension acts more or less like a handle that you can use to rotate the VELcap.

All evaluators reported setting up the unit was easy.

For the exam, dim or even turn off your treatment room lights if possible. Only 28.5% of the evaluators followed this directive, with 43% stating that they tried it but it didn't help and 28.5% reporting that this is not possible in their offices since one light switch controls the entire office. One evaluator noted that even though room darkening was helpful with the original model, he didn't find it as necessary with the Vx.

Next, place the photobloc orange lenses that come in the starter kit over the patient's eyes. Then activate the light and view the patient's soft tissue through the eyepiece, which is similar to looking through an otoscope used by our physician colleagues. The front of the handpiece is supposed to be about 3-4in/8-10cm from the targeted area of the mouth. Most evaluators (71%) found viewing the tissue through the eyepiece to be easy, while the other 29% took some time to get used to it but finally mastered it. One evaluator noted that due to the large size of the eyepiece, visibility through it is not a problem at all.

In addition, viewing all areas of the mouth was deemed to be easy by all evaluators except one, with the lone holdout finding it required awkward hand positions at times.

Note that if you are wearing TTL loupes, the fixed ocular can interfere with using the device properly. This is especially true if you are using prisms at high magnification. Therefore, you may want to try wearing your typical corrective lenses (if applicable) during the VELscope Vx exam and then switch to your loupes for the rest of the exam.

CAMERA

Canon PowerShot A2200. There is a bracket that mounts on its front surface allowing you to easily snap it to the back of the Vx handpiece after removing the eyepiece. It allows you to easily photo document your exam. All evaluators except one found attaching the camera to the handpiece to be easy, with the lone holdout finding it was cumbersome. One evaluator reported that it was easy to attach, but he did not use it routinely.

Most evaluators (57%) took some time to get used to it but finally mastered viewing the tissue through the camera, while the other 43% found it to be easy right from the start. One evaluator noted that viewing through the camera was much easier if you are wearing magnification loupes, while another reported that the images through the camera are very clear.

CLINICAL ACCURACY

Slightly more than half (57%) of evaluators found lesions that were not visible without using it, while the remaining 43% did not find any lesions during the evaluation period. Of those evaluators who found lesions, half decided to put them on watch and check them again in several months, 25% reported that no lesions were found to be malignant, and 25% found at least one malignant lesion.

One evaluator found three areas of concern and referred to an oral surgeon. One area that was biopsied was malignant and required extensive surgery.

Another evaluator found some very subtle irritations that were gone when they were re-examined. A third evaluator found some lesions but as of this writing, has not received the oral pathology report.

ECONOMICS

Slightly more than half (57%) of evaluators charged for the Vx exam, while the other 43% did not. Of the evaluators who charged for the exam, half charged between $16-$20, 25% charged $11-$15, and 25% charged $26+. One evaluator quoted a fee, but if the patient resisted, then he still performed the Vx exam.

MARKETING

A brochure that shows a young woman on the front covering her mouth with her hand and a tagline proclaiming "Your Mouth Can Hide a Secret…" and then at the bottom, it states "That's Why We Use the VELscope Vx." Inside are three identified testimonials, some oral cancer statistics, risk factors, and what the VELscope does, while one panel on the back declares "As seen on The Doctors and Dr. Oz". The message of this brochure

comes across loud and clear and should convince patients it is in their best interest to have the exam.

There are also two posters, one of which proclaims "Speak Up For Your Mouth" and then goes on to state "When It Comes To Oral Cancer, Silence Can Be Deadly." The other shows a smiling woman with the headline "Oral Cancer Doesn't Make A Sound…So You Need To Speak Up!" Both posters are well-done and definitely get the message across loud and clear.

DIRECTIONS

Plastic-coated, full-sized, step-by-step examination guide and a separate, double-sided, plastic-coated quick reference guide. Both of these are well-done, with numerous color photos and illustrations. In addition, there is a DVD that includes a PDF of the 33-page operation manual, plus the exam guide and quick reference guide, also in PDF format. And, as usual, there is a plethora of information on the manufacturer's site, including training videos, which one evaluator found to be very helpful.

REALITY

STRENGTHS Noninvasive. No need for the patient to swish a bad tasting rinse (vinegar) prior to exam. Solid research base promotes confidence in its results. Positive patient response — very appreciative. Exams do not require much time. Cordless design much more convenient and easier to use compared to previous corded version. Unit looks impressive. Ability to attach the camera and take images is helpful when following changes to lesions.

WEAKNESSES Since it shows any cytological changes, including pizza burns and cheek bites, it may have more false positives than other screening devices. This could cause unnecessary patient anxieties. There is a learning curve to see the soft tissue under the fluorescing light and to identify abnormalities. Fan is somewhat noisy. While cost is lower than the original version, it still cannot be considered inexpensive and being able to charge for exams to cover its cost is questionable.

BOTTOM LINE

Definite improvement over the original model, with its cordless design, which encourages multi-treatment room use, and adding it to your exam armamentarium along with photographic documentation could be a life saver for some patients, especially those in the high risk group, but its learning curve is still not flat and even its lower price is not incidental.

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