



# EXPANDING EYECARE'S VIEW OF THE RETINA

Advanced imaging technology is giving eyecare providers a wider view of the retina to better monitor pathology

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By John Warren, OD

Over the last several years, I have replaced or upgraded a number of imaging devices and instruments to improve patient care at my eyecare practice in Wisconsin. At Warren Eye Care, we are committed to evaluating patients in the most efficient manner possible. The latest technology makes it possible for us to rapidly collect data and information on the status of the eye so we can make an accurate and timely diagnosis.

Following the merger of iCare and CenterVue in 2019, iCare added the well-known and respected TrueColor Confocal Imaging Systems including EIDON, EIDON AF, EIDON FA, EIDON Ultra-Widefield (UWF) Module, DRSplus, and fundus automated perimetry with the COMPASS and MAIA. Since

I was already the satisfied owner of several devices from iCare—the DRSplus TrueColor confocal retinal imaging, the COMPASS automated perimeter with active retinal tracking, and the iCare tonometer—I recently decided to take my imaging and diagnostic capabilities to the next level with the EIDON Ultra-Widefield. I have not been disappointed.

The greatest benefit has been the ability to use one instrument for my entire fundus evaluation, improving clinic throughput. At the end of the day, I have fewer images to evaluate, leaving me with more time for patient care. The lack of dilation also is less intrusive and more comfortable for patients; after a minute or two they have no ongoing symptoms or issues, unlike the post-dilated fundus exam.



### Case #1: Diabetic Retinopathy

For more than a decade, I have been caring for this 55-year-old white female with type I diabetes who developed background diabetic retinopathy about five years ago.

Using the flicker function on the COMPASS, the DRSplus, and more recently the EIDON Ultra-Widefield, I was able to observe a change in retinal appearance over time along with progression (which thankfully has been minimal to moderate). Along with the flicker function, the superior resolution of the EIDON UWF images allowed me to easily but, more importantly, clearly appreciate and judge the presence and progression of the retinopathy.

Combined with OCTA, I have an outstanding ability to not only evaluate the patient's retinopathy, but to follow its progression, and educate the patient and motivate her to improve her blood sugar control.

Figures 1 and 2. Image quality improvements can be seen between the earlier retinal image (top) and subsequent EIDON Ultra-Widefield (bottom) image. Images: John Warren, OD

### NEXT-LEVEL IMAGING

The advantages of confocal imaging are many. In addition to offering superior image quality and capturing an unsurpassed depth of detail, this advanced technology reduces scattered and reflected light outside the focal plane; and

deftly captures ERM, drusen, dot blot hemes, etc. through cataract and media opacities.

There is no question that, compared to standard fundus imaging, TrueColor Confocal Imaging built into our COMPASS automated perimeter, DRSplus, and EIDON Ultra-Widefield

provides superior resolution, with much less impact from smaller pupils and media opacities. We've found that we get good images down to 1.8mm pupils.

Specifically, the EIDON Ultra-Widefield ability (up to 200° panoramic view) to illuminate early signs of ocular pathology in my patients means I can better evaluate the entire fundus than with traditional fundus exams (i.e., BIO, condensing lenses, and slit lamp evaluation). Even after 30 years of experience, I notice things in the peripheral retina that I couldn't see with my BIO.

Because I can spend more time examining the fundus structures vs. just having a fleeting glance at them with BIO, I'm much more likely to pick up on subtle findings, especially with the resolution provided by the EIDON Ultra-Widefield. Having a holistic view of the fundus helps greatly, not to

mention the comprehensive imaging records I have access to going forward. Certainly, there have been times I've felt the need to perform a DFE after UWF imaging, but in most cases, we are able to acquire high-enough quality images with UWF imaging alone to satisfy my clinical exam needs.

Another feature that is available on all iCare imaging devices is the "flicker" function. This enables side-by-side image comparison which has improved my ability to detect subtle changes and analyze especially challenging cases. I had no idea how dramatically it would improve my diagnostic process and efficiency until I had the COMPASS fundus perimeter for about six months. By then, not only did I have reliable visual field results, but I had imaged enough AMD and glaucoma patients to appreciate the power of easily flipping between current and previous images. Seeing

## Case #2: Retinal Tear & BRVO

This 62-year-old white female patient has had hypertensive retinopathy and an inferior branch BRVO in her left eye that has waxed and waned with retinal edema and hemorrhage for about a decade. In January, the patient presented with a visual distortion in her left eye.

As was evident from the initial DRSplus image, the pre-retinal heme cleared over time, leaving a moderate ERM with significant pucker behind. Regression can be seen on the follow-up DRSplus image.

Subsequent EIDON Ultra-Widefield imaging revealed the ERM quite clearly, as well as a new horseshoe tear superior temporal. The ERM and the tear did not show up nearly as well on other retinal imaging devices I used.

The patient was sent to her retina specialist (with whom I have been sharing care over the last few years) for retinopexy. I have not seen the patient back for follow-up post-treatment, but I'm looking forward to seeing the specialist's work based on the EIDON Ultra-Widefield findings.

Figures 1, 2, and 3. In initial DRSplus (top) image, I observed the pre-retinal heme clear over time, leaving a moderate ERM with significant pucker. Follow-up DRSplus (middle) image revealed regression. Subsequent EIDON Ultra-Widefield (bottom) image showed the ERM quite well, as well as a new horseshoe tear superior temporal. Images: John Warren, OD



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drusen appear, watching ONH rim erode, and tracking the increasing/decreasing size of a diabetic heme are all powerful ways I can evaluate structures over time. Now I can't imagine practicing without this capability.

### ADVANCING THE PRACTICE

All of the iCare technologies I've added have improved clinical efficiency and/or patient experience. Here are just a few examples:

- The EIDON Ultra-Widefield eliminates dilation time and enables patients to resume CL wear immediately after their exams.
- iCare rebound tonometry is more patient friendly than NCT and Goldmann, and much quicker to perform.
- Using the built-in review software enables us to create and review patient findings from any computer in the office.
- Because of automation and easy to navigate software, all of my iCare devices have been incredibly simple to

install and train staff on. My team unboxed, set up, and took our first images of my fundus with our new DRSplus in less than 15 minutes.

- Technology updates are rapid and seamless with iCare imaging devices. After we make a few selections on the devices, the iCare support team logs in and completes the process.

Patients have come to expect an exceptional experience in my office, thanks to the help of such technology advancements. Four out of 5 of our new patients comment on the ease of having pressures taken with the iCare tonometer, and they have responded positively to faster, more comfortable fundus evaluations. There is no doubt in my mind that iCare has helped us meet and exceed our patients' expectations. ■

**John Warren, OD, is owner of Warren Eye Care, based in Mt Pleasant, Wis.**

### Case #3: Macular Degeneration

One of the most common finding I follow with my iCare imaging products is AMD. I utilize the TrueColor confocal imaging systems, red-free imaging to evaluate drusen, and the flicker function to monitor progression over time.

For the last decade, I have been following this 68-year-old white male who has had dry AMD for more than 20 years. As of now, he's not showing any SRNV.

The flicker function on the COMPASS and DRSplus has been extremely helpful for evaluating the patient's current status and any disease progression between patient visits.

Comparing the most recent EIDON Ultra-Widefield image to an earlier image, it becomes clear that TrueColor image quality and resolution are necessary to adequately evaluate and document this patient's macular findings.

Figures 1 and 2. When comparing the earlier (top) image with the more recent EIDON Ultra-Widefield (bottom) image it becomes clear that TrueColor confocal imaging quality and resolution are necessary to adequately evaluate and document this patient's macular findings. Images: John Warren, OD

