

# optomap®

## ULTRA-WIDEFIELD ADVANCES



**A recent review of advances in ultra-widefield retinal imaging systems and applications, highlights the importance of visualizing pathology in the retinal periphery specifically related to: diabetic retinopathy, retinal vein occlusion uveitis, and the pediatric retina.**

Optos systems (California, Daytona, Monaco and Silverstone) capture **optomap®** images, all of which meet the recently defined ultra-widefield (UWF™) definition established by a consensus group of international retinal imaging experts. UWF is a single capture image that is centered on the fovea and contains anatomical features anterior to the vortex vein ampullae in all four quadrants, where the field of view is 110°-220°. Optos is currently the only UWF system commercially available on the market that fits this definition.

The clinical utility of ultra-widefield imaging for diabetic retinopathy (DR), retinal vein occlusion (RVO), uveitis and the pediatric retina continues to improve our understanding, management and treatment of these diseases by capturing peripheral changes in pathology. With the use of multimodal systems, such as the Optos, an array of capabilities including color imaging, autofluorescence (AF), fluorescein angiography (FA), indocyanine green angiography (ICG) and optical coherence tomography (OCT) are used to identify abnormalities which may have clinically significant implications.

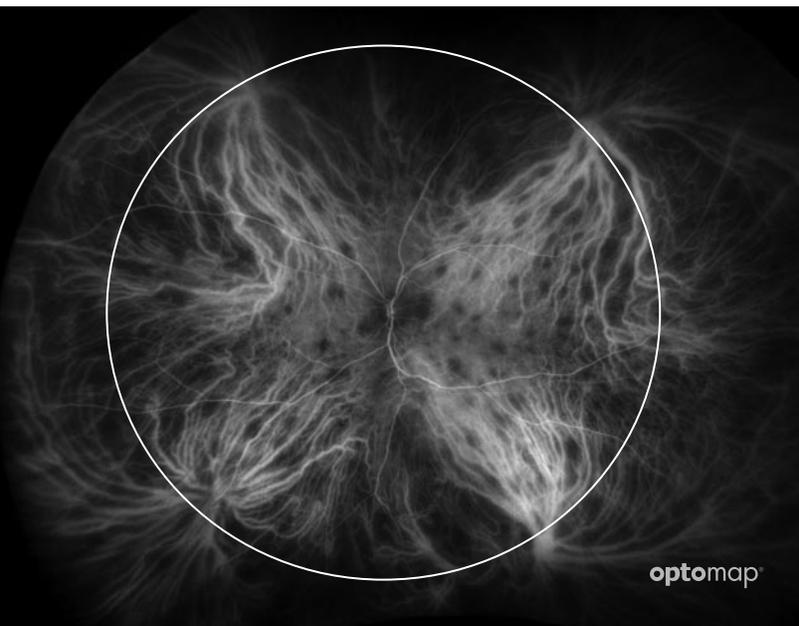
*“The ability to capture images of the peripheral retina with relative ease has provided insights into the importance of disease related peripheral pathology that was previously unknown.”*

— *Therapeutic Advances in Ophthalmology, 2020*

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An update on recent advances within ultra-widefield (UWF™) retinal imaging with review of the current UWF imaging systems. The update reviewed the clinical utility of ultra-widefield imaging in diabetic retinopathy, peripheral pathology in DR, UWF imaging for telemedicine in DR, retinal vein occlusion, uveitis, and the pediatric retina. Other conditions and future directions in the field of UWF imaging were briefly reviewed.



optomap iCG image demonstrating the consensus defined ultra-widefield field of view

- **optomap** images capture approximately 200° (82% - single capture) - 220° (97% - automontage) of the retina in an undilated eye (noncontact). Reduced peripheral distortion was noted as a limitation however, Optos has corrected this in **OptosAdvance ProView™** software using the Mercator projection. The accuracy of measurements in the periphery has been confirmed<sup>3</sup>.
- Four additional commercially available wide-field and UWF imaging systems were reviewed with the next largest single captures noted at 150° and 133° however these systems have limitations of contact required and reduced view of the retina respectively.
- Several studies have confirmed **optomap** as the largest single capture field of view<sup>4,5,6,7</sup>.
- The bulk of UWF research and equivalence to gold standard imaging has been on Optos devices, demonstrating reliable clinical utility over the years. Other devices are too new to market to confidently know their reliability and clinical utility.
- In a study of 58 normal eyes, an UWF-FA revealed a high presence of peripheral vascular variations in anatomy.<sup>2</sup> Because of the wide range of normal anatomy in the periphery our understanding of these findings continues to progress which in the future may have clinical significance.

#### References:

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2. Widefield fluorescein angiography in patients without peripheral disease: a study of normal peripheral findings. Retina. 2016.
3. Assessment of Accuracy and Precision of Quantification of UWF Images. AJO. 2019.
4. Assessment of diabetic retinopathy using two ultra widefield fundus imaging systems the Clarus and Optos systems. BMC Ophthalmology. 2018.
5. Quantitative comparisons of ultra-widefield images of model eye obtained with Optos® 200Tx and Optos® California. BMC Ophthalmology. 2019.
6. Comparison of Widefield Imaging Between Confocal Laser Scanning Ophthalmoscopy and Broad Line Fundus Imaging in Routine Clinical Practice. OSLI. 2020.
7. Comparisons of Effective Fields of Two Ultra-Widefield Ophthalmoscopes, Optos 200Tx and Clarus 500. Hindawi. 2019.



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