Ultra-widefield Clinical Focus
Diabetes
About Optos
About Us

Optos was founded and incorporated in 1992 by Douglas Anderson after his then five-year-old son Leif went blind in one eye when a retinal detachment was detected too late.

Today, 10,000 practices and hospitals worldwide trust optomap ultra-widefield imaging technology and more than 50 million patients have received an optomap.

2014, Leif and Douglas in front of Forth Bridge, Edinburgh
What is Ultra-widefield Retinal Imaging?
Why UWF™?

- Early signs of many ocular pathologies and diseases are evident on the retina, long before the patient notices any symptoms.

- These signs may first present in the periphery and can initially go undetected using traditional examination techniques and equipment.
Summary of Technology

The only 200° ultra-widefield retinal image of the retina, in a single capture

- Images can be taken through most cataracts and vitreous opacities
- Non-mydriatic through 2mm pupils, in less than one second
- Fast, comfortable and convenient for all patients
- Multiple imaging modalities
- Comparison overlay for monitoring eye health
- Images available immediately for review
- 3D wrap for patient education
The Importance of **optomap** in Comprehensive Eye Exams

- Diagnose eye disease earlier
- Systemic disease may present first in the retina
- Routine exams confirm ocular and systemic health or identify retinal abnormalities and diseases
- Most causes of vision loss are preventable if discovered, counseled and treated early
**optomap Benefits**

- **optomap** can help reveal important clinical information for the comprehensive evaluation of systemic and ocular health.
- **optomap** can help detect, diagnose, monitor and treat retinal pathology.
- Patient education tools are included in the software.
- Clinically validated by 300+ studies.
Clinical Evidence
**optomap** finds 66% more than traditional fundus cameras

- All Optos peer-reviewed publications were reviewed from a 3 year period (2010-2013) to determine if prevalence of peripheral pathology was reported.

- Peripheral pathology was defined as lesions outside of 60° of the optic nerve head.

- 222 studies were reviewed - 35 studies met inclusion criteria – including 3602 eyes

- Imaging of the retinal periphery found that 66% of retinal findings were outside of the 60° field of view
Demonstrating Clinical Need

- **100%** faster capture. Outperformed all other previous digital systems and equivalent to diabetic screening gold standard. – Silva, American Journal of Ophthalmology, 2012

- **97%** of patients with AMD were found to have peripheral changes associated with the disease. - Friberg, AREDSII OPERA sub-study, ARVO, 2015

- **92%** reduction in ungradeable images in a telemedicine screening environment – Silva, Ophthalmology, 2016

- **76%** more abnormal peripheral findings than standard exam due to use of autofluorescence – Sadda, IOVS, 2012

- **66%** of pathology is found outside of 60 degrees – Kehoe, 2016

- **62%** more peripheral non perfusion in diabetic retinopathy - Kiss, Retina, 2012.


- **30%** more retina lesions identified than BIO – Brown, Eye and Brain, 2015.

- **4.7** times more likely to progress to proliferative diabetic retinopathy if peripheral lesions are present. – Silva, Ophthalmology, 2015.
The Importance of the Periphery
Increasing our Clinical Evidence

- We are pleased to report that 2016 saw 55 peer-reviewed publications, 35 trade articles, 10 covers and 127 international podium presentations driving forward our strategy to strengthen the clinical need for ultra-widefield imaging.

- ARVO 2016 included research focused on UWF in 96 abstracts encompassing 23,453 eyes across 22 countries from 119 institutes.
Diabetes
A number of clinical studies have compared optomap imaging with ETDRS imaging with many showing that optomap imaging compares well with ETDRS imaging in screening and grading of DR$^{1,2}$

2. Rasmussen, Broe, Peto, Grauslund. Non-mydriatic Ultra-widefield Images Compared to 7-field ETDRS Standard Images for Screening of Diabetic Retinopathy (Poster)
The most comprehensive study thus far has found:

- Sensitivity and specificity of UWF images for detecting and identifying DR on ETDRS photographs were 99% and 100%\(^1\)

- Nonmydriatic UWF images compare favorably with dilated ETDRS photography in determining DR and DME severity. Exact DR severity agreement between UWF 100-degree imaging and ETDRS photography occurred in 84%, with agreement within 1 level in 91%\(^1\)

Undilated Optos images had excellent agreement with both dilated ETDRS photos and dilated fundus examination in determining severity level of DR and DME.

In grading DR severity, Optos images demonstrated high agreement and substantial to almost-perfect correlation with both lesion level and clinical level grading of ETDRS photos.

Optos' digital imaging for DR was also noted to outperform other digital non-mydriatic cameras when compared with the gold standard by 12-15%.
**Diabetes: Changing the Standard of Care**

**optomap** has a faster acquisition time, fewer ungradeable images and identifies more diabetic retinopathy lesions impacting severity grading

- UWF imaging acquisition time was less than half that of dilated ETDRS photography\(^1\)
- One study identified that 40% of lesions were in the area outside of ETDRS and that in 10% of patients these lesions suggested a more severe grade of retinopathy. These peripheral lesions have been correlated to an almost 5 fold increase in risk of progression to proliferative diabetic retinopathy.\(^2,3\)
- In a standardized DR ocular telehealth program, UWF reduced the ungradable rate by 92% (to less than 2%) and reduced image evaluation time by 28%. DR was identified 2 fold more.\(^4,5\)
Eyes with predominantly peripheral lesions (defined as outside of ETDRS 7 standard field) had a **4.7 fold increased risk of progression** to proliferative diabetic retinopathy (PDR).

Eyes with predominantly peripheral lesions had a **3.2 fold risk of 2 step progression in DR**.

UWF imaging has demonstrated that diabetic lesions occur in the retinal periphery in up to 40% of eyes and these lesions might result in a more severe grade of retinopathy in 10% of eyes.

"Given that evaluation of these peripheral lesions may substantially alter risks of DR progression and onset of PDR, revision of the current ETDRS standard grading system may become necessary."