

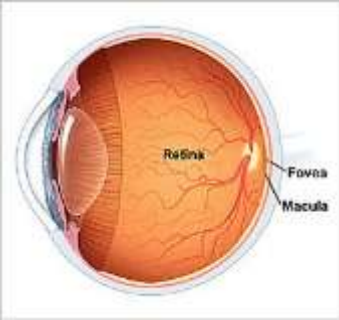
Nicholas Lee

Frontiers of Retina

Back of the EYE



The Hillingdon Hospitals **NHS**
NHS Foundation Trust



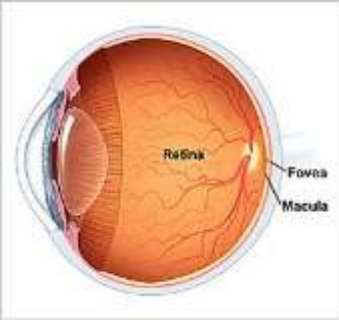
Which has the more serious eye Problem?



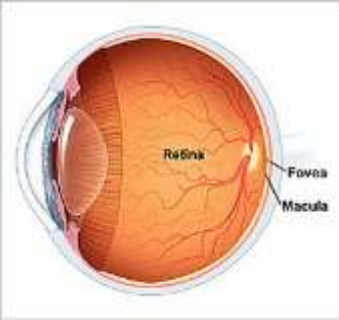
The Hillingdon Hospitals



NHS Foundation Trust



- GP
 - History
 - Pen torch
 - Ophthalmoscope
 - Vision Chart
- Limitations
 - Equipment
 - Knowledge/Training
 - Time
- Optometrist
 - Glasses/Refraction
 - Slit Lamp
 - Field Machine
 - Camera
 - ? OCT
- Limitations
 - Knowledge/Training
 - Cannot Dx
 - Limited Treatment
 - Time/Dilatation



- WEH Casualty
 - Immediate Care
 - Trauma/True Emerg.
 - Equipment
 - Access to Expertise
- Disadvantages
 - Travel/Wait
 - Expertise
 - No on going care

- Community/Hospital
 - Rapid/Routine Access
 - Quality Equipment
 - Quality Expertise
 - Holistic Approach
 - Treatments
 - Time
- Limitations
 - Requires Referral
 - Waiting times

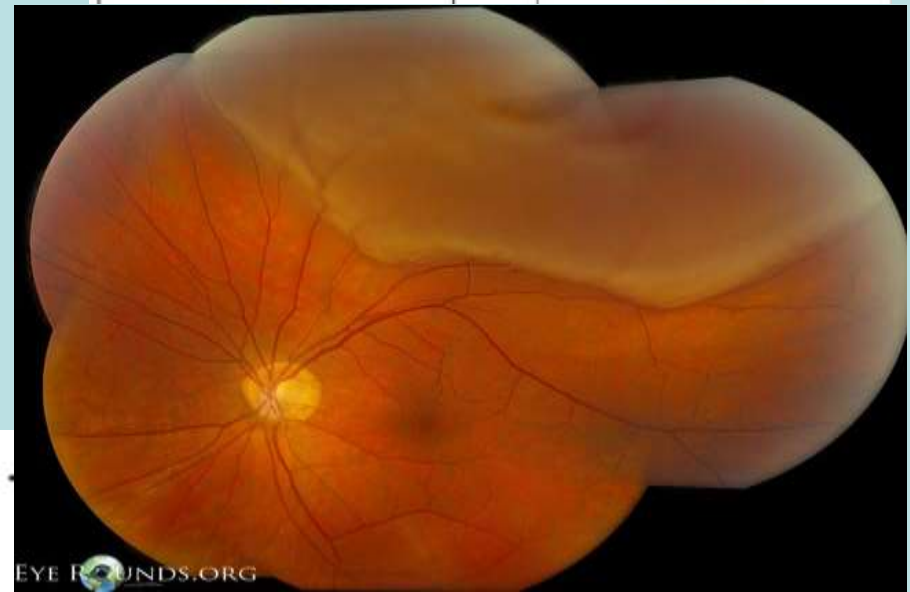
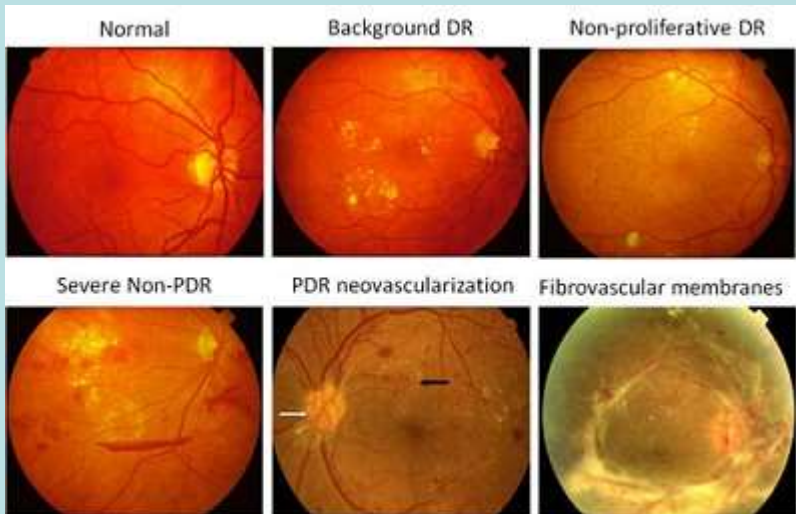
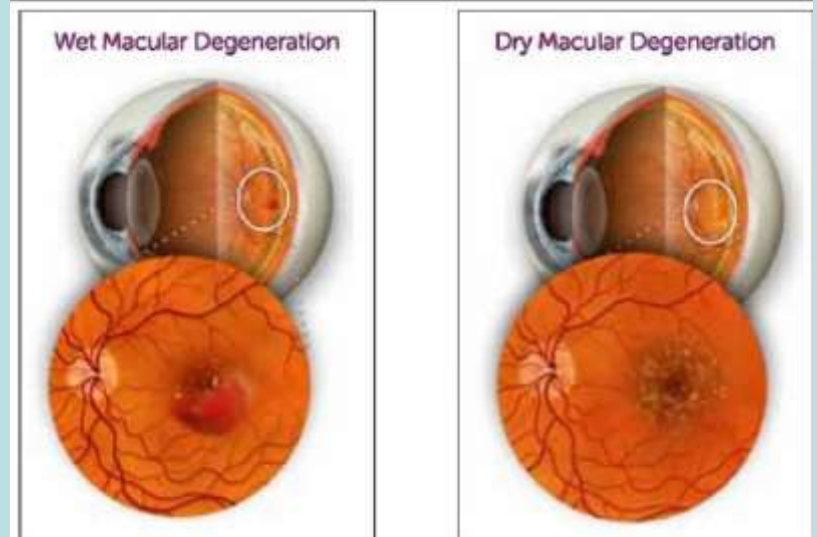
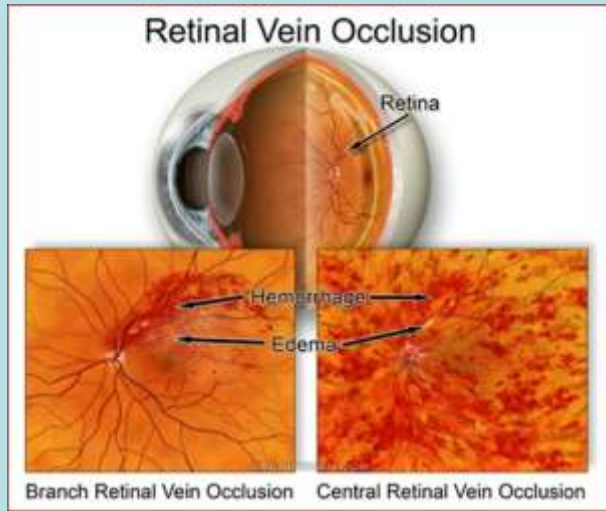


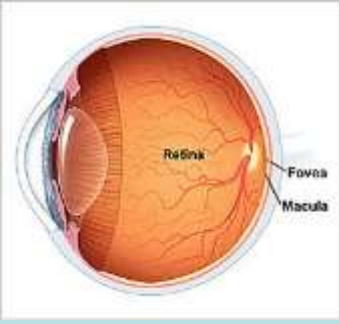
The Hillingdon Hospitals



NHS Foundation Trust

Common Retinal conditions





Nice Guidance



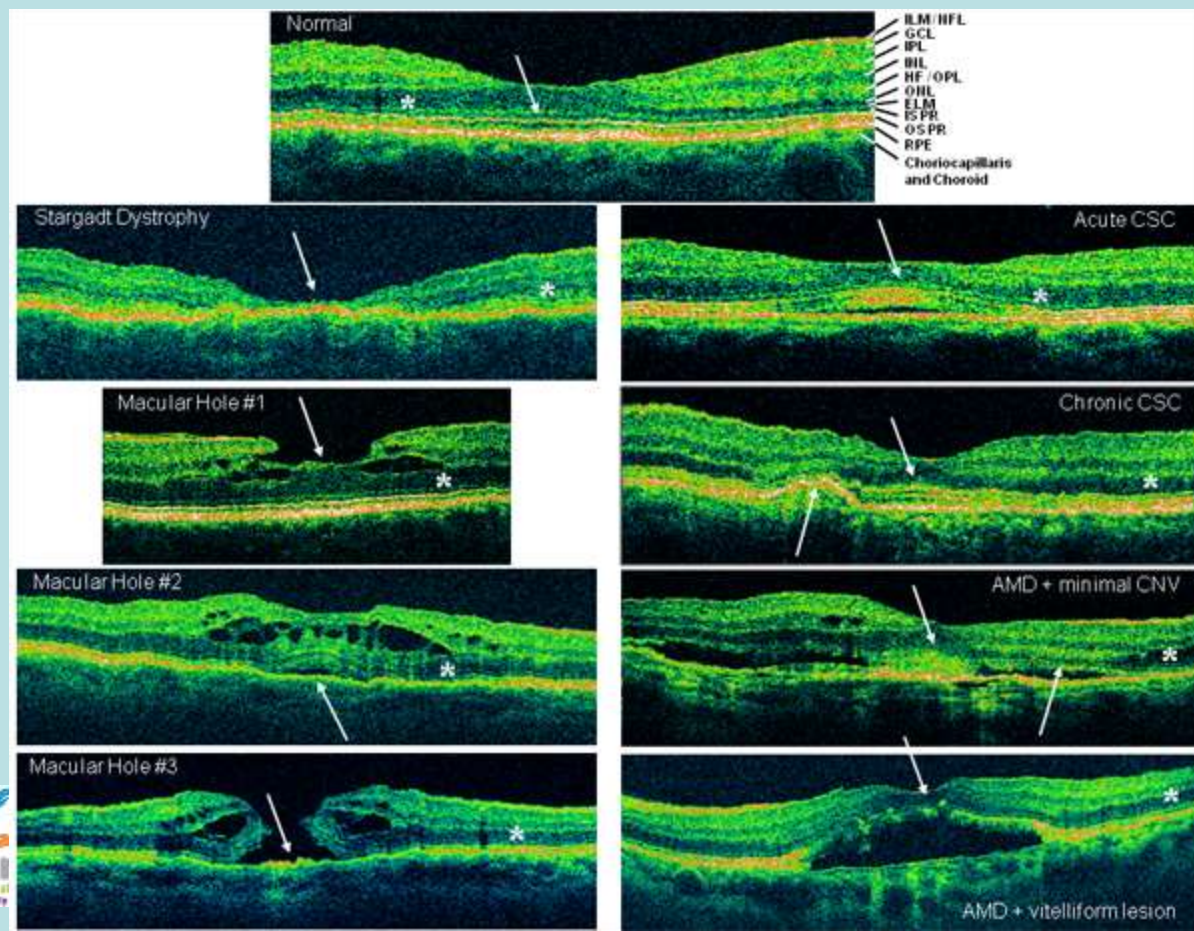
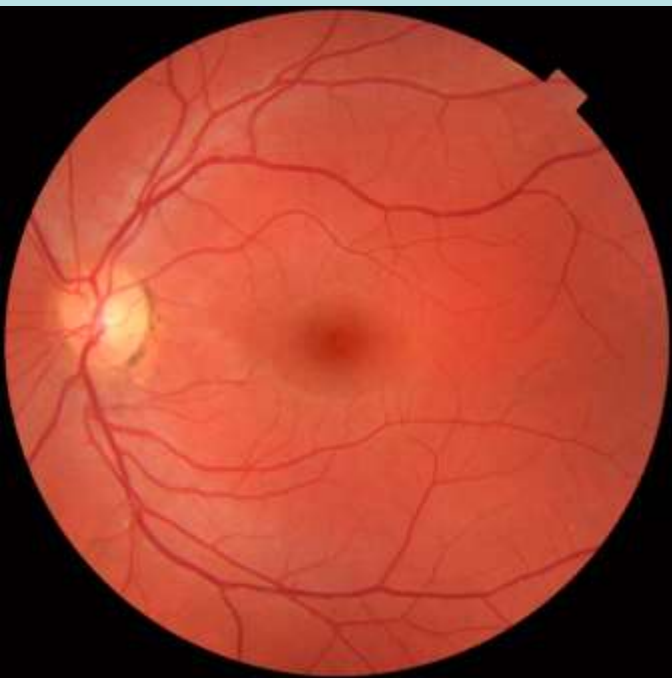
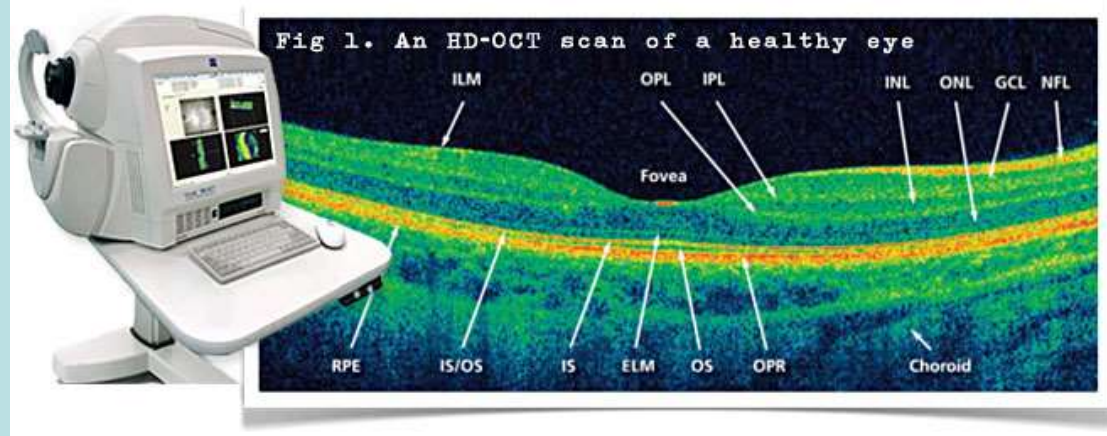
- Macular degeneration
 - Lucentis, Eylea, 2008 – 2013
 - Brachytherapy, Radiotherapy
- VMT – Orciplasmin
- Diabetes
 - Lucentis, Eylea, Iluvien, Ozurdex
- Vein occlusions
 - Lucentis, Eyelea, Ozurdex
- Myopic Disciforms - Lucentis



The Hillingdon Hospitals



NHS Foundation Trust



Academia

Start-up

Carl Zeiss Meditec

1980s

Basic Research

1991

Patent Application

1995

Early Prototype

1996

OCT1 (lab tool)

1997

OCT1

2000

OCT2 (modified)

2002

Stratus OCT

2007

Cirrus HD-OCT

2011

Software Upgrades

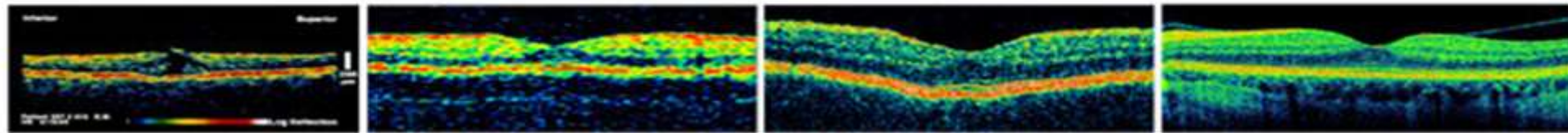
1st Generation



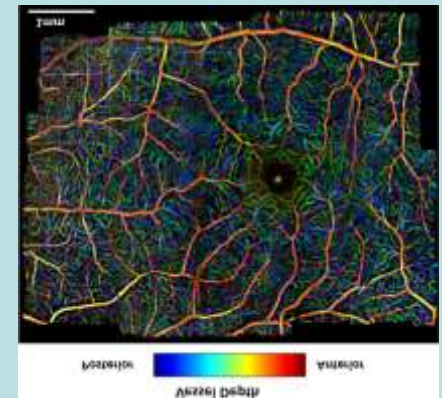
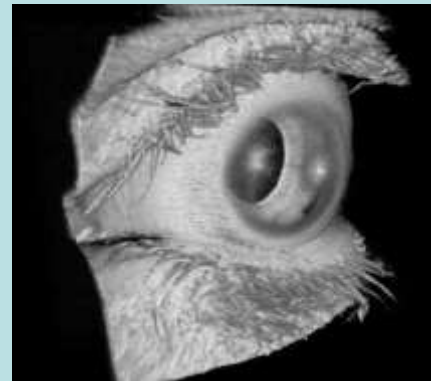
2nd Generation



3rd Generation



- 2015 Swept source
- OCT angiography



The Hillingdon Hospitals



NHS Foundation Trust



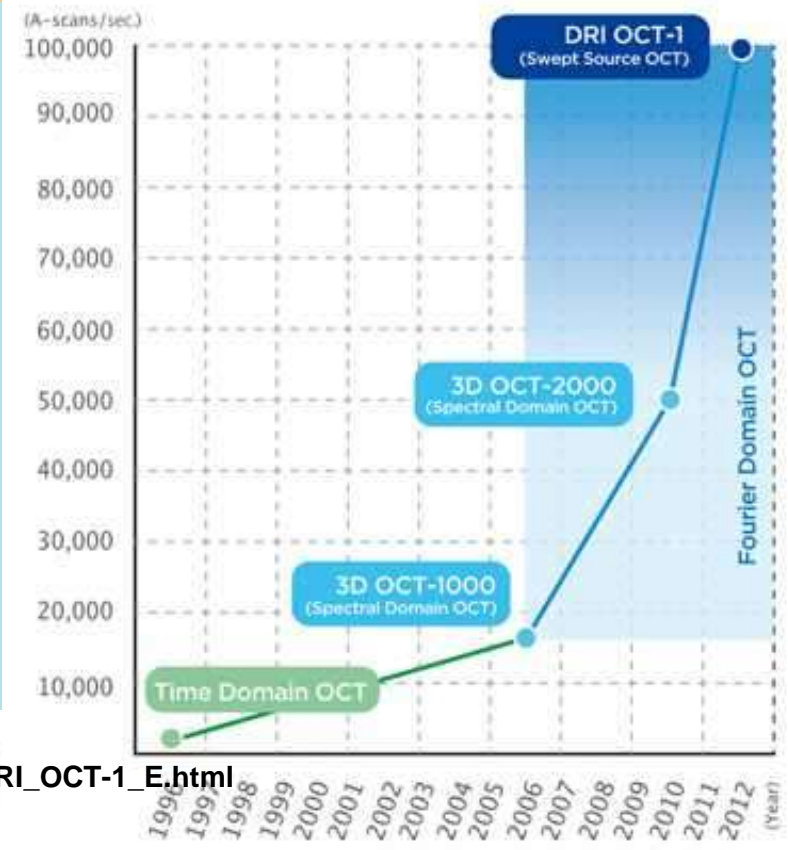
DRI OCT-1 Atlantis

Swept Source
Optical Coherence Tomography

See, Discover, Explore



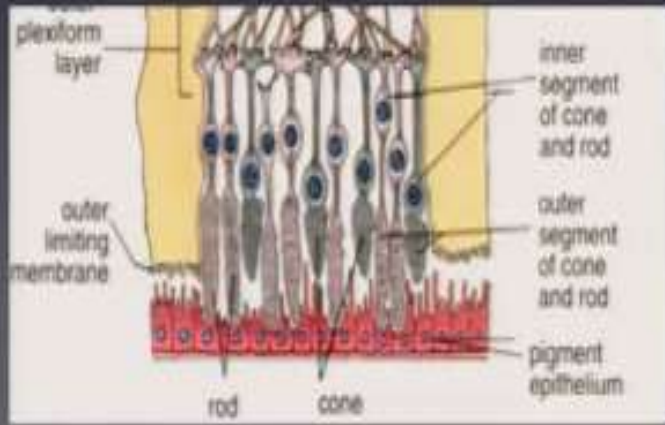
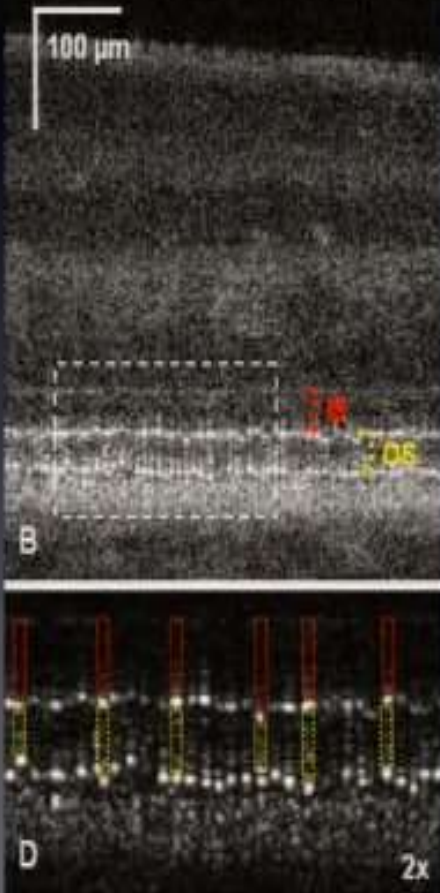
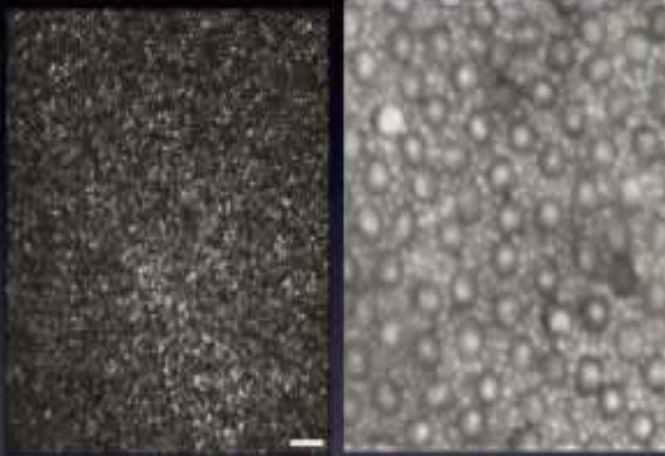
- **Topcon SS-OCT**



Adaptive Optics Imaging of Photoreceptors

AO - SLO

AO - OCT



- Where Next? – Cellular Imaging
- Adaptive Optics
- Different Wavelengths
- Research Only Currently

- Richard Rosen AAO 2011

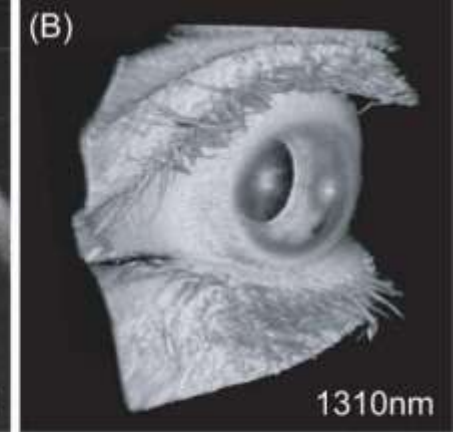
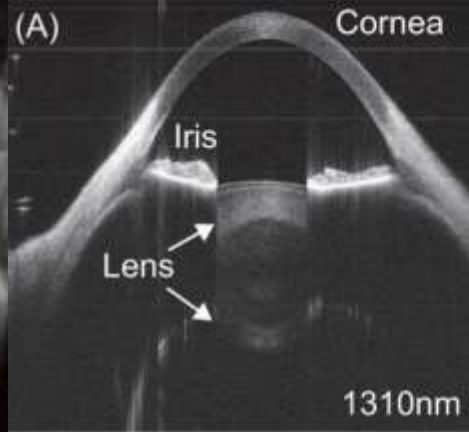


The Hillingdon Hospitals

NHS Foundation Trust



Cellular Markers

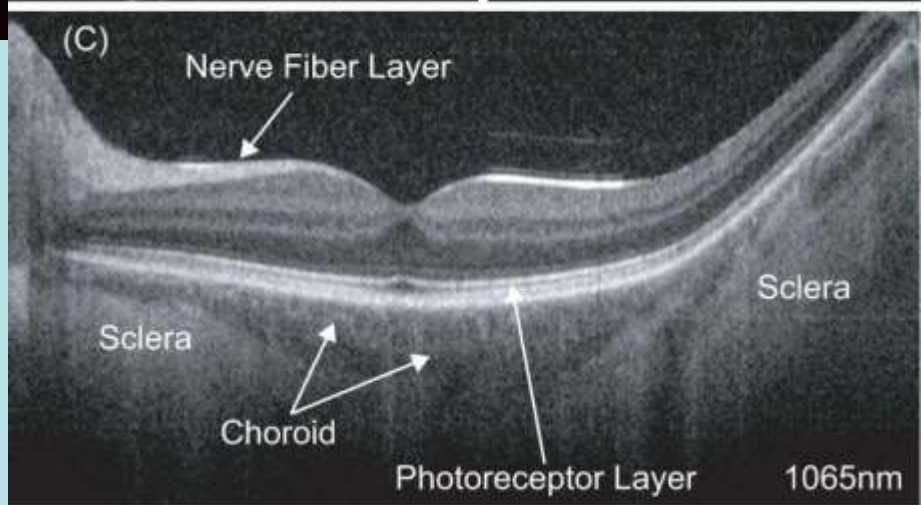


Vitreous imaging with SS-OCT

With SS-OCT, both the vitreous and choroid can be imaged simultaneously with brilliant detail



Zeiss SS-OCT prototype (investigational device, not FDA cleared)



• http://english.ioe.cas.cn/ns/Sciencenews/20120120828_90302.html

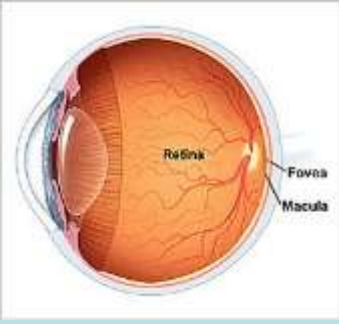
• <http://www.tomey.com/Products/OCT/SS-1000CASIA.html>



The Hillingdon Hospitals



NHS Foundation Trust



What Can YO do?



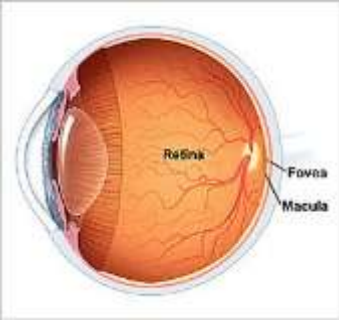
- History
 - All in the History
- Check Vision – With their Glasses!
 - 6/6
- Check for distortion
 - Amsler Chart
- Examine Front of eye
 - Pen Torch, Heine Slit lamp



The Hillingdon Hospitals



NHS Foundation Trust



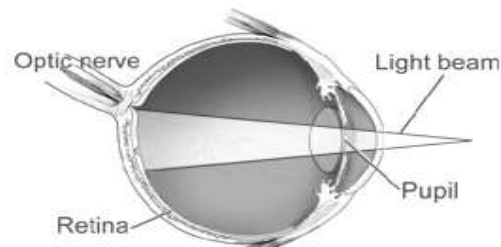
Pupil dilatation is safe



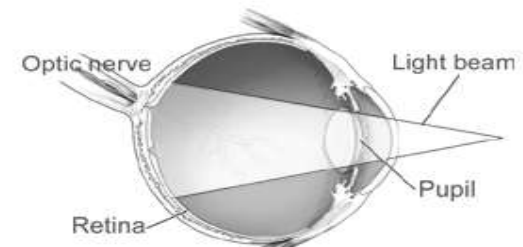
- Rotterdam Study – 6760 patients – 0.03%
- Baltimore Study - 4870 Patients - 0.00%
- Blue Mountain - 3654 patients – 0.00%
- Meta-Analysis - 600,000 Patients – 0.006%
- Risk in general population – 1-6 in 20,000 patients
- COAG 13 studies 1000 patients – 0.00%
- Rotterdam Study with Flat AC -149 Patients - .7%

g. Tropicamide 0.5% one Drop

Warn patients to return/AE
Red painful eye, blurry vision,
nausea and vomiting

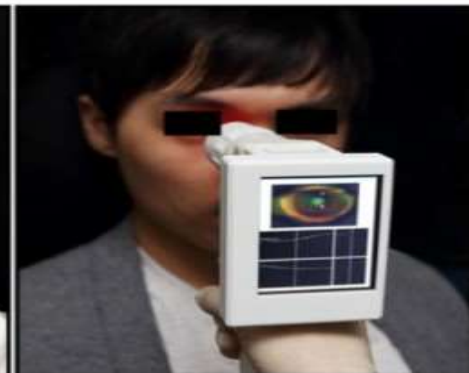
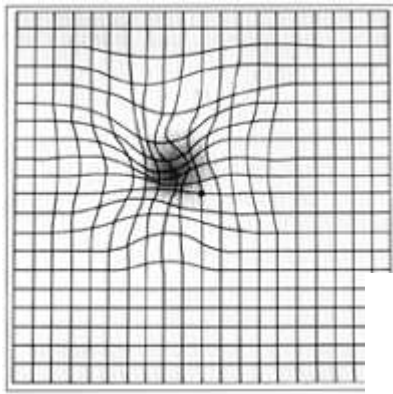


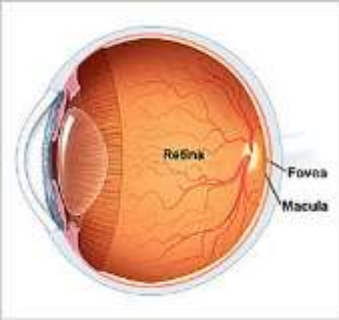
Portion of retina
that can be seen
through undilated pupil.



Portion of retina
that can be seen
through dilated pupil.







Education

- Internet
 - PubMed
 - RCOPhth, Nice, RSM, etc
 - www.nicholaslee.co.uk
 - Email, TeleMedicine, Phone
- Education
 - RSM
 - WEH Teaching Friday AM
 - Hospital/Community Clinics
- Equipment



The Hillingdon Hospitals **NHS**
NHS Foundation Trust