



Optovue Optical Coherence Tomography

Specific Instrument	Optovue
Measures/Output	Anterior segment/retinal/macula/optic nerve head cross-section and morphology, macular thickness, peripapillary retinal nerve fibre layer thickness.
Sample clinical use	Lasik; keratoconus; age-related macular degeneration; diabetic retinopathy; glaucoma; retinal dystrophies.



Pascal Tonometer

Specific Instrument	Pascal dynamic contour tonometer
Measures/Output	Measures intraocular pressure by a method which reduces the effect of corneal properties on the measurement.
Sample clinical use	Glaucoma



Pachmate Ultrasonic Pachymetry

Specific Instrument	DGH pachmate
Measures/Output	Total corneal thickness.
Sample clinical use	Glaucoma assessment; corneal disorders.



Psychophysical Visual Testing *

Specific Instrument	Custom visual psychophysical testing suites using the Cambridge Research System.
Measures/Output	Quantitative study and measure of visual perception of both monocular sensory and binocular sensory processes. Provides for threshold-level assessment of visual functions that are known to be affected in ocular disease.
Sample clinical use	To investigate suspected anomalies of colour vision, spatial or temporal vision (including contrast sensitivity), higher order visual processing (hyperacuity, motion perception) and binocular vision. Testing allows for early detection and quantification of small changes in visual function over time.



Tomey A-Scan and B-Scan Ultrasonography

Specific Instrument	UD-6000a
Measures/Output	A-Scan biometry and B-Scan eye cross-section/morphology.
Sample clinical use	Assessment for cataract surgery; posterior eye tumours; optic disc drusen.

* Available from August 2010

Centre for Eye Health

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Centre for Eye Health

Instrument List for Ophthalmologists

Centre for Eye Health (CFEH) provides access to the latest diagnostic instrumentation for assessing the structural and functional integrity of the eye and visual pathways. Below is a list and brief description of the instrumentation (in alphabetical order) currently available for use upon referral by Ophthalmologists registered with CFEH. It is envisaged that additional equipment will be purchased during the future operation of the Centre.



Canon Fundus Photography

Specific Instrument	CF-I mydriatic and CR-I non-mydriatic fundus cameras
Measures/Output	En face colour fundus images.
Sample clinical use	Stereoscopic viewing of the optic nerve head; imaging of retinal and choroidal pathology.



Clinical Visual Electrophysiology Suite *

Specific Instrument	Diagnosys Espion
Measures/Output	Measures electrical potentials from the retina and the visual cortex using multifocal, pattern and Ganzfeld (full-field) stimulations and provides objective measurement of functional vision.
Sample clinical use	Provides baseline measurements and aids in monitoring side-effects of medication (such as Plaquenil); visual acuity estimation; and monitoring patients with optic neuritis using VEP.



Confoscan Corneal Assessment

Specific Instrument	Nidek Confoscan 4
Measures/Output	En face confocal microscopy of the cornea with up to 500x magnification.
Sample clinical use	Epithelial/total corneal thickness; corneal substructure and morphology; endothelial cell count.



GDx Scanning Laser Polarimetry

Specific Instrument	GDx Pro
Measures/Output	Peripapillary retinal nerve fibre layer thickness with ECC and VCC options.
Sample clinical use	Glaucoma; optic neuropathies.

* Available from August 2010



Haag-Streit Optical Biometry Using Partial Coherence Interferometry	
Specific Instrument	Lenstar LS-900
Measures/Output	Axial length, corneal thickness, anterior chamber depth, crystalline lens thickness, vitreous chamber depth, retinal thickness, IOL power.
Sample clinical use	Assessment for cataract surgery; glaucoma; myopia progression.



Humphrey Visual Field Analysis	
Specific Instrument	HFA Model 750
Measures/Output	Sensitivity of the visual field using white-on-white or blue/yellow stimuli plus GPA analysis.
Sample clinical use	Glaucoma assessment; pathology of the anterior and posterior visual pathways.



Haag-Streit Pachymetry	
Specific Instrument	Haag-Streit OLCR pachymeter
Measures/Output	Corneal thickness to one micrometer accuracy using an interferometry technique.
Sample clinical use	Central corneal thickness.



Humphrey Matrix Perimetry	
Specific Instrument	Matrix
Measures/Output	Sensitivity of the visual field using frequency-doubling stimuli.
Sample clinical use	Glaucoma assessment; pathology of the anterior and posterior visual pathways.



Haag-Streit Video Slit Lamp Imaging	
Specific Instrument	Haag-Streit BQ 900 video slit lamps and Haag-Streit BX photographic slit lamp
Measures/Output	Video and still digital imaging of the anterior segment.
Sample clinical use	Imaging pathology of the anterior segment of the eye.



ImagineEyes Wavefront Aberrometry	
Specific Instrument	IRX3 (Shack-Hartmann)
Measures/Output	Total eye refractive aberrations expressed in Zernike coefficients; modulation transfer and point spread function; Strehl ratio.
Sample clinical use	Assessment for, and post-operative management of; refractive/cataract surgery; keratoconus.



Heidelberg HRT3 Corneal Assessment	
Specific Instrument	HRT III with Rostock Cornea Module
Measures/Output	En face confocal microscopy of the cornea.
Sample clinical use	Epithelial/total corneal thickness; corneal substructure and morphology; endothelial cell count.



Medmont Corneal Topography	
Specific Instrument	E300
Measures/Output	Corneal topography and curvature variations across the corneal surface.
Sample clinical use	Keratoconus; corneal graft; pterygium.



Heidelberg HRT3 Glaucoma Assessment	
Specific Instrument	HRT III with glaucoma module
Measures/Output	Confocal microscopy of the optic nerve head; optic nerve head morphology; peripapillary retinal nerve fibre layer thickness.
Sample clinical use	Glaucoma; optic neuropathies.



Oculus Pentacam Scheimpflug Photography	
Specific Instrument	Pentacam HR
Measures/Output	Anterior chamber cross section and volumetric assessment, total corneal pachymetry, corneal aberration analysis, crystalline lens densitometry.
Sample clinical use	Keratoconus; corneal dystrophies; glaucoma assessment; cataract surgery assessment.



Heidelberg Optical Coherence Tomography	
Specific Instrument	Spectralis OCT
Measures/Output	Retinal/macula/optic nerve head cross-section and morphology; macular thickness; peripapillary retinal nerve fibre layer thickness; fundus auto-fluorescence.
Sample clinical use	Age-related macular degeneration; diabetic retinopathy; glaucoma; retinal dystrophies.



Optomap Ultra-Widefield Fundus Photography	
Specific Instrument	Optomap P20MA
Measures/Output	Ultra-widefield fundus photography.
Sample clinical use	Diabetic retinopathy; peripheral retinal disorders; choroidal nevi/melanoma.