



STANDARD
LIST

Image courtesy of K Viswanath

ESSENTIAL EQUIPMENT LIST

for screening/monitoring and treatment
for Diabetic Retinopathy (DR)



Published by International Agency for the Prevention of Blindness

IAPB considers appropriate information as a vital resource in improving eye health. In resource-constrained settings especially, procurement decisions can play an important role in, ensuring appropriate equipment and supplies are accessed, equitable access to quality services is facilitated, the investment makes a satisfactory social return and significantly enhances the quality of life of the beneficiaries.

IAPB consults panels of experts with considerable experience, to identify good practice and assist with the compilation of IAPB **Essential Equipment Lists** especially for use in resource constrained settings. NGOs, Ministries of Health, District Health Services, eye clinics and hospitals can use the IAPB Essential Equipment lists to plan and purchase inventory.

Please visit the IAPB Standard List at <http://iapb.standardlist.org> for latest pricing and special rates for IAPB members and their partners.

The IAPB Diabetic Retinopathy Working Group welcomes the inclusion of the *Essential Equipment for Screening, Monitoring and Treatment for **Diabetic Retinopathy*** (DR) in the IAPB Standard List (<http://iapb.standardlist.org>) This list also reflects the procedures and requirements outlined in the ICO Guidelines for Diabetic Eye Care to provide suggestions for equipment and consumables considered essential minimum requirements to perform high quality for screening/ monitoring and treatment for DR. This list provides additional general guidelines to facilitate planning / budgeting. Please note, however, all responsibilities for decisions remain entirely with ophthalmologist, programmes and partners.

This list recognises the multifaceted approach required to reduce the risk of developing DR and slow its progression, which includes optimal control of blood glucose and blood pressure, in addition to regular screening/monitoring of people with diabetes to enable early intervention. Currently, the two most sensitive methods for detecting DR are retinal photography and slit-lamp biomicroscopy through dilated pupils. Timely treatment with laser photocoagulation and the appropriate use of intraocular administration of vascular endothelial growth factor (VEGF) inhibitors can prevent vision loss.

IAPB wishes to acknowledge and thank the following experts and organisations for their input and support in compiling this list:

- Richard Le Mesurier, Chair, IAPB Western Pacific
- Anthony Hall, Consultant Ophthalmologist Newcastle Eye Hospital, Australia (formerly Head of Dept, KCMC/CBM)
- R nee du Toit, Independent Eye Health Consultant
- Nick Kourgialis, Vice President at Helen Keller International and Chair of the IAPB Diabetic Retinopathy Work Group
- Hugh Taylor, Chair ICO Working Group on Diabetic Eye Diseases
- Serge Resnikoff, Member ICO Working Group on Diabetic Eye Diseases
- Peter Scanlon, Clinical Director, Diabetic Retinopathy Screening Programme UK and affiliated with the Gloucestershire NHS Trust
- David Freidman, Senior Ophthalmologist and Eye Health Technical Advisor, HKI
- Vishnu Prasad, Aurolab-Aravind Eye Care System
- Thulasiraj Ravilla, LAICO-Aravind Eye Care System
- Vijay Kumar, LAICO-Aravind Eye Care System
- Kim Ramasamy, Aravind Eye Hospital (Madurai) – Aravind Eye Care System
- Praveen Raja, Aurolab-Aravind Eye Care System
- Giridharan, Aurolab-Aravind Eye Care System
- Naresh Babu Kannan, Aravind Eye Hospital (Madurai) – Aravind Eye Care System
- Anand Rajendran, Aravind Eye Hospital (Madurai) – Aravind Eye Care System

(Note: Items not currently included in the Standard List are marked N/A and will be sourced and added to the Standard List)

Version: First Edition (March 2014)

ESSENTIAL EQUIPMENT LIST for screening/monitoring and treatment for Diabetic Retinopathy (DR)

Description	Standard List Section or locally purchased (L)	Essential (E) or if funds available (IFA)	Quantity required
SCREENING/MONITORING FOR DR – for remote screening/mobile screening/screening at eye health and diabetes centres			
Equipment			
Non-Mydriatic Fundus Camera	<u>5.14</u>	E	1
Software & Laptop to use with Fundus Camera	<u>12.0</u>	(IFA) for image storage, preferably also for patient records and recall system	1
Slitlamp with 90D lens (e.g. 90D Superfield or Digital Wide Field Lens) and 78D lens	<u>5.7 (Slit Lamp)</u> <u>5.12.1.2 (lenses)</u> <u>(5.12.1.3)</u>	E As an alternative/adjunct/back-up to a non-mydriatic camera. 90D for screening, 78D for more magnification	1
Digital camera with slit lamp adapter	L	IFA As an alternative/ adjunct/ back-up to a non-mydriatic camera	1
Indirect Ophthalmoscope with 20D or 28D lens	<u>5.2</u> <u>5.12.1 (lenses)</u>	E Dilated exam as an alternative/ adjunct/ back-up to a non-mydriatic camera or slitlamp	1
Direct ophthalmoscope	<u>5.1</u>	E Dilated exam as an alternative/ adjunct/ back-up if a non-mydriatic camera, slitlamp or indirect ophthalmoscope are not available	1
Vision charts (distance and near)	<u>5.5</u>	E	
Pinhole Occluder	<u>5.5</u>	E	
Glucometer with test strips or test for HbA1C	N/A	IFA If DR screening and monitoring not integrated with general diabetes services	1
Supplies/Consumables			
Phenyleprine Hcl 2.5% or 5% (Mydriatic) Eye Drops	<u>1.4</u>	E	
Tropicamide 1% 5ml /eye Drops or Cyclopentilate Hcl 1% 5ml Eye Drops (Mydriatic)	<u>1.4</u>	E	
MONITORING FOR DR at Secondary/Tertiary level			
Equipment			
Non-Mydriatic Fundus Camera	<u>5.14</u>	E	1
Software & Laptop to use with Fundus Camera	<u>12.0</u>	(IFA) for image storage, preferably also for patient records and recall system	1
Slitlamp with 78D or 90D lens (e.g. 90D Superfield or Digital Wide Field Lens)	<u>5.7 (Slit Lamp)</u> <u>5.12.1.2 (lenses)</u> <u>(5.12.1.3)</u>	E 90D for screening, 78D for more magnification	1
Three-mirror contact lens used with slit lamp	<u>5.12.2</u>	(IFA) Stereoscopic and high-resolution images of the macula (evaluation of macular edema).	

ESSENTIAL EQUIPMENT LIST for screening/monitoring and treatment for Diabetic Retinopathy (DR)

Description	Standard List Section or locally purchased (L)	Essential (E) or if funds available (IFA)	Quantity required
Optical Coherence Tomography (OCT)	N/A	(IFA) OCT is the most sensitive method to identify sites and severity of retinal edema	
Vision charts (distance and near)	<u>5.5</u>	E	
Pinhole Occluder	<u>5.5</u>	E	
Glucometer with test strips or test for HbA1C	N/A	IFA If DR screening and monitoring not integrated with general diabetes services	1
Supplies/Consumables			
Phenylephrinehcl 2.5% or 5% (Mydriatic) Eye Drops	<u>1.4</u>	E	
Tropicamide 1% 5ml /eye Drops or Cyclopentilate Hcl 1% 5ml Eye Drops (Mydriatic)	<u>1.4</u>	E	
Methylcellulose drops e.g. Viscotears	L	E as a coupling agent if three mirror contact lens is used	
LASER TREATMENT FOR DR (Panretinal photocoagulation/Focal/Grid)			
Equipment			
Frequency doubled yag laser with endolaser probe/indirect ophthalmoscope and slit lamp delivery with all accessories (Endo probe only needed for surgery)	<u>5.11</u>	E The most used lasers are (1) The green laser: a. – 532 nm, frequency-doubled Nd:YAG. b. – 514 nm argon laser. (2) The 810 nm infrared laser, or diode laser; causes deeper burns with a higher rate of patient discomfort, it thus makes it very difficult to give adequate treatment and patients don't want to come back for more. It may be cheaper and require less maintenance. (3) Pattern-laser method, with a predetermined multispot treatment cascade and 577 nm yellow laser can be used in selected cases	1
Monitor to view retinal images during laser treatment	N/A	(IFA)	1
Slitlamp with 78D or 90D lens (90D Superfield or Digital Wide Field Lens)	<u>5.7 (Slit Lamp)</u> <u>5.12.1.2 (lenses)</u> <u>(5.12.1.3)</u>	E For panretinal photocoagulation	1
Goldmann 3- mirror lens	<u>5.12.3</u>	E for focal/grid laser or panretinal photocoagulation	1
VOLK Area Centralis Lens	<u>5.12.2</u>	IFA good for treating at the posterior pole, giving a clear magnified image. Used for focal/grid laser	

Description	Standard List Section or locally purchased (L)	Essential (E) or if funds available (IFA)	Quantity required
<ul style="list-style-type: none"> Volk's SuperQuad 160, 2.0x Laser Spot Magnification Factor, 160° Field of View Volk's 130° QuadrAspheric lens, 1.92x Laser Spot Magnification Factor, 144° Dynamic Field of View Volk TransEquator, 1.44 Laser Spot Magnification Factor, 132° Dynamic Field of View Ocular Mainster PRP 165, 1.96x Laser Spot Magnification Factor, 165° static field of View, 180° Dynamic Field of View Ocular Mainster Wide Field, 1.5x Laser Spot magnification factor, 118° field of View, 127° Dynamic Field of View Transequator lens 	<p><u>5.12.2</u></p> <p><u>5.12.2</u></p> <p><u>5.12.2</u></p> <p><u>5.12.2</u></p> <p><u>5.12.2</u></p>	<p>(IFA)</p> <p>A wide field indirect lens with 160 – 165 degree field of view and a lens with 125-135 field of view. Useful for panretinal photocoagulation</p>	
Fundus Fluorescein Angiography (FFA) including retina camera and image net	N/A	<p>(IFA)</p> <p>FFA is not needed to diagnose DME or PDR, these are diagnosed by a clinical exam. FFA can be used as a guide for treating DME and to evaluate cause(s) of unexplained decreased VA</p>	
Supplies/Consumables			
Phenylephrinehcl 2.5% or 5% (Mydriatic) Eye Drops	<u>1.4</u>	E	
Tropicamide 1% 5ml /eye Drops or CyclopentolateHcl 1% 5ml Eye Drops (Mydriatic)	<u>1.4</u>	E	
Proparacaine 0.5% or Amethocaine Hcl 0.5% Eye Drops 5ml (or similar topical anaesthetic)	<u>1.8</u>	E	
Goniogel (Hypermellose solution)	N/A		
Sub-Tenons Local Anaesthesia			
Equipment			
Lid speculum (eg Kratz Barraquer)	<u>4.5</u>	E	
Small forceps (eg Hoskins-style notched tip)	<u>4.5</u>	E	
Curved blunt-tipped spring scissors (eg blunt Westcott)	<u>4.5</u>	E	
Sub-Tenon's Anasthesia Cannula 19g, curved, flattened and blunt tipped	<u>3.3</u>	Alternative curved blunt-tipped cannula (eg. Stevens) Kumar-Dodds plastic cannula, Greenbaum or 'ultrashort' cannula	

ESSENTIAL EQUIPMENT LIST for screening/monitoring and treatment for Diabetic Retinopathy (DR)

Description	Standard List Section or locally purchased (L)	Essential (E) or if funds available (IFA)	Quantity required
Supplies/Consumables			
Povidone Iodine 4%	<u>1.1</u>	E	
local anesthetic drops proxymetacaine 0.5% or oxybuprocaine 0.4%	<u>1.8</u>	E	
Lignocaine hydrochloride 2%	<u>1.8</u>	E Patients on Warfarin	4mls of 2% Lignocaine (no Adrenaline)
Hyalase (Hyaluroneidase) 1500IU vial	<u>1.13</u>	Alternative to Lignocaine – Mixed in with the anaesthetic. It allows the local anaesthetic to penetrate through the tissue planes more extensively. <ul style="list-style-type: none"> • 2% lignocaine+150 iu hyauronidase: ±45 minutes of surgical anaesthesia. • 2% plain lignocaine, 0.5% plain bupivacaine, and 150 iu hyaluronidase: ±60–90 minutes of surgical anaesthesia 	
0.5% or 1% Ropivacaine (Naroprin)	N/A	<ul style="list-style-type: none"> • If a longer procedure is expected mix 0.5% Ropivacaine in a 50:50 with the 2% Lignocaine. • 1% ropivacaine+150 iu hyaluronidase :±90–120 minutes of surgical anaesthesia 	
5ml/10ml Syringe	<u>3.3</u>	E	
25g/27g Needles	<u>3.3</u>	E	
Eye pads and tape			
FFA ¹		(IFA)	
Inkjet Cartridge, Plastic Cover Photo Paper, Printing paper	L		
Plaster Roll	L		
Fluorescein Sodium 20% 3ml amp	N/A		
Syringe (1cc)	<u>3.3</u>		
Syringe (5cc)	<u>3.3</u>		
Saline flush	L		
Mydriatics	<u>1.4</u>		
Sterile wipes	L		
butterfly or cannula with the vecafix	N/A		

1 Should be available at FFA Room for Emergency use.
Stretcher Cloth, Scalp vein Set 23G, 2 cc Syringe. Dextose 5%, Dextose 10%, Dextose 25%, DNS, Ringer Lactate, Inj.Avil, Inj.decadron, Inj. Perinorm, Inj.Atropine, Inj. Adrenaline, Inj. Emeset, Inj. Deriphyline, Inj. Lasix, Inj. Eforline, I.V.Set, Venflon-20G- 22G.
Need resuscitation available and IV diphenhydramine. Or does Emeset do this? Make sure that airway protection is available with the ability to intubate and training in this.

ESSENTIAL EQUIPMENT LIST for screening/monitoring and treatment for Diabetic Retinopathy (DR)

Description	Standard List Section or locally purchased (L)	Essential (E) or if funds available (IFA)	Quantity required
PHARMACEUTICAL (VEGF) TREATMENT FOR DR²			
Equipment			
Lid Speculum	<u>4.5</u>	E	
Calipers	N/A	IFA To mark 3.5mm behind limbus for pseudophakes and 4mm for phakic individuals (can use cotton tip as a guide – it's about 4mm in width)	
Pharmaceuticals			
Avastin 1.25mg	N/A	E 0.05ml Injected into vitreous cavity. Injection site typically supero-temporal or infero-temporal. NEEDS REFRIGERATION	
Topical Anaesthetic	<u>1.8</u>	E	
Antibiotic drops		For 3 days after OR stat dose after	
Diamox 250mg tables and iopidine drops		To reduce a sudden rise in pressure	
Supplies/Consumables			
1ml (Tuberculin) syringe	<u>3.3</u>	E If not already preloaded syringe then a drawing up needle is required	
27g or 30g needle	<u>3.3</u>	E	
Sterile Masks	<u>3.14.1</u>	E Vital – post-injection endophthalmitis typically has a different bacterial profile vs post-cataract endophthalmitis, most notably being more respiratory pathogens involved. Doctor should be prevented from breathing on patient and patient should not talk during injection	
Povidone iodine 5% or 10% solution 200 ml or alternative cleaning agent if allergic	<u>1.1</u>	E In conjunctival sac for minimum of 3 minutes prior to procedure	
A sterile dressing kit with sterile gauze and a tray for the iodine.	N/A		
Iodine surgical scrub, hand towels and sterile gloves	L		
A sterile drape is used to capture the lashes	L	this is not used in some centres (the US for instance). If a drape is not pre-cut scissors will be need.	
Cotton Tips	L	E	
SURGERY FOR DR – see Separate VITREORETINAL List			

Resources

Publication/Manual	Published by	Where available	Cost
Diabetic Retinopathy Treatment & Management	Medscape	http://bit.ly/1eoJtxW	Free
ICO Guidelines for Diabetic Eye Care	ICO	http://bit.ly/1fsXEDK	Free

² A supply for any complications – A method to check the pressure and reduce the pressure i.e. Diamox 250mg tables and iopidine drops or do an AC tap with the tuberculin syringe and the 27g needle.

WORKING TOGETHER TO ELIMINATE AVOIDABLE BLINDNESS

IAPB's Essential Equipment Lists identify equipment and consumables considered essential, minimum requirements to perform high quality medical interventions in eye health contexts. IAPB produces these lists in collaboration with leading experts from around the world and updates them from time to time.



Published by International Agency for the Prevention of Blindness
London School of Hygiene and Tropical Medicine
Keppel Street, London WC1E 7HT, England, UK

Tel: +44 (0)20 7927 2973 Fax: +44 (0)20 7958 8325 Email: communications@iapb.org

Registered Charity No: 1100559. Company Limited by Guarantee Number: 4620869,
Registered in England and Wales.

www.iapb.org

<http://iapb.standardlist.org>