

**Faculty of Science – UNSW Optometry Clinic**  
**PROTOCOL FOR DILATED FUNDUS EXAMINATION**

---

Authorised by: Kathleen Watt, Clinic Director (Date of approval 06 March 2012)  
Effective date: 05 March 2012  
Last updated: March 2015  
Contact officer/s: Kathleen Watt ([kathleen.watt@unsw.edu.au](mailto:kathleen.watt@unsw.edu.au))  
Lily Ho ([lily.ho@unsw.edu.au](mailto:lily.ho@unsw.edu.au))

**1. Purpose/background – context for development of the protocol**

This protocol will provide guidelines as to the indications, contraindications and procedure for dilated fundus examination within the UNSW Optometry Clinic.

The importance of a dilated fundus examination was illustrated in a retrospective study, where 2.7% of asymptomatic patients were found to have clinically significant fundus lesions. (Pollack and Brodie 1998) In considering a routine dilated fundus examination, it should be noted that the prevalence of clinically significant fundus abnormalities increases with increasing age, from 0.8% for those younger than 20 years old to 8.9% for those over 60 years old. (Pollack and Brodie 1998)

**2. Scope – to which positions/groups does the protocol apply**

This protocol applies to all students, academic, professional staff in the UNSW School of Optometry and Vision Science practising within the UNSW Optometry Clinic.

**3. Protocol statement**

**a. Patients seen in Stage 4 & 5 Primary Care Clinics**

Stage 4 students should aim to dilate all patients on the first day they are seen. However, convenience and time constraints must be considered for each patient in order to provide the best possible optometric care, and final decision will be made by the Supervising Optometrist.

Stage 5 students will dilate their patient on indication as per Section 3b.

To ensure the installation of ophthalmic drugs does not interfere with other clinical findings, students must not instil any ophthalmic drugs until given permission by their Supervising Optometrist, this will be usually following the completion of other visual assessments by the Supervising Optometrist.

**b. Indications for dilated fundus examination**

A dilated fundus examination should be performed on all new patients.

Relatively urgent dilated fundus examinations may be vital for the provision of appropriate optometric care in certain situations. Students, Supervising Optometrists and Staff Optometrists must be prepared to dilate patients on the day they present in these situations.

Dilated fundus examination (and retinal photographs) **MUST** be taken on all patients who present for a screening for the purpose of operating laser equipment.

For existing patients of the UNSW Optometry Clinic, a dilated fundus examination is indicated for:

Protocol For Dilated Fundus Examination  
Version 2.1

- Inadequate view of the fundus due to, for example, pupil size, media opacities or unsteady fixation (e.g., nystagmus);
- Symptoms of acute vitreo-retinal disease (e.g., photopsia, flashes, floaters, veils or shadows);
- Signs or symptoms that suggest involvement of the posterior segment (e.g., known, or suspected, anterior uveitis);
- Recent history of head/ocular trauma;
- Suspected intraocular foreign bodies;
- Unexplained decreased visual acuity;
- Unexplained visual field defects;
- Unexplained afferent pupillary defect;
- Unexplained headaches;
- Unexplained ocular pain or redness;
- Ocular hypertension;
- Glaucoma, or when there is suspicion of glaucoma;
- Fundus lesions that require stereoscopic viewing;
- Aphakia;
- Strabismus;
- Myopia >5D or when there is evidence of degenerative myopia;
- Lenticular opacities; to determine the significance, extent, and location.
- Functionally monocular patients.

For any new or existing patient of the UNSW Optometry Clinic a dilation should be performed if there is a history of:

- Previous ocular pathology that requires further and more thorough investigation. For example:
  - History of retinal detachment or peripheral retinal pathology;
  - Active or progressive macular conditions;
  - Vitreous haemorrhage.
- Personal history of cancer;
- Systemic medication use with known optic disc, retinal, choroidal, or lenticular complications;
- Systemic disease with known increased risk of ocular complications, including:
  - Diabetes Mellitus (or those at risk):
    - Dilated fundus examination is recommended at the time of diagnosis of diabetes, or at puberty (or earlier in some circumstances) for those with juvenile diabetes;
    - An annual screening for diabetic retinopathy should take place for all diabetic patients with no previous diabetic retinopathy;
    - More frequent assessment is required if diabetic retinopathy is found.
  - Hypertension.

### **c. Contraindications for dilated fundus examination**

The following are absolute contraindications for dilated fundus examination:

- Iris fixated intraocular lens (absolute contra-indication);
- Known hypersensitivity to mydriatic drugs;
- Narrow angle glaucoma.

Phenylephrine 2.5% is contraindicated as a dilating agent for:

- Patients with cardiovascular problems including hypertension and aneurysms;
- Patients with orthostatic hypotension;
- Elderly patients with severe arteriosclerotic or cerebrovascular disease;
- Patients taking monoamine oxidase inhibitors, e.g. Marplan, Nardil, Parnate & Parstelin;
- Patients taking tricyclic antidepressants, e.g., Truptanol, Sinequan, Taroxy, Nortab, & Tofranil

The following are relative contraindications to dilated fundus examination:

- Narrow anterior chamber angles or known/suspected predisposition to angle closure. Gonioscopy must be performed;
- Active corneal disease or corneal epithelial erosion;
- Subluxated posterior chamber intraocular lens;
- Subluxated crystalline lens;
- Hyphaema;
- When pupil reactions need to be preserved, such as when same day referral is required in iris or head trauma or neurological anomalies;
- Patients under miotic therapy for angle closure glaucoma;
- Suspected penetrating ocular injury;
- Pregnant women. In pregnant and nursing women, dilation should be avoided. In particular this should be avoided in the first trimester. If pupils must be dilated, tropicamide is recommended.

In cases where relative contraindications exist, dilation should only be performed if the potential benefit justifies the potential risk to the patient. This is to be determined by the Supervising Optometrist in teaching clinics.

#### **d. Informed consent**

Patient permission must be obtained for pupil dilation. It is the Supervising/Staff Optometrists' responsibility to ensure that the students' patients or their own patients have sufficient information to make an informed decision.

If angle closure is deemed to be a possible risk as a result of pupil dilation the possibility of angle closure must be communicated to the patient.

Pupils must not be dilated if the patient does not give permission and the patient should be asked to sign the Refusal of Examination Procedure form if this refusal is against the advice of the Supervising/Staff Optometrist.

#### **e. Procedure**

- i. History:
  - Allergic reactions and drug sensitivity;
  - Family history of glaucoma;
  - General health.
- ii. Pre-dilation check:
  - Anterior chamber depth;
  - Slit lamp examination;
  - Tonometry;
  - Gonioscopy must be performed if there is a history of angle closure or a risk of angle closure (Van Herrick  $<0.3$  at any location)
- iii. Inform patient verbally (and in writing when required) of:
  - The likely effects of the drugs;
  - The signs and symptoms of adverse reactions.
  - The possibility of angle closure when applicable.
- iv. Obtain patient consent
  - Patient permission **must** be obtained for pupil dilation following explanation of the side-effects and possible risk factors;
  - Pupils must not be dilated if the patient does not give permission;

- *Refusal of Examination Procedure* signed by patients who refuse to have their pupils dilated, despite the recommendations of the Supervising Optometrist and/or Staff Optometrist.
- v. Instillation of mydriatic drug:
  - Check drug expiry date;
  - Avoid dropper tip contact with patients' lids/lashes;
  - Punctal occlusion to minimise systemic absorption.
- vi. Tonometry may be required after pupil dilation if:
  - The angles are narrow;
  - There is some concern with the pre-dilation pressure.
- vii. Record details of:
  - Drug used;
  - Date and time used;
  - Quantity used;
  - Any other necessary information.

#### **4. Roles and responsibilities**

##### **a. Reception Staff**

At the time an appointment is made in Primary Care Clinic, Clinic Receptionists should advise patients of the possibility that their pupils may be dilated and they should make appropriate recommendations about driving, work, and the use of sunglasses.

Although the potential blurred vision and increased glare sensitivity associated with dilation may interfere with activities of daily living such as driving a car, it has been reported that most patients are prepared to have their pupils dilated at future examinations (Siderov et al., 1996).

##### **b. Student Clinician**

It is the responsibility of the student to follow the procedure as outlined above. The student is to consult with their supervising optometrist if there is any doubt over outcome of the pre-dilation procedures. Prior to instilling any ophthalmic drugs, students must advise their supervisor if any of the contraindications or relative contraindications for a dilated fundus examination are observed.

It is expected students know the drug profile, including the potential side effects and contraindications, of the ophthalmic agents used in a routine eye exam.

##### **c. Supervising Optometrists**

It is the Supervising Optometrists' responsibility to ensure that the students' patients have sufficient information to make an informed decision and that they fully understand the risks involved and the benefit that is expected to be derived from a dilated fundus examination.

The Supervising Optometrists are to confirm that there are no absolute contraindications and make the final decision as to whether to proceed with dilation of the students' patients in the presence of relative contraindications

The Supervisor should directly monitor students during instillation of drops.

The Supervisor is to collect the ophthalmic drops from the staff office at the beginning of the clinic, discard any expired drops, store the drops appropriately during clinic such that they are kept drops out of reach of children and ensure drops are returned to the staff office at the end of clinic.

#### **d. Staff Optometrists**

During teaching clinics, Staff Optometrists will co-ordinate with non staff Supervising Optometrists in the care of patients who experience adverse side effects with ophthalmic drops.

In the UNSW Optometry Clinic, Staff Optometrist may see patients privately (that is outside the teaching clinics.) Staff Optometrists will follow the outlined procedure during consultations with private patients.

It is the Staff Optometrists' responsibility to ensure that their patients have sufficient information to make an informed decision and that they fully understand the risks involved and the benefit that is expected to be derived from a dilated fundus examination.

The Staff Optometrists is to confirm that there are no absolute contraindications and make the final decision as to whether to proceed with dilation in the presence of relative contraindications

Staff Optometrists will ensure there is adequate supply of ophthalmic drops in the UNSW Optometry Clinic and that the drops are stored correctly. They will monitor the expiry date of drops and discard drops when necessary.

#### **e. Clinic Director**

It is the role of the Clinic Director to ensure the Clinic protocols are implemented in their entirety and review protocols as required.

### **5. References**

Optometrists Association Australia Clinical Guidelines: Pupil Dilation.2013. URL:

<http://www.optometrists.asn.au/LinkClick.aspx?fileticket=C5%2f2A%2fGS73E%3d&tabid=123&language=en-AU>

Pollack AL, Brodie SE. (1998). Diagnostic yield of the routine dilated fundus examination. *Ophthalmology* 105: 382-6.

Siderov, J, Bartlett JR, Madigan CJ. (1996) Pupillary diation: the patient's perspective. *Clin Exp Optom.* 79: 62-66