# SOP
# Fundus Examination by Ophthalmoscope In The Paediatric Population

Department of Paediatrics
Faculty of Medicine
UWUSL

# Standard Operating Procedure (SOP) On Fundus Examination by Ophthalmoscope In The Paediatric Population

## Issued by

Faculty of Medicine, Uva Wellassa University of Sri Lanka

### (1) Purpose

This protocol establishes an objective, clinically safe framework for conducting ophthalmoscopic evaluations on pediatric patients. The primary objective is to ensure precise, non-invasive diagnostic mapping of the optic disc, retinal parenchyma, macula, and proximal retinal vasculature while maximizing patient reassurance, clinical safety, and absolute cross-infection control.

### (2) Scope

This standard operating procedure mandates compliance from all clinical personnel performing duties within the pediatric and neonatal facilities, including:

- Academic medical undergraduates
- Post-graduate pediatric and ophthalmology registrars/trainees
- Institutional medical officers
- Nursing practitioners and specialized clinical support staff

### (3) Clinical responsibilities

- Validate the clinical indications demanding fundus evaluation.
- Provide clear, reassuring pre-procedural explanations tailored to the parent or legal guardian, as well as the child.
- Execute the diagnostic check using correct, age-appropriate ophthalmoscopic instrumentation
- Recognize and document pathological deviations to initiate rapid clinical escalations or specialized referrals.

### (4) Ethical considerations

- Protect patient privacy and handle all clinical data with strict confidentiality.
- Request formal, witnessed informed consent from the parent or authorized legal guardian prior to any intervention.
- Deliver information regarding the examination steps using age-appropriate, non-threatening language to minimize pediatric anxiety.• Use clean/disinfected equipment
- Follow infection prevention and control protocols
- Minimize distress and discomfort to child

### (5) Prerequisites

- Confirm patient identity
- Adequate clinical history obtained
- Functional ophthalmoscope available
- Appropriate examination setting with dim lighting
- Mydriatic drops available if indicated
- Parent/guardian informed about procedure
- Hand hygiene facilities available

## (6) Procedure

### (6.1) Pre-Procedure Preparation

- Introduce yourself to child and parent/guardian
- Explain procedure and purpose
- Address concerns and reassure child
- Request informed consent from parent/guardian
- Wash hands thoroughly
- Ensure ophthalmoscope is functioning properly
- Adjust ophthalmoscope brightness and focus settings
- Dim room lights to facilitate pupillary dilation

### (6.2) Positioning

- Infants: Child may sit on parent's lap with gentle restraint
- Older children: Sit comfortably upright
- Examiner's eye should be at same level as child's eyes

**(6.3) General Observation**

Inspect for:

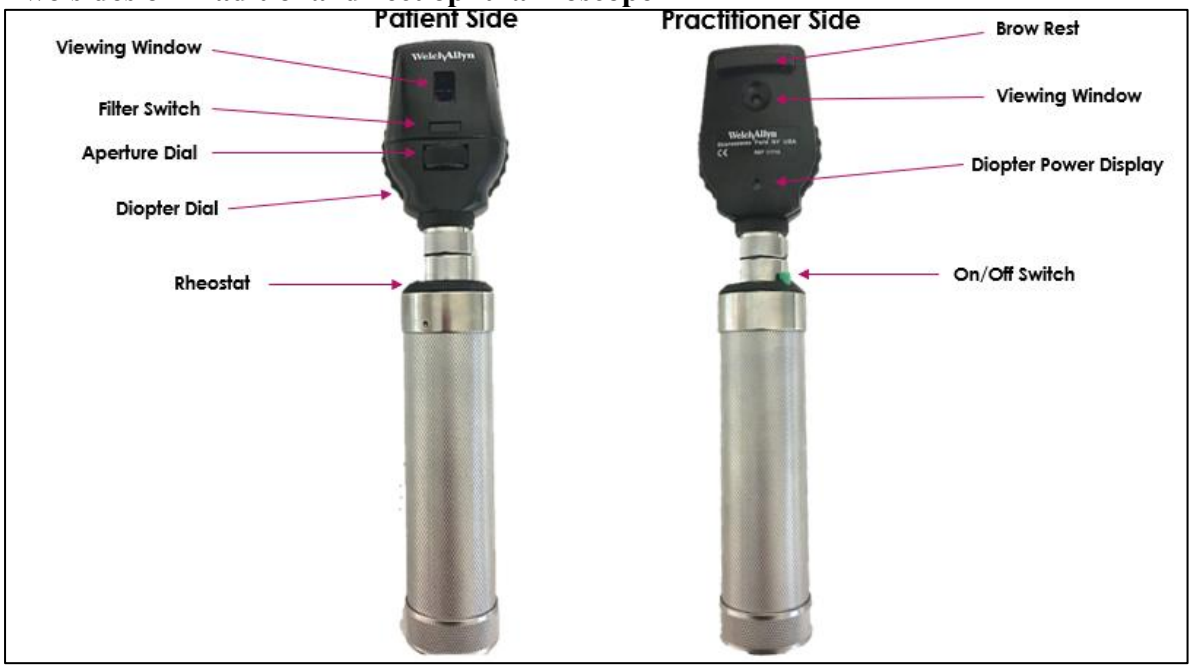
- Eye redness
- Squint
- Abnormal eye movements
- Photophobia
- Visual difficulty
- Head tilt
- Facial asymmetry

**(6.4) Preparation of Equipment**

Arrange equipment:

- Direct ophthalmoscope/Panoptic ophthalmoscope

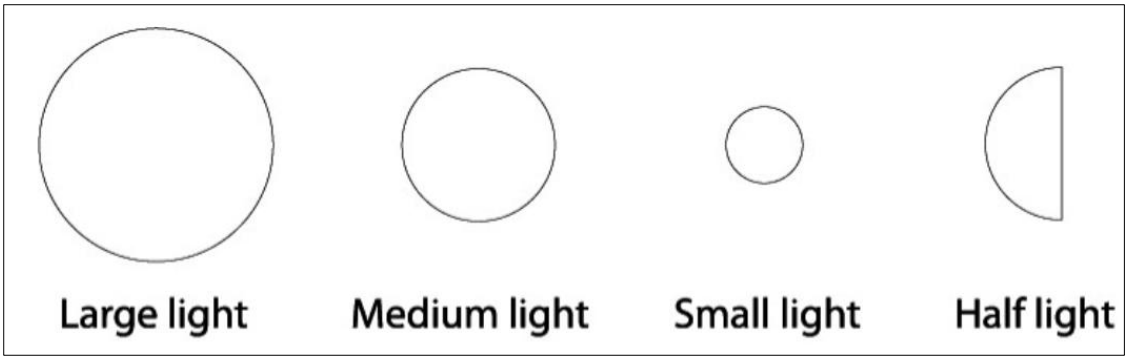

**Two sides of Traditional direct ophthalmoscope**



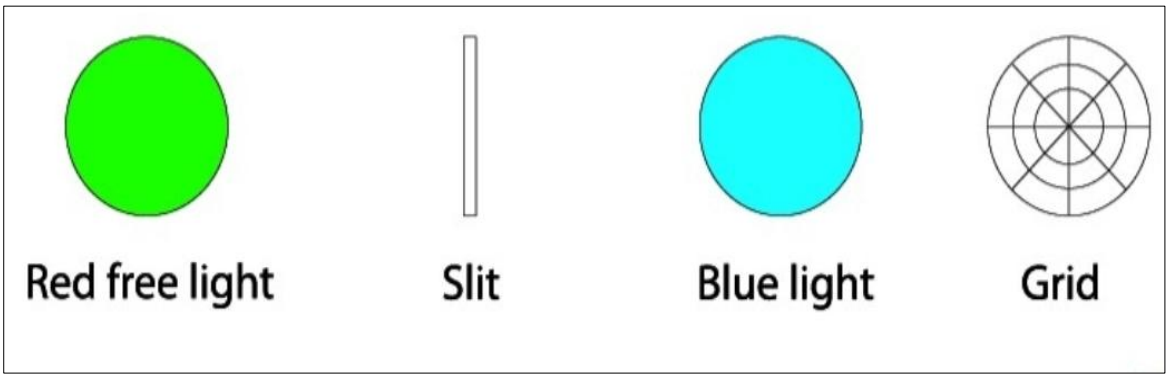
**Aperture/Filter Dial**
The aperture/filter dial allows the ophthalmoscope to be used for different purposes.

**Large/Medium/Small light source**

- Ophthalmoscopes usually have 2 or 3 sizes of light to use depending on the level of pupil dilation.




- The large light is best if using mydriatic eye drops to dilate
- The medium sized light is used most commonly in a dark, non-dilated pupil.
- The small light is used when the pupil is very constricted (i.e. well-lit room, no pupil dilators used).
- **Half light -** If, for example, the pupil is partially obstructed by a lens with cataracts, the half circle can be used to pass light through only the clear portion of the pupil to avoid light reflecting back




- **Red free Light**

Used to visualize the vessels and hemorrhages in better detail by improving contrast. This setting will make the retina look black and white.

- **Slit beam**

Used to examine contour abnormalities of the cornea, lens and retina.

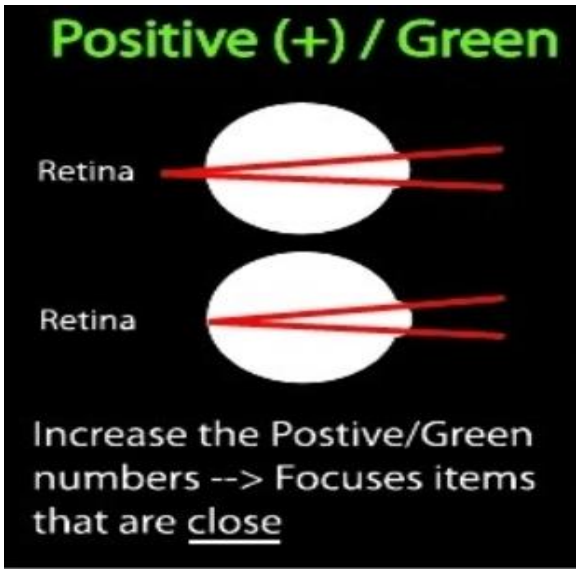
- **Blue light**

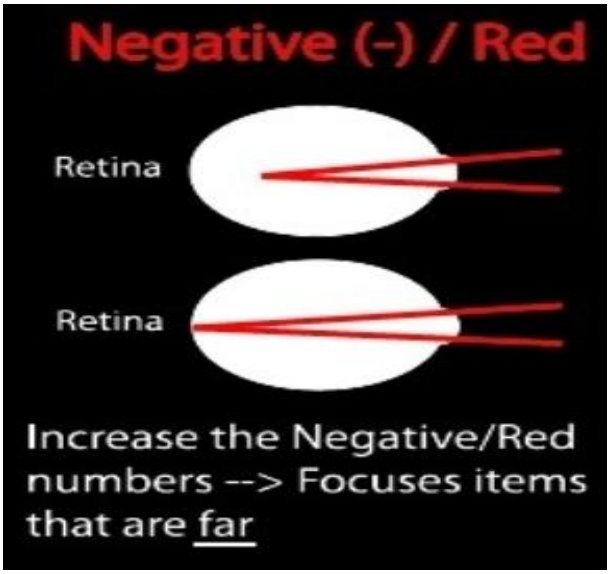
Some ophthalmoscopes have this feature that can be used to observe corneal abrasions and ulcers after fluorescein staining.

- **Grid**

Used to make rough approximations of relative distance between retinal lesions.

**Focusing Wheel (diopter dial)**




**(6.5) Technique**

**Dilating the Pupil for the Fundoscopic Exam**

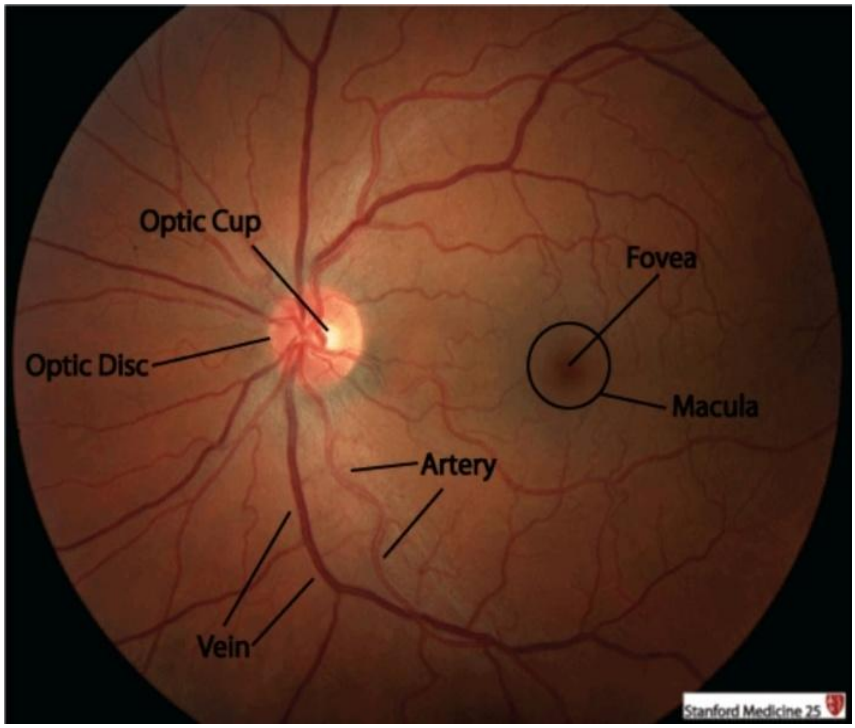
Mydriatic drops. Dilate one eye when you start your history and physical examination. In general Tropicamide is considered the safest.

- Parasympathetic antagonists: paralyze circular muscle of iris (mydriasis) and the ciliary muscle (loss of accommodation).
    - 0.5%Tropicamide: 1-2 drops 15-20 minutes before exam;
      may repeat every 30 minutes PRN. Individuals with heavily pigmented eyes may require larger doses.
- Sympathetic agonists:
    - 2.5 % Phenylephrine: 1 drop

**Ophthalmoscopic examination**

1. Darken the room,
2. Ask patient to look at the same point as far as possible in the room (this will help to dilate the pupil).Use visual distractors in younger children (toys,lights,or videos)
3. Wedge scope against your cheek with hand and then head/hand/scope should move as one unit
4. Use your right hand & your right eye to look at the patient's right eye.
5. Use left hand and left eye for examining left eye
6. Look through the ophthalmoscope, if you are nearsighted and have taken off your glasses, you may need to adjust the focusing wheel towards the negative/red until what you see at a distance is in focus.
7. Direct the ophthalmoscope 15 degrees from center and look for the red reflex . Simply follow the red reflex in until you see the retina. If you lose the red reflex, come back until you find it again and repeat.
8. To look around the retina using a traditional direct ophthalmoscope, you should "pivot" the ophthalmoscope, angling up, down, left and right. If using the Panoptic, you can slightly "pivot" or ask the patient to look up to see upper retina, down to see lower retina, medial to see medial, lateral to see lateral and finally to look at the light to visualize the macula.

**NORMAL FUNDUS**



**Examination of Optic Disc**
Assess:
- Color
- Margins
- Cup-to-disc ratio
- Swelling
- Pallor

**Examination of Retina and Retinal Vessels**
Assess:
- Retinal background
- Arteries and veins
- Hemorrhages
- Exudates
- Cotton wool spots

**Examination of Macula**
- Ask child to look directly at light briefly
- Examine macular area and foveal reflex

**(6.6) Final Steps**
- Reassure and comfort child
- Explain findings to parent/guardian
- Clean reusable equipment
- Perform hand hygiene after examination

**(6.7) Post-Examination Instructions**
Advise parent/guardian regarding:
- Temporary blurred vision if dilating drops used
- Sensitivity to bright light after dilation
- Need for follow-up if abnormalities detected

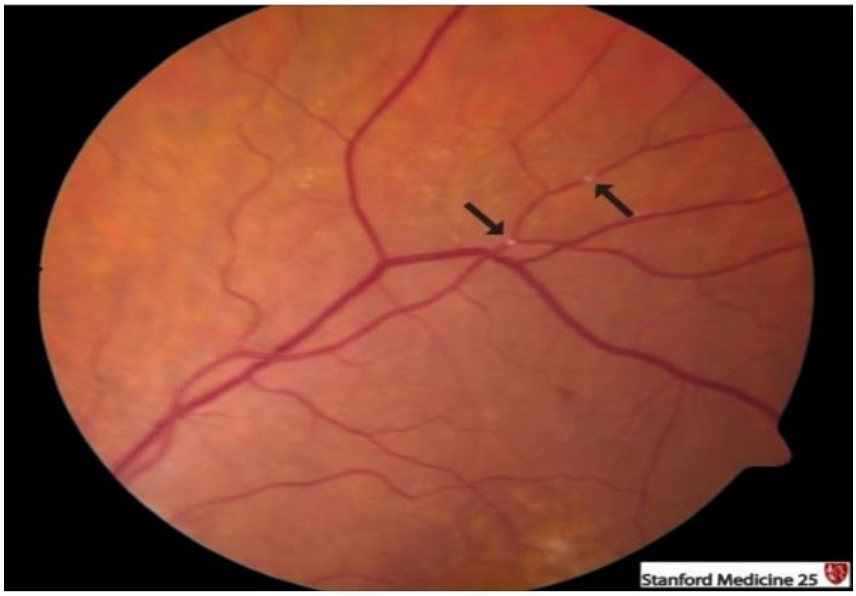
**(6.8) Records and Documentation**
Document:
- Date and time of examination
- Indication for examination
- Red reflex findings
- Optic disc appearance
- Retinal findings
- Diagnosis/impression
- Management plan
- Examiner name and designation

**(6.9) Infection Prevention**
- Perform hand hygiene before and after examination
- Clean/disinfect ophthalmoscope after each patient
- Use gloves when indicated
- Dispose of contaminated materials appropriately

**(7) Follow-Up**

- Follow-up according to diagnosis and severity
- Refer to ophthalmology specialist if abnormalities detected
- Arrange further visual assessment if indicated

**EMBOLI AND INFARCT**




**PATHOLOGICAL OPTIC CUPPING**

**OPTIC DISC EDEMA**


**COTTON WOOL SPOTS**

Prepared by:

Dr. Sudath Abeywickrama
Head of the Department
Department of Paediatrics
Uva Wellassa University of Sri Lanka

Snr. Prof. Muditha Vidanapathirana
Dean
Faculty of Medicine
Uva Wellassa University of Sri Lanka

Dr. Oshadhi Elledeniya
Temporary Demonstrator
Department of Paediatrics
Faculty of Medicine
Uva Wellassa University of Sri Lanka

Date of Implementation:
10.06.2026