# Binocular Indirect Ophthalmoscopy

### *What Are You Testing?*

Binocular Indirect Ophthalmoscopy (BIO) is a technique that provides a thorough view of the retina and vitreous through a dilated pupil in order to evaluate the health of the interior of the eye and to identify structural abnormalities that may be associated with reduced visual acuity thereby aiding in the diagnosis of amblyopia.

### *What You Need to Do the Test:*

1. A binocular indirect ophthalmoscope.
2. A hand-held +20 D or +28 D condensing lens.
3. A penlight toy or sparkle ball to maintain interest and fixation by the child.

### *Getting Ready:*

1. Chairs for the child and the examiner are placed 2 feet apart.
2. The child should have received the cycloplegic eye drops between 30 and 50 minutes prior to ophthalmoscopy.
3. Wash and dry your hands before performing the procedure on each child.

### *How You Do the Test:*

1. The BIO is positioned on the examiner's head, and the headband, oculars, pupillary distance, and illumination system are adjusted.
2. The right eye is examined first.
3. The examiner is positioned facing the child, so that the examiner is directly in front of the child's right eye.
4. Hold the condensing lens in the left hand, between the thumb and index fingers.
5. **Posterior pole view:** Brace the dominant hand on the child's face while holding the condensing lens in front of the child's right eye, keeping the lens parallel to the child's face. It may be helpful to hold a penlight or fixation target near the examiner's right ear and encourage the child to look at the target with their left eye. This should allow the examiner to obtain a view of the disc and macula. Only hold the child's eyelids open if necessary.

6. **Mid-peripheral views:** Ask the child to look up and shine the BIO into the center of the condensing lens and pupil, adjusting the relationship between the BIO, condensing lens, and child's pupil to provide for a clear reflex filling the width of the lens.
7. Failure to obtain peripheral views does not require recording abnormal.
8. Scan the fundus through the condensing lens in all positions of gaze, directing the child to change fixation as instructed. Move the fixation target accordingly to help obtain peripheral views.
9. The procedure is then repeated for the left eye.

***What You Tell the Child:***

1. Tell the child that you are going to look into his/her eyes with a light.
2. Tell the child to keep looking in the proper direction of gaze (toward the fixation target) and to keep his/her eyes open wide.
3. Periodically repeat the instruction to keep looking in the proper direction of gaze toward the fixation target.

***What You Write Down:***

1. Mark whether the structure is normal or abnormal for each anatomical site (macula, disc, media, and mid-peripheral retina). If a site cannot be viewed, mark "**Incomplete**."
2. Abnormal should be marked only if the findings indicate a condition or possible condition affecting eye health or vision. Such findings as nevi, large optic cups (but within the range of variation of healthy eyes) **should not be noted** as abnormal.
3. Specify abnormalities in the write-in box.

***Remember!***

1. Keep reminding the child to keep his/her eyes open and to maintain steady attention to the fixation target during the exam.
2. Keep the relationship between the BIO, condensing lens, and child stable and synchronized so that the image of the fundus within the condensing lens is optimal.