



BC Centre for Disease Control
An agency of the Provincial Health Services Authority

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Communicable Disease Control Manual

Chapter 4: Tuberculosis

Appendix E: Assessment of Visual Acuity and Colour Discrimination



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APPENDIX E: ASSESSMENT OF VISUAL ACUITY AND COLOUR DISCRIMINATION

BACKGROUND:

Failure to detect early signs of optic nerve toxicity and to discontinue ethambutol can result in permanent damage to the optic nerve, and blindness.

Symptoms associated with ocular toxicity can affect one or both eyes, and include:

- Sudden loss of vision (partial or complete)
- Blurred or foggy vision
- Changes to colour vision and/or visual acuity
- Pain with eye movement
- “Blind spots” in the field of vision (scotomata)

Document visual acuity and colour vision at baseline and monitor monthly in clients taking ethambutol.

When symptoms of ocular toxicity are noted:

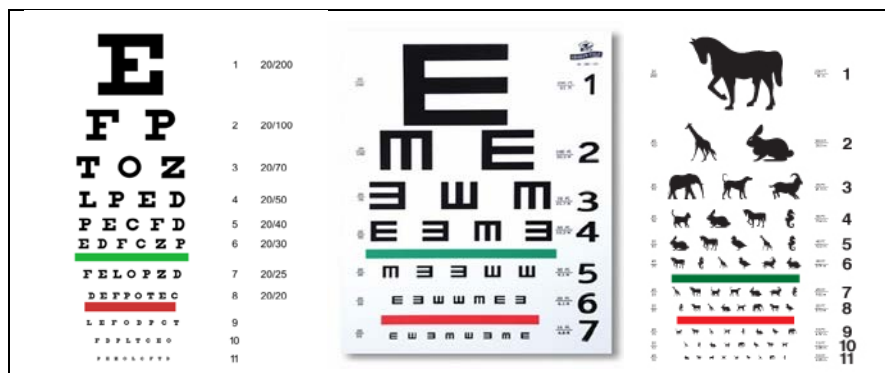
- **Stop** ethambutol
- Notify TB Services and/or the client’s primary care provider
- Facilitate referral of the client to an ophthalmologist

1. Visual Acuity Testing

Understanding Visual Acuity Test Results (Example: 20/40):

The top number refers to the distance the client stands from the chart. The bottom number indicates the distance at which a person with normal eyesight could read the same line the client read correctly. A result of 20/40 indicates that the line the client read at 20 feet away can be read by a person with normal vision from 40 feet away.

Figure E-1, Image examples of types of Snellen eye charts for vision testing





Procedure:

Adults

Choose the appropriate type of Snellen chart available at your facility. If there is a language barrier, use a Snellen chart that features “E’s”, and ask the client to use finger/hand gestures to identify the position of the characters.

- Have the client sit or stand the recommended distance from a Snellen eye chart (distance varies depending on what type of chart is used).
- If the client wears eye glasses or contact lenses, these should be worn during the examination.
- Instruct the client to keep both eyes open, and cover one eye with the palm of his/her hand.
- Test each eye individually.
- Move from the top line (largest print) downward, to the line on which the client can identify **less than** 4 of the 6 letters.
- Document the result for each eye using the numbers on the far right of the Snellen eye chart (e.g., 20/25) in the client record according to agency protocol.

Children 3 to 5 Years of Age

Choose the appropriate type of Snellen chart available at your facility. If the child cannot read letters, or there is a language barrier, use a chart with numbers or pictures.

- Have the child stand the recommended distance from a Snellen eye chart (standing distance varies depending on what type of chart is used).
- If the child wears glasses, these should be worn during the examination.
- Have an adult cover the child’s eye, and instruct the child to keep both eyes open.
- Test each eye individually.
- Point to the smallest print – if the child cannot identify at least 4 of the 6 letters correctly, move up the chart to the next larger line until the child gets to a line s/he can pass.
- Document result for each eye using the numbers on the far right of the Snellen eye chart (e.g., 20/25) in the client record according to agency protocol.

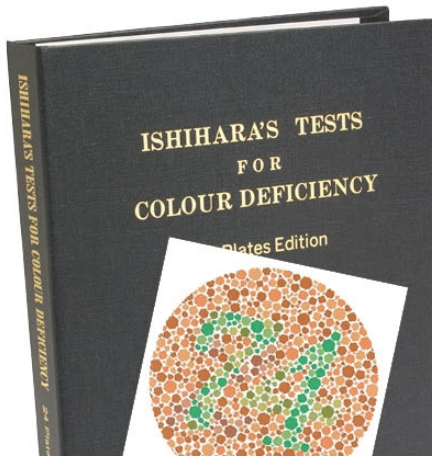
Children Under 3

- Do the test when the child is awake and alert.
- Evaluate the child’s ability to fix and follow objects.
- Determine whether each eye can fixate on an object, maintain fixation, and then follow the object in various gaze positions.
- Test should be performed for each eye individually, then both eyes together.
- Document results in the client record according to agency protocol.



2. Testing for Red/Green Colour Discrimination (1)

Figure E-2, Image of Ishihara plates for colour vision testing



Procedure:

- Use Ishihara plates, if available. If Ishihara plates are not available, the red and green lines on a Snellen eye chart can be used.
- Ask the client to identify the colours.
- Document results in the client record per agency protocol.



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REFERENCES

1. American Academy of Ophthalmology Preferred Practice Committee. [Cited 2014 Mar 20]. Available from: http://one.aao.org/CE/PracticeGuidelines/PPP_Content.aspx?cid=64e9df91-dd10-4317-8142-6a87eee7f517