



Nursing Assessment of Visual Acuity and Colour Discrimination

Visual impairment is the most significant adverse reaction of ethambutol and may occur in individuals receiving ethambutol for longer than two months. Visual impairment can present as a decrease in visual acuity, visual fields or colour vision. Risk factors include higher doses, older age, renal impairment, and chronic smoking. Ethambutol-related optic neuritis is usually reversible if the medication is stopped. Improvement in visual acuity and colour vision may take months after ethambutol is stopped.

Baseline and monthly nursing assessment of the client's visual acuity and/or colour discrimination may be ordered by the TB physician. Monthly nursing assessments include the Ishihara, Amsler Grid and Snellen tests. Ongoing assessment may also be required after ethambutol has been stopped.

Client Education: Instruct the client to notify TB Prevention and Control Saskatchewan immediately if they experience any changes in their vision including the following:

- Sudden loss of vision
- Changes in visual acuity
- Changes to colour vision
- Blurred or foggy vision
- Pain with eye movement
- Subtle abnormalities or changes in peripheral vision
- Changes in the field of vision – small blind spots or large fields of vision missing

Ishihara test

The Ishihara test is a colour perception test for red-green colour deficiencies using a number of coloured plates of randomized dots of varied colour and size that form patterns. The patterns are clear to those with normal colour vision. The images will be invisible or difficult to see for those with changes in their vision or a pre-existing colour vision defect.

Supplies: Online visual plates are available at: <http://www.colour-blindness.com/colour-blindness-tests/ishihara-colour-test-plates/>. A book of visual plates is available in each TB Prevention and Control Saskatchewan office.

Procedure for the Ishihara Test:

Note: Eyes are tested individually, then together.

1. Have the client sit in a comfortable chair preferably in a room with natural lighting (interior lights may alter the colour of the plates). Hold the plates 75 cm (approximately 2.5 feet), away and at client eye level. The client should be able to see the visual plates easily. If using the online test, ensure there is no glare on the screen and the client is seated 75 cm from the monitor with the plates at eye level.
2. Instruct the client to keep both eyes open and cover one eye with the palm of their hand.
3. Allow the client 3 seconds to identify the number on each plate. Ask the client to read the numbers out loud.
4. Document the test results on the *Ishihara Test Record*.
5. Repeat steps 2 to 4 with the opposite eye.
6. Repeat steps 3 and 4 with both eyes open.
7. Fax the Ishihara Test Record to the TB Prevention and Control Saskatchewan Nurse Clinician.
8. Phone the Nurse Clinician immediately if there is a change in vision and hold all TB medication until further direction is received.



Ishihara Test Record

Last Name	First Name	Middle Name	Other Name(s)
Provincial Health Number	Date of Birth (YYYY-MM-DD)		TB File Number
Test given by		Title/Position	Phone

Date of test (YYYY-MM-DD):

Plate	Normal response	Client response for RIGHT EYE	Client response for LEFT EYE	Client response for EYES TOGETHER
<i>Document NR (not read) if the client is unable to identify a number.</i>				
1	12			
2	8			
3	29			
4	5			
5	3			
6	15			
7	74			
8	6			
9	45			
10	5			
11	7			
12	16			
13	73			
14	No # seen			
15	No # seen			
16	26			
17	42			

Fax completed record to:

Nurse Clinician: _____ **Tel:** _____ **Fax:** _____



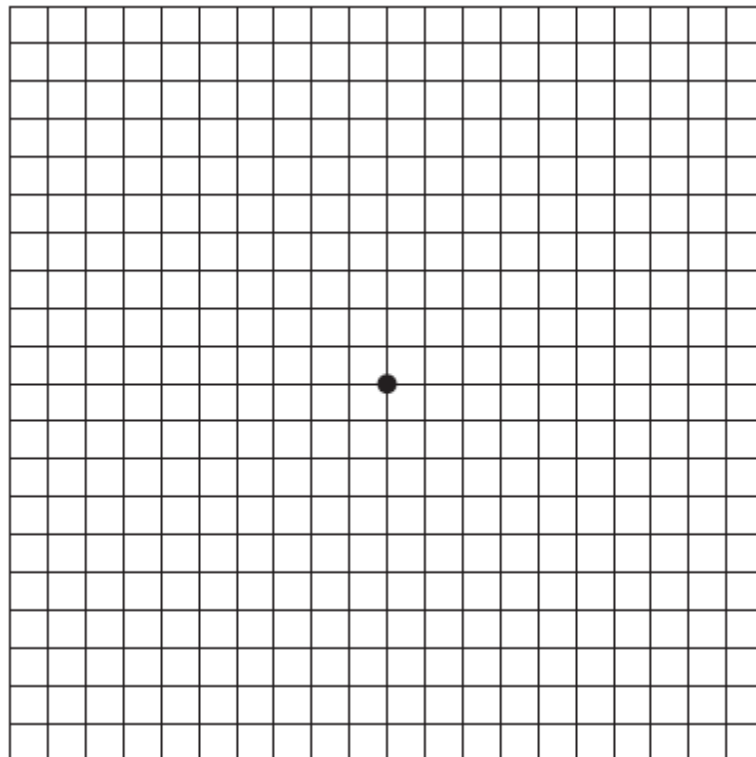
Amsler Grid Test

The Amsler grid test is a screening tool used to detect early central vision problems or changes. The test uses a grid of evenly spaced horizontal and vertical lines with a small dot in the centre. The lines are straight and unbroken to those with normal vision. Those with visual changes may experience any of the following: (1) grid lines that are wavy, broken, distorted, blurred or missing; (2) an inability to see the corner or sides of the grid while keeping their eye on the centre dot; (3) disappearance of the centre dot or part of the dot; and/or (4) grid boxes may not be seen as square or may not be the same size.

Procedure for the Amsler Grid Test

Note: Eyes are tested individually.

1. Instruct the client to sit in a comfortable chair or stand, preferably in a room with natural lighting, and to hold or post the Amsler Grid at eye level.
2. Instruct the client to stand approximately 12 to 14 inches away from the Amsler Grid or a comfortable reading distance. The client should wear their glasses or contact lenses if they normally wear them.
3. Instruct the client to keep both eyes open, cover one eye with the palm of their hand. Test each eye individually.
4. Instruct the client to look at the dot in the center of the grid for one full minute. Ask the client to report whether or not they see distortions or breaks in the grid lines, lines that disappear, or changes including the areas of the grid sheet that cannot be seen properly.
5. Instruct the client to repeat the steps with the opposite eye.
6. Phone the Nurse Clinician immediately if there is a change in vision and hold all TB medication until further direction is received.





Snellen Test

The Snellen test is a visual acuity test using letters or numbers of varying size to determine the clarity and sharpness of distance vision and to identify visual changes.

Supplies: Pocket Snellen charts are available from TB Prevention and Control Saskatchewan.

Procedure for the Snellen Eye Test:

1. Have the client stand, or sit in a comfortable chair, preferably in a room with natural lighting. Hold the chart 14 inches away and at client eye level.
2. Instruct the client to keep both eyes open and cover one eye with the palm of their hand.
3. Starting on the top line (largest print) have the client read the letters/numbers on that line aloud. Have the client move downward until they are only able to identify half the letters/numbers on a line. The client should not squint.

Alternate options: Have the client identify the direction the E is facing (e.g., to the left, right, up or down), or, read the X and O.

4. Document the test results on the *Snellen Test Record*.
5. Repeat steps 2 to 4 with the opposite eye.
6. Repeat steps 3 and 4 with both eyes open.
7. Fax the *Snellen Test Record* to the TB Prevention and Control Saskatchewan Nurse Clinician.
8. Phone the Nurse Clinician immediately if there is a change in vision and hold all TB medication until further direction is received.



SNELLEN TEST RECORD

Last Name	First Name	Middle Name	Other Name(s)
Provincial Health Number	Date of Birth (YYYY-MM-DD)		TB File Number
Test given by		Title/Position	Phone

Date of test (YYYY-MM-DD):

Row	Distance equivalent	Client response for RIGHT EYE	Client response for LEFT EYE	Client response for EYES TOGETHER
<i>Document the number of letters/numbers read for each line</i>				
<i>E.g.</i>	<i>20/50</i>	<i>5 out of 5</i>	<i>3 out of 5</i>	<i>4 out of 5</i>
1	20/800			
2	20/400			
3	20/200			
4	20/100			
5	20/70			
6	20/50			
7	20/40			
8	20/30			
9	20/25			
10	20/20			

Fax completed record to:

Nurse Clinician: _____ Tel: _____ Fax: _____