

HOTV Crowded Symbols Distance Visual Acuity Test Screening Protocol

What Are You Testing?

Distance visual acuity testing tests how well the child sees small objects far away. For this test, far away means 10 feet (3 meters) between the child and the object.

What You Need to Do the Test:

- 1.** The HOTV Crowded Symbols Cards. Each card contains a line of 5 letters (combinations of H, O, T, and V) surrounded by a black crowding border (a line that forms a rectangle around the 5 letters). The crowding border is one-half a letter width away from the letters, and letters are separated by a full letter width. Two sets of HOTV Crowded Symbols cards will be used for screening. One set consists of cards containing letters in the following sizes: 10/40, 10/32, 10/25, and 10/20; this set will be used for testing children less than 4 years of age. The other set consists of cards containing letters in the following sizes: 10/40, 10/25, 10/20, and 10/16; this set will be used for testing children 4 years of age. Each set of cards has separate cards for the right and left eye, to prevent over-estimation of acuity due to memorization of the order of symbols. The 10/40 cards will not be used.
- 2.** A lap card that has each of the four letters on it.
- 3.** Single, large letters (one each of the H, O, T, and V) for pre-training.
- 4.** A card with 20/100 letters (one each of the H, O, T, and V) surrounded by crowding bars.
- 5.** Junior size eye patches (for example, Opticlude patches), or a gauze patch covered with micropore tape to occlude vision in the eye that is not being tested.
- 6.** A hand-held mirror.

Getting Ready:

- 1.** Adjust the lighting by turning on all three overhead lights, turning on the halogen lights, and turning the rheostat to the position marked on the switch plate.
- 2.** Select the set of cards that is appropriate for the age of the child to be tested. The age of the child should be determined by viewing the age printed on the data collection form.

How You Do the Test:

1. Position the child 10 feet from where the cards will be presented. The child may sit or stand.
2. Show the child the HOTV lap card either by giving it to him to hold or by showing him where the lapcard is displayed. The letters should be right side up as the child is looking at them.
3. Pre-train the child binocularly (using both eyes) to rehearse identification of the symbols and ascertain whether the child is able to perform the test.
4. Hold the single letters about 3 feet (1 meter) from the child. Point to a letter and ask the child to name or point to the matching letter on the lapcard. Continue this procedure until all four letters have been correctly named or matched. If the child cannot do the task by matching or naming, score the child as "Unable" on the score sheet.
5. Point to the child's left eye and tell the child to close that eye. Then cover the left eye with an eye patch.
6. If you have difficulty getting the child to wear the patch, you may hold the hand-held mirror in front of the child so that the child can admire himself/herself with the patch on. This may help to improve behavior and testability.
7. If the child refuses to wear the patch, the child may occlude his eye with the palm of his hand. The examiner must monitor the child carefully to make sure he is not peeking and that the palm is not pressing against the child's eye. Covering the eye with fingers is not allowed because peeking is too easy with only fingers in front of the eye.
8. Check the position of the child for testing. The child will need to be at the same height as the testing cards when held by the examiner. It is important for the child to be able to look straight ahead at the cards and not be off to the side or lower than the cards.
9. Read the child's VIP age from the data collection form and check the box on the form to document that the age was read from the form.
10. Pick up the 10/100 card and the set of cards that corresponds to the child's age (4 dots on the set for 4 years old, 3 dots on the set for 3 years old) and move to the location (10 feet from the child) where the HOTV cards will be presented.

- 11.** Point to the first letter on the 10/100 R card. Have the child name or match the letter. Continue testing successive letters as noted below:

If the child correctly identifies the first 3 letters, continue testing with the next card.

If the child gets 2 of the first 4 letters wrong, stop the testing for that eye. Testing may stop as soon as there are two wrong letters.

If the child correctly identifies 2 of the first 3 letters, ask the child to name or match the 4th letter. If the child correctly identifies the 4th letter (3 correct out of 4), continue testing with the next card.

NOTE: Simply stated, the above rules translate to "Continue to the next card if the child gets 3 out of 3 or 3 out of 4 correct."

- 12.** Use the bound set of cards and skip the first (10/40) card. The next 3 cards in the book are age specific. The cards are 10/32, 10/25, and 10/20 for age 3 and 10/25, 10/20, and 10/16 for age 4. Continue testing with each successive card as noted above until a child gets 2 letters wrong on a card or completes reading all the cards.
- 13.** The child should be asked to use matching with the lapcard if he responds with a letter that is not one of the 4 on the chart.
- 14.** If the examiner notices that a child gives a response while not paying attention to the VA task, that response should be ignored. The examiner should re-focus the child's attention on the task and continue testing.
- 15.** Provide positive comments about the child's performance, regardless of whether the child identifies the letter correctly or incorrectly.
- 16.** After testing of the right eye has been completed, remove the eye patch from the left eye and throw it away. Begin testing of the left eye by covering the right eye with a new patch. Repeat the testing procedure on the left eye by starting with the 10/100 L (for left) card.
- 17.** Turn off the halogen lights.

What You Tell the Child:

- 1.** Keep encouraging the child to respond to your questions.
- 2.** Remind the child to stay in the same position and look straight ahead at the HOTV card.

Any and all use of these documents should cite the following reference: The Vision in Preschoolers Study Group. Comparison of Preschool Vision Screening Tests as Administered by Licensed Eye Care Professionals in the Vision in Preschoolers Study. Ophthalmology 2004;111:637-650.

What You Write Down:

1. After reading the child's age from the data collection form, check the box on the data form next to the child's age to indicate that you have done so.
2. Indicate "Able" or "Unable" under Pretest.
3. Circle the best acuity value (e.g., 100, 32, 25, 20, 16) for which the child correctly named or matched at least 3 of the first 4 letters.
4. Put an "X" through the acuity value of the first letter size on which the child was unable to name or match at least 3 of the first 4 letters.

Remember!

1. Maintain the distance during the test.
2. Make sure the eye patch or child's palm completely covers the child's eye (don't let the child peek).
3. Keep encouraging the child.
4. No more than one acuity value for each eye should be marked with an "X"; no more than one acuity value should be circled.

Cover-Uncover Test Screening Protocol

What Are You Testing?

The Cover-Uncover Test provides an objective measure of eye alignment. It determines the presence of heterotropias (manifest deviations).

What You Need to Do the Test:

1. A black plastic occluder.
2. Detailed distance and near fixation targets , as provided by VIP.
3. A chair for the examiner.

Getting Ready:

1. Set up the distance fixation target poster on the wall, 10 feet from where the child will stand.. Have the near (40 cm) targets nearby.
2. The child should stand with his back against the wall, facing the distance fixation target. The examiner should be seated next to the child. The examiner's chair should be turned towards the child but the examiner must not block the child's view of the distance fixation target.

How You Do the Test:

1. First, do the test at 10 feet.
2. Have the child look at the distance fixation target and direct his attention to the details of the target.
3. Introduce the occluder over the child's left eye, leave the occluder in front of the left eye for approximately three seconds, and then uncover the child's left eye.
4. Keep the occluder in front of the eye long enough on each cover stroke to allow for full dissociation and re-fixation if a strabismus is present.
5. Look for any movement of the right (uncovered) eye when the left eye is covered.
6. Repeat the cover-uncover stroke a minimum of 3 times on each eye. You may use more repetitions, if necessary, to determine the presence of the deviation.
7. Make certain that the occluder completely covers the eye on each cover stroke.

8. Repeat the procedure with the occluder covering and uncovering the right eye.
9. If movement is detected when testing either the right or left eye, the child is strabismic.
10. Repeat the test at 40 cm using the near targets, testing both the right and left eyes as described above for the distance target.

What You Tell the Child:

1. When viewing the distance or near targets, have the child describe the characteristics of the object or objects on the target to help maintain the child's fixation on the target.

What You Write Down:

1. If you are unable to perform the Cover-Uncover Test on the child, mark the child as "Unable" on the recording form.
2. Record the Distance Cover-Uncover Test and the Near (40 cm) Cover-Uncover test separately on the recording form. For each test distance, record whether the right eye moves ("Yes" or "No") when the left eye is covered, and whether the left eye moves ("Yes" or "No") when the right eye is covered.
3. Mark "Incomplete Procedure" ("**R**ight eye", "**L**eft eye", or "**B**oth eyes") for the Distance and/or Near Cover-Uncover test if the test is aborted (e.g., due to the child's uncooperativeness).

Remember!

1. Fully cover the eye with the occluder.
2. Allow a period of binocular viewing between each cover-uncover stroke of the occluder.
3. Direct the child's attention to the details of the targets.
4. Watch the eye NOT being covered for movement.

Retinomax Autorefractometer Screening Protocol for Lay Screeners

What Are You Testing?

The Nikon Retinomax autorefractor measures refractive error (astigmatism, farsightedness, nearsightedness).

What You Need to Do the Test:

1. The Retinomax autorefractor.
2. Printer for the Retinomax
3. Printer paper.
4. A model eye for calibrating the Retinomax.
5. Tape

Getting Ready:

1. At the beginning of each day, the Retinomax must be calibrated. If the PC has not checked the calibration, measure the model eye. The procedure for calibration is included with the VIP Study van materials. If the readings do not meet the tolerance limits specified in the calibration procedure, inform the PC. Either a back-up Retinomax or the Retinomax designated for the Lay Screener will need to be used.
2. Make sure the measurement window is clean.
3. Turn on the unit. Adjust the viewfinder until the internal monitor display becomes clear.

How You Do the Test:

1. Have the child sit on the bench with his/her back against the back of the seat.
2. The tester should sit on a stool facing the child.
3. Press the blue "power" button to turn on the Retinomax. Extend the forehead rest. Look at the lights on the switch panel. "Auto Mode" will light up first followed by the light for "R". The "R" is lit up for the measurement of the right eye. If these lights are not on, turn the unit off. Press the "power" button again.
4. Make sure that "QUICK" is not lit up.
5. Look in the viewfinder. The display should show "RO/LO" in the upper right-hand corner. This shows that the Retinomax has taken 0 measurements for the right and left

- eye. If you don't see this, turn the Retinomax off and on again. Adjust the viewfinder again until the image in the window is clear.
- 6.** Hold the Retinomax in front of the child's right eye. Tell the child to look in the center of the round hole in the front of the Retinomax and see if they can find the "white lights of an airplane in the sky." It may help to put your thumb on the child's forehead. Hold the child's head in place with the other fingers. The working distance is about 40 mm.
 - 7.** Position the Retinomax in front of the child's eye using the vertical eye position target line and the horizontal eye position target line. Alignment is easier by looking through the viewfinder after lowering the forehead rest to where it comes in contact with the child.
 - 8.** Press the green "start" button the handle once to begin taking measurements. Look through the viewfinder. You will see a set of brackets ([]). Center the brackets over the child's pupil. See that the center dot is focused.
 - 9.** Move the unit back and fourth until each dot image of the mire ring can be seen clearly. Adjust the distance so that the mire ring is as small and sharp as you can make it.
 - 10.** When the alignment process is complete, the measurement is automatically started. Every time a measurement is made, a beep sounds.
 - 11.** Encourage the child to keep looking at the Retinomax. Ask them if they can see the white lights. It may help to keep asking them questions about the lights. (For example, "What shape are the lights? What else could those lights be?")
 - 12.** Once the display on the Retinomax indicates that it has taken 8 measurements of the right eye (R8/L0), remove the instrument from the child's forehead and press the button on the top of the Retinomax to indicate that you are switching to the left eye. Perform the measurements of the left eye. When the display on the Retinomax indicates that it has taken 8 measurements of the left eye (R8/L8), remove the unit from the child's forehead. Aim it at the printer and press the "print" button to print the child's results.
 - 13.** Tape the printout to the child's data collection form. If the readings taken do not have a confidence value of 8 or greater, you must take the readings again. Only tape the printout with the highest confidence value to the child's data collection form
 - 14.** Turn off the Retinomax to clear the measurements for the next child. Rest the Retinomax in the charger in between testing children.
 - 15.** Cleanse the headrest with an antibacterial wipe.

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What You Tell the Child:

1. Tell the child to stand very still.
2. Tell the child that he/she will see a white lights.
3. Tell the child to keep his/her eye open as long as possible.

What You Write Down:

1. The unit automatically records and prints the measurements for you.
2. Tape the printout to the data form. Tape the printout to the data form before the child leaves the station.
3. If the child does not allow the machine to be positioned properly for measuring an eye, mark "Unable" on the data sheet for that eye.
4. If the machine does not provide a reading for an eye, mark "Incomplete" on the data sheet for that eye.

Remember!

1. Remember that the unit must be calibrated before taking measurements.
2. Make sure the printer has enough paper to record the results.
3. Remember to tape the printout to the form immediately after taking the reading.