	Title:	**Vision – Visual Acuity**		
clsa élcv Canadian Longitudinal Study on Aging Étude longitudinale canadienne sur le vieillissement	**Version Date:**	2018-MAR-21	**Document Number:**	SOP_DCS_0025
	Effective Date:	EARLIEST: 2018--APR-15		
Data Collection Site (DCS)	**Version:**	3.0	**Number of Pages:**	3

1.0 Purpose:
The purpose of this document is to provide the standardized procedure for administering the visual acuity test.

2.0 Scope:
DCS staff must use this document to administer the Visual Acuity Test with an ETDRS Chart.

3.0 Responsibilities:
DCS staffers are responsible for performing the procedures as described in the current and approved version of the standard operating procedure.

4.0 Related Documents:
Not applicable

5.0 Definitions:
Not applicable

6.0 Equipment:
Not applicable

7.0 Supplies:
- ETDRS Chart;

- Multi-hole occluder with handle (black); and,

- Alcohol or disinfectant wipe.

8.0 Procedure Steps:
Contraindications:
- There are no contraindications for the Visual Acuity test.

ETDRS Chart

ETDRS vision chart: if participants wear glasses or contacts, then do the test with participants wearing the glasses or contacts;

Step 1: Place the ETDRS chart two meters from the participant's eyes and make sure the light on the chart is turned on.

Participants will be asked to read successively smaller sets of letters, always starting at the very top row. The vision score corresponds to the smallest complete set of letters they can read, plus the number of letters they can correctly identify on all lines.

Step 2: At the *Interview Tab* in Onyx, look for the "Visual Acuity" measurement in the list of stages and select **Start** in the "Actions" in that row.

Step 3: **Answer** the question about whether the participant is wearing glasses. Ask the participant if they are wearing contacts if they do not have glasses on. Click **Next.**

Step 4: The "Visual Acuity using ETDRS Chart" page is shown, and **Answer** if the test was performed. This step will be repeated for each measurement (i.e.: right eye, left eye, pin hole, both eyes.)
- If **No**, indicate **Why not?** and give details as required**.** Then choose **Next.**

If no is answered for both eyes proceed to **Step 13**.

- If **Yes,** click **Next** and proceed to **Step 5**.

Step 5: Hand the participant the black multi-hole occluder with handle. They will be using this to cover one eye while reading the chart with the other eye.

   NB: Never give the participant a hint about what they are reading. Giving them help will affect their results.

Step 6: Begin with the 'Right eye' - hold the occluder so that the left eye is covered and the right eye can see the chart. Have the participant start reading at the top of the chart and read the whole chart. Note how many correct letters they read from each row in Onyx.

   NOTE: If a participant cannot read the first line at all (20/200), then place a zero for the first line. Have them attempt the next lines, but if they are unable to read any of the lines correctly, then enter zeros for each line.

Step 7: Repeat the test for the 'Left eye'. Have the participant turn the occluder over to cover the right eye and complete the information as above in Onyx. Click **Next.**

Step 8: Next, test the 'Right eye with pinhole'. Move the pinholes into the viewfinder of the black occluder by flipping the pinholes into the viewing area of the occluder and ask the participant to hold it so that the left eye is completely covered. Have the participant start reading at the top of the chart and read the whole chart. Enter the number of letters that they get correct for each line.

Step 9: Repeat the test for the 'Left eye with pinhole'. Turn the occluder over to cover the right eye and complete the information as above in Onyx.

Step 10: Repeat the test for 'both eyes'. Have the participant read the chart without covering their eyes and complete the information as above in Onyx. Click **Next.**

Step 11: The Visual Acuity using ETDRS Chart Score Results screen appears. Click **Next.**

Step 12: Add any Comments. Ensure that comments do not contain any personal identifying information or check **None.** Click **Next.**

Step 13: The Conclusion screen appears, click **Finish.**

Step 14: Click **Continue** to return to the status page.

Step 15: Wipe the multi-hole occluder with an alcohol or disinfectant wipe.

ETDRS Scoring Method

For each of the five readings, a decimal acuity score can be determined. **This is typically done in Onyx** but for manual calculation this is how it is done;

- Determine the last row where the participants can correctly identify all 5 letters on the row.

- Determine the log score for that row (these scores are shown in the margin of the ETDRS test, e.g. the 20/25 line has a log score of 0.1).

- The formula used in calculating the score is:

> ETDRS Acuity Log Score = Log value of the best line read – (0.02 * X) (X = number of letters correctly identified for all the remaining rows beyond the last row where all of the letters are correctly identified)

9.0 Documentation and Forms:
- **CRF_DCS_0025** – Visual Acuity Case Report Form

10.0 References:
- http://webvision.med.utah.edu/book/part-viii-gabac-receptors/visual-acuity/

- Visual Acuity Scales

Foot	Meter	Decimal	LogMAR
20/200	6/60	0.10	1.00
20/160	6/48	0.125	0.90
20/125	6/38	0.16	0.80
20/100	6/30	0.20	0.70
20/80	6/24	0.25	0.60
20/63	6/19	0.32	0.50
20/50	6/15	0.40	0.40
20/40	6/12	0.50	0.30
20/32	6/9.5	0.63	0.20
20/25	6/7.5	0.80	0.10
20/20	6/6	1.00	0.00
20/16	6/4.8	1.25	-0.10
20/12.5	6/3.8	1.60	-0.20
20/10	6/3	2.00	-0.30

F2 Revision History:

New Version #	Revision Date	Revision Author	Content Approval
3.0	2018-MAR-21	Lorraine Moss	Harriet Sauve
Summary of Revisions			
Added direction in Step 1 and Step 6 to have the participant start all tests at the top row of the chart.			
Clarified that a value will be entered for all rows in the chart, even when no letters are read correctly.			