

7 Modified Field Digital Fundus Photography

Capture Tutorial

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Introduction

- The following slides contain detailed instructions on how to capture the 7 modified fields, either for colour photos or fluorescein angiography
- This example has been put together using a Spectralis with a 55° lens, simply for ease of producing this tutorial
- This tutorial simply shows the correct positioning of the optic disc in the frame for each of the 7 fields
- These techniques can be applied to any system, stills camera or Spectralis

- For studies where the final 7 fields are montaged to produce one large composite, it is important that there is a good reference point of three major vessels in each image to help with the alignment
- On wider field lenses, such as the 55° of the Spectralis including in optic disc is acceptable and best practice
- When using the 30° lens on the Spectralis the optic disc will be positioned out of the field (as in Figure 1)
- This will be the same for other cameras using 30° or 35° lenses

The Fields Overview, 30/35° Lens

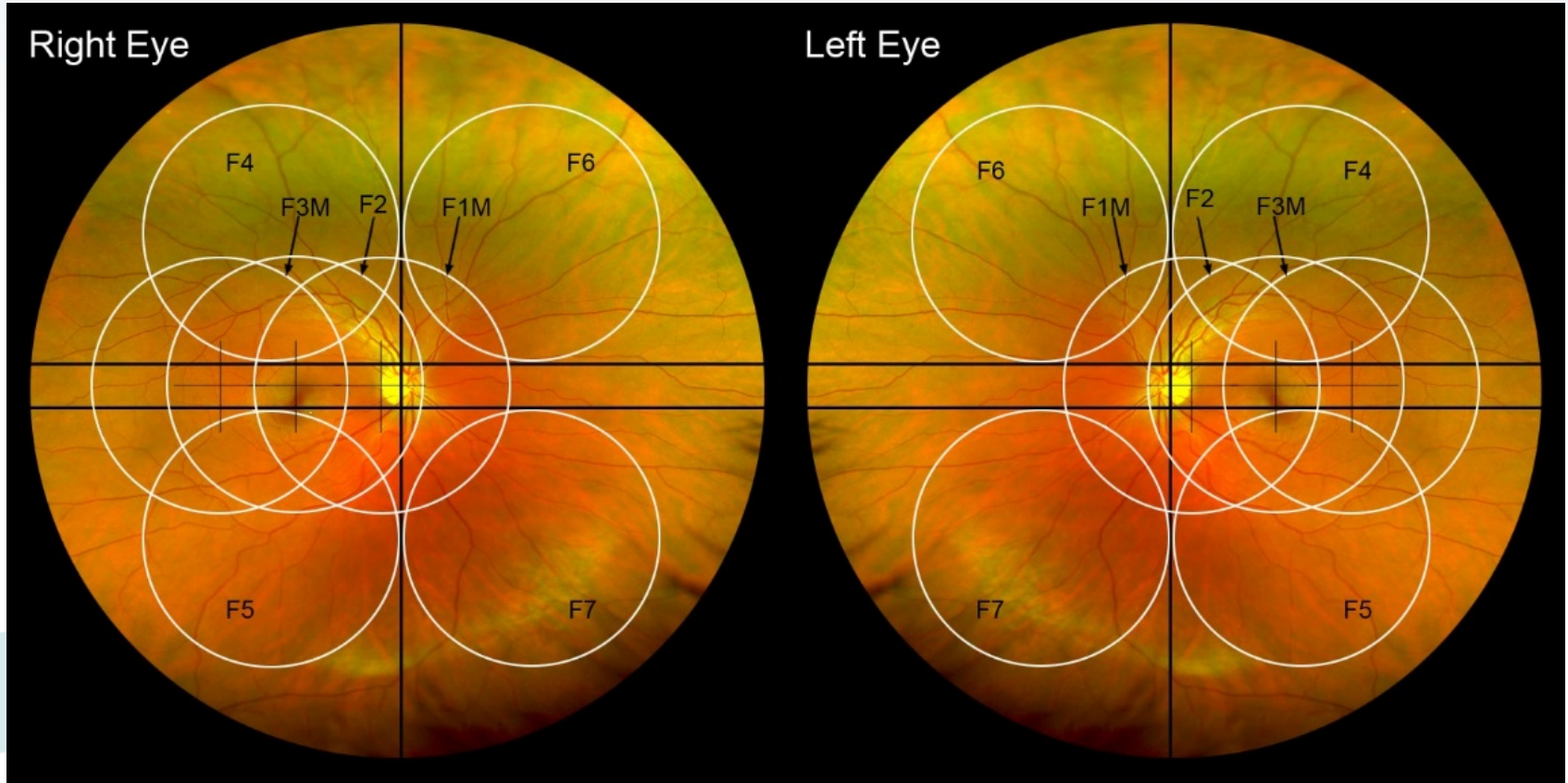


Figure 1

Positioning the fields

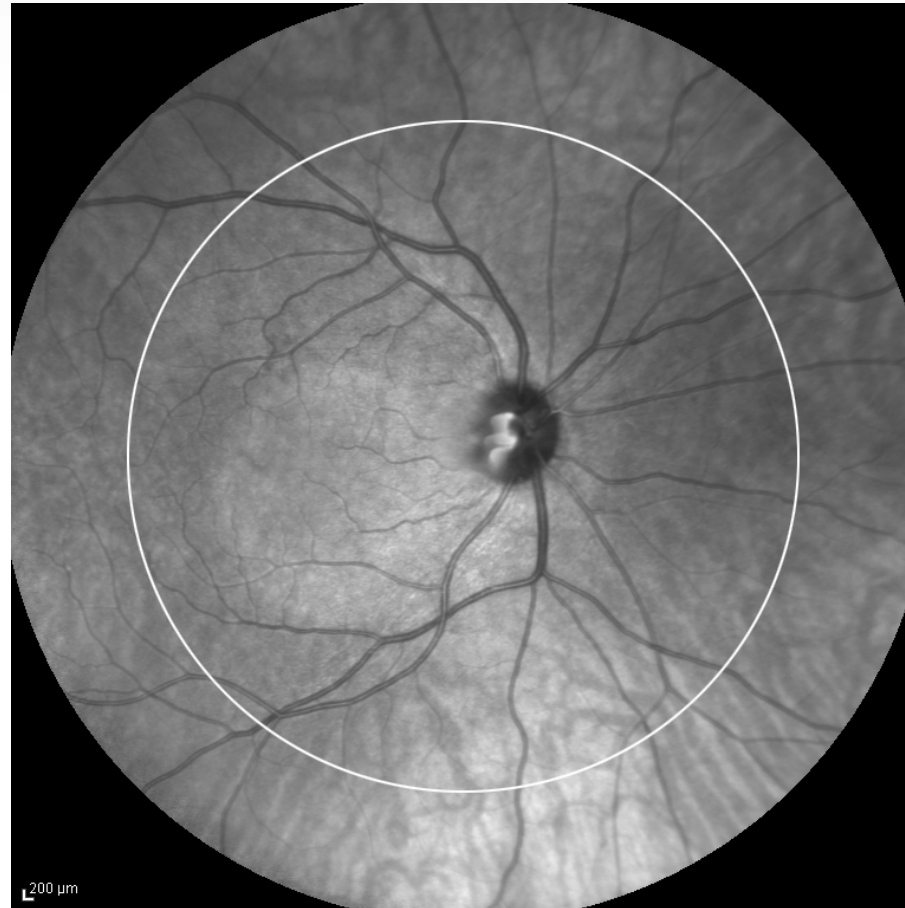
- On cameras with tilt and pivot capabilities and if the patient is able to fixate with the fellow eye, roughly position a field using the external fixator and do the fine adjustments using tilt and pivot
- You may have to use another fixation method for field 3
- For the inferior fields, the patient will be looking down, so eyelashes will be a problem
- You may need to hold the eyelid just as you take the shot
- Superior fields are easier as the patient is looking up

The Fields, Detailed Explanation, 55° Lens

- On the next 7 slides you will see a detailed explanation of how to position each of the fields and an image of the field correctly placed FOR A 55° LENS
- Please bare in mind that for a 30/35° lens the area captured will be less, approximately where the white circles are on the images
- When using a stills camera such as the Topcon TRC 50DX, you can use the 50° field of view instead of 35°

Field 1M: Optic Disc

Asking the patient to look at the external fixator, centre the temporal edge of the optic disc in the field. If using a fundus camera, this will be at the intersection of the ocular crosshairs.



Field 2: Macula

Simply pivot the camera towards the temporal area from F1 without any vertical adjustment. The fovea should be positioned just below the centre of the field. This helps to avoid possible central grey artefacts created by some cameras.



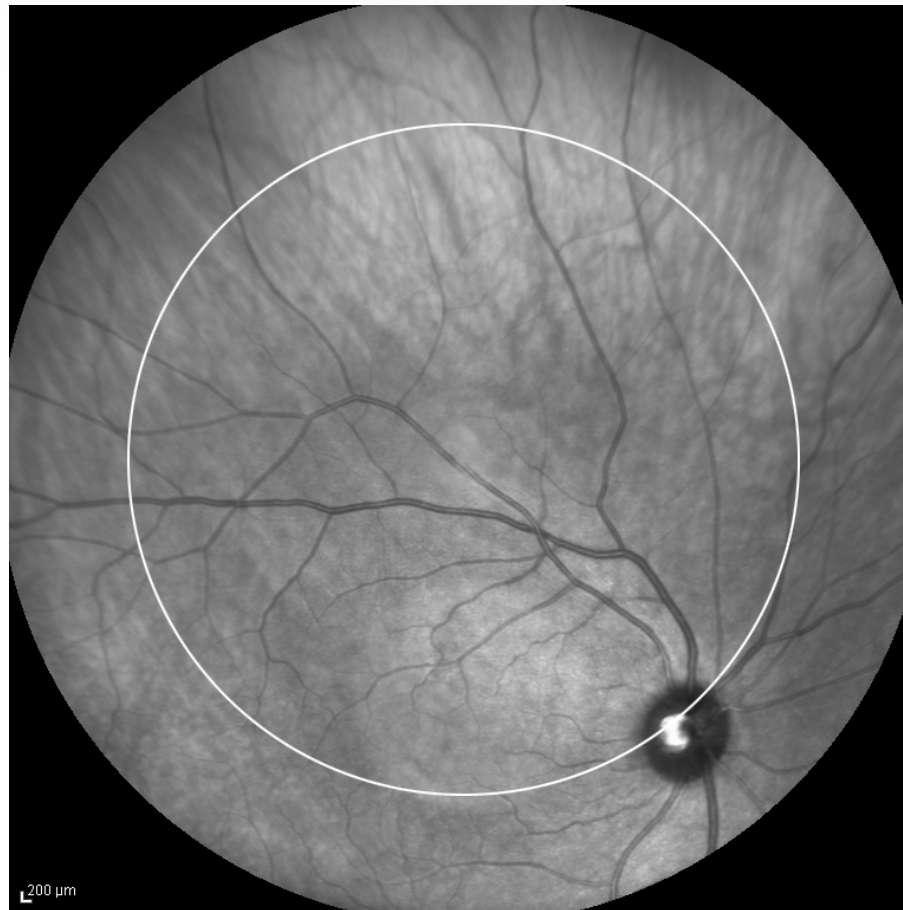
Field 3M: Temporal to the macula

Pivot the camera further toward the temporal area to position the macula mid way between the centre of the field and the nasal edge of the field, again without vertical adjustment. You may need to use the internal fixator to achieve this.



Field 4: Superior temporal

Centre the optic disc in the frame, tilt the camera downwards until the optic disc is at the 6 o'clock position, pivot the camera towards the temporal area to position the disc in the lower right corner of the field. If using a 30 or 35° lens, position the disc just outside the frame, making sure that if it's not all visible, that three closely arranged retinal vessels are showing, as in the image below.



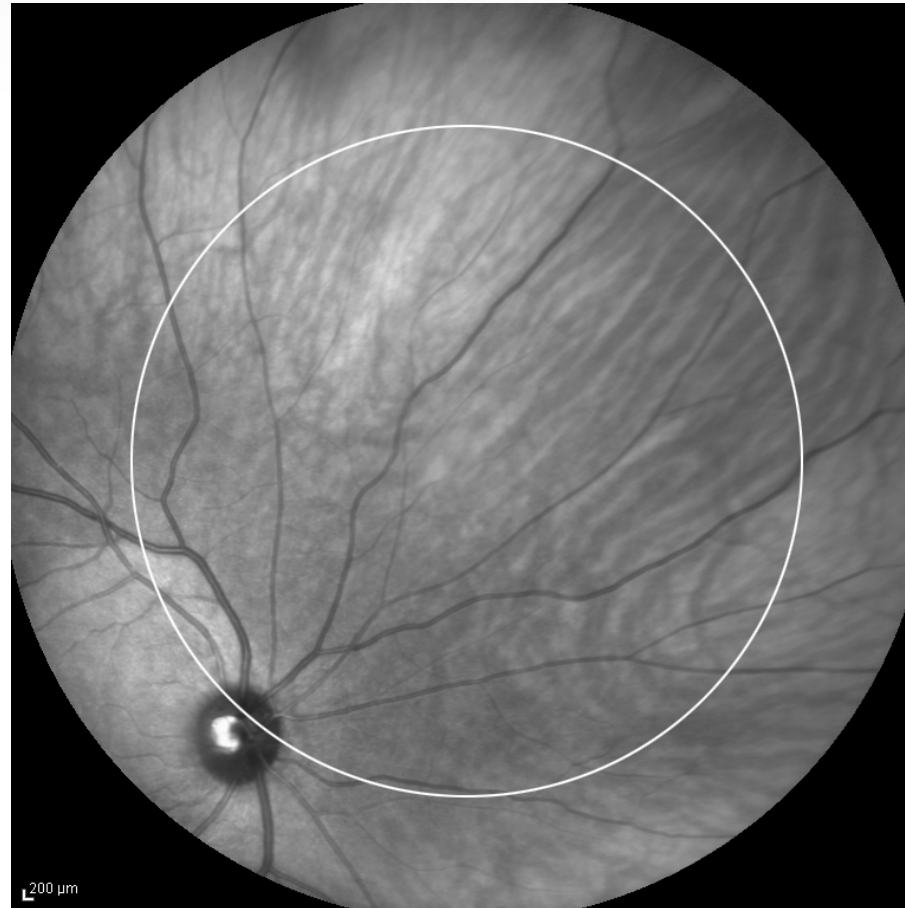
Field 5: Inferior temporal

Centre the optic disc in the frame, tilt the camera upwards until the optic disc is at the 12 o'clock position, pivot the camera towards the temporal area to position the disc in the upper right corner of the field. If using a 30 or 35° lens, position the disc just outside the frame, making sure that if it's not all visible, that three closely arranged retinal vessels are showing, as in the image below.



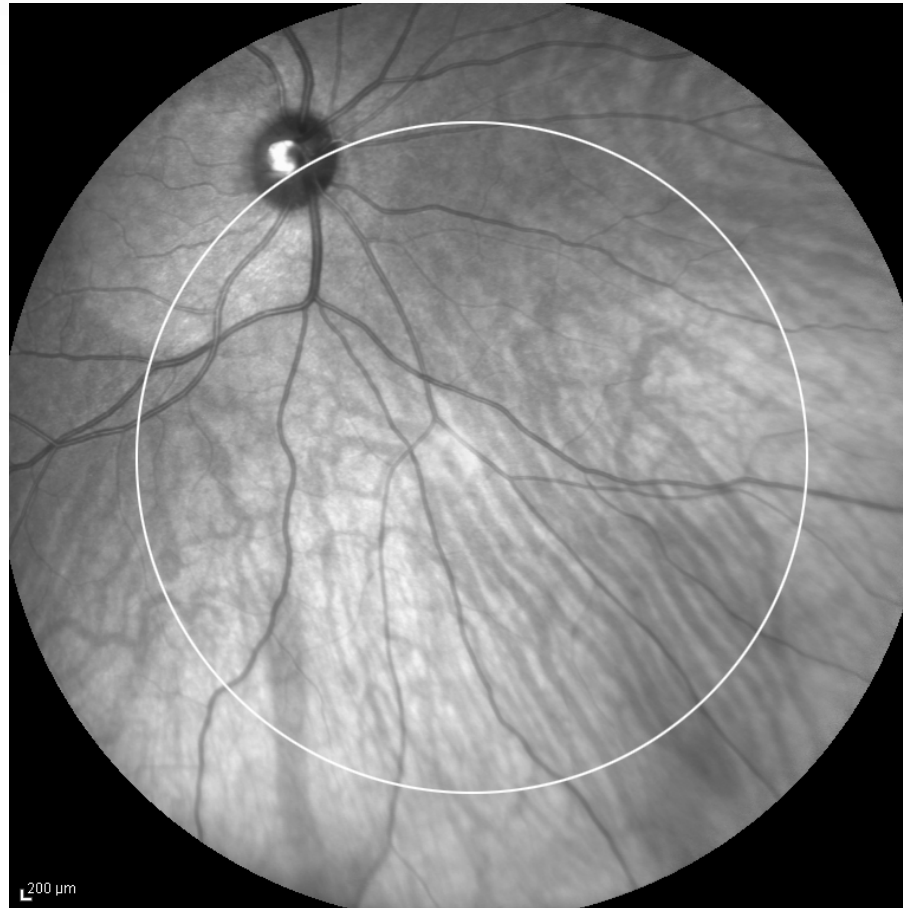
Field 6: Superior nasal

Centre the optic disc in the frame, tilt the camera downwards until the optic disc is at the 6 o'clock position, pivot the camera towards the nasal area to position the disc in the lower left corner of the field. If using a 30 or 35° lens, position the disc just outside the frame, making sure that if it's not all visible, that three closely arranged retinal vessels are showing, as in the image below.



Field 7: Inferior nasal

Centre the optic disc in the frame, tilt the camera upwards until the optic disc is at the 12 o'clock position, pivot the camera towards the nasal area to position the disc in the upper left corner of the field. If using a 30 or 35° lens, position the disc just outside the frame, making sure that if it's not all visible, that three closely arranged retinal vessels are showing, as in the image below.



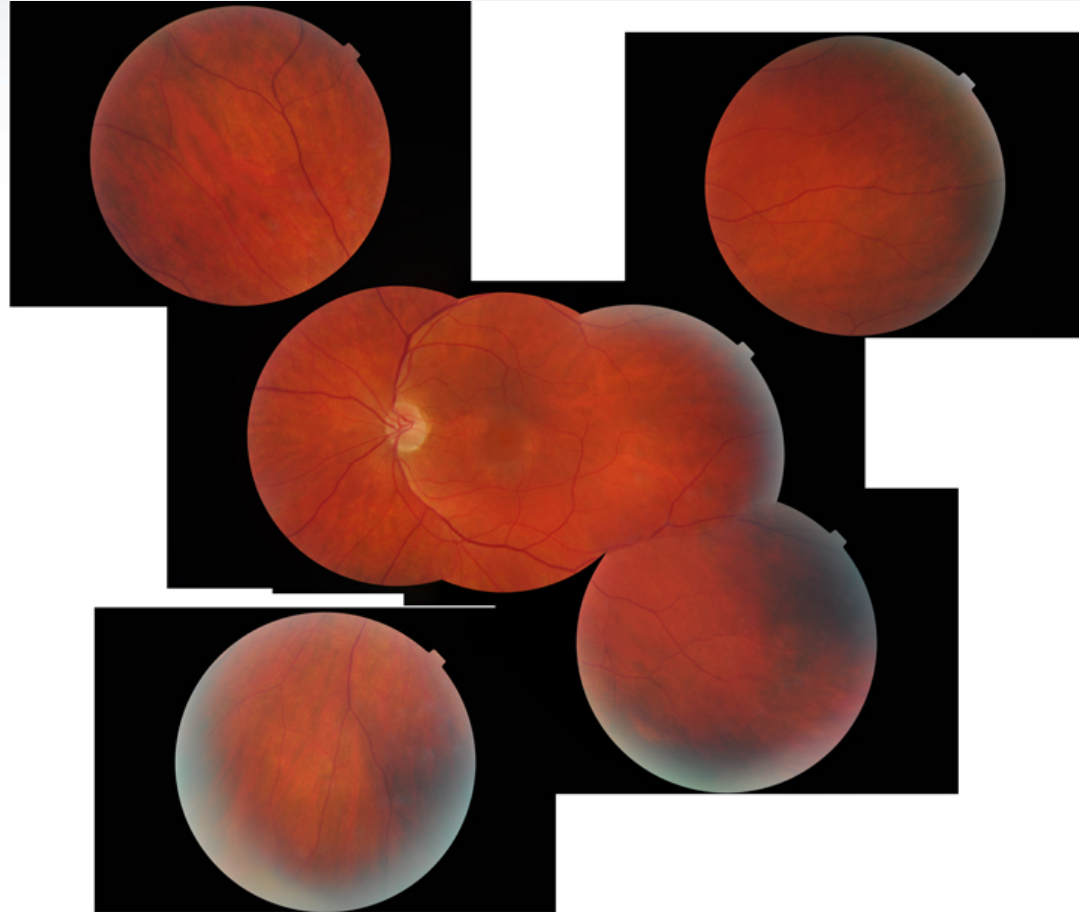
Montaged Image



Other Sample Montages

- On the next few slides there are some examples of poorly captured 7 field sets
- Example 1 is poor and required manual best guess alignment
- In examples 2 & 3 the capture of 2 extra fields, superior and inferior to the optic disc would fill those gaps in the peripheral fields
- Examples 4 & 5 are well captured, 4 using a 35° camera and 5 with a 50° camera

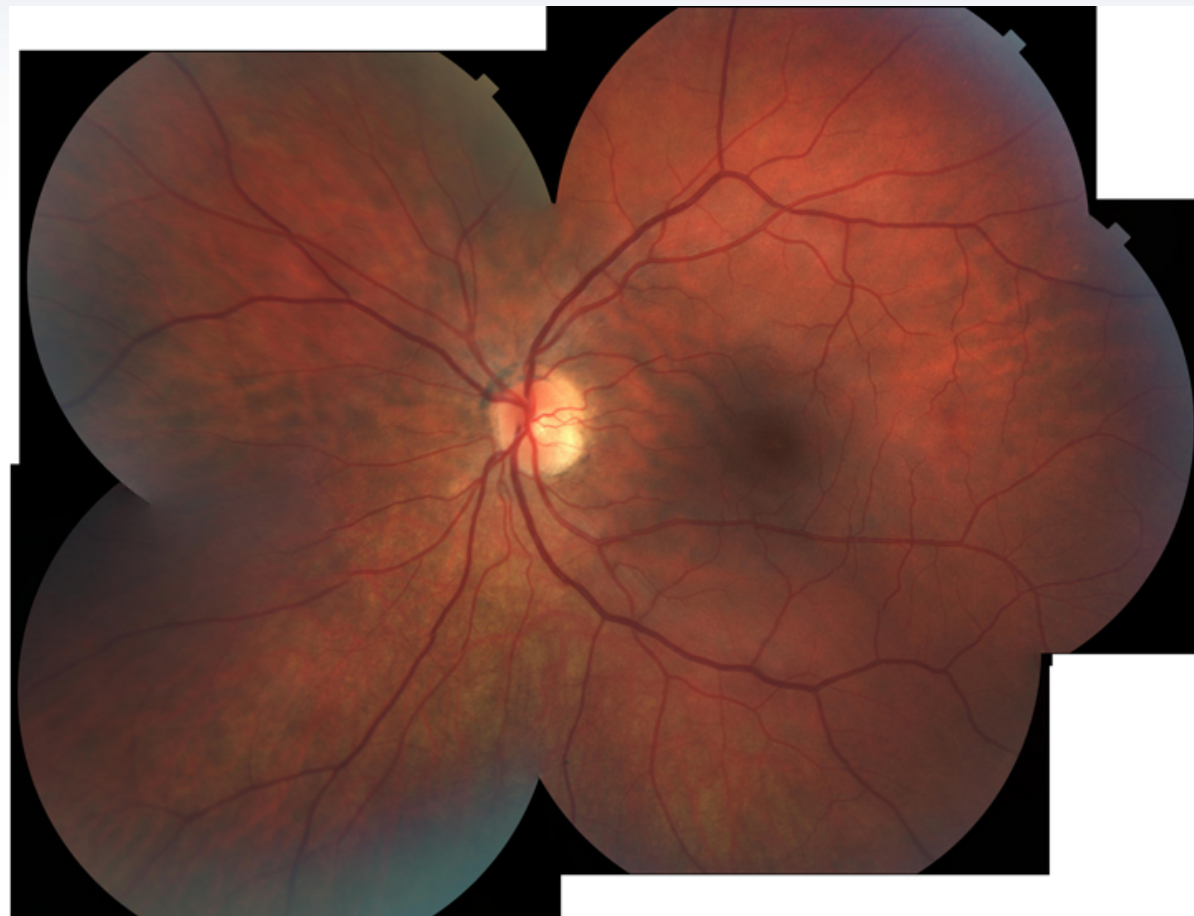
Example 1: Poor example, the 4 peripheral fields were manually positioned as best guess



Example 2: Better example, all the fields montaged automatically, but the gap between the two superior and two inferior fields is unacceptable



Example 3: Fair example, the superior and inferior gap has closed but is still visible



Example 4: Good example, taken with a 35° field of view camera



Example 5: Good example, taken with a 50° field of view camera

