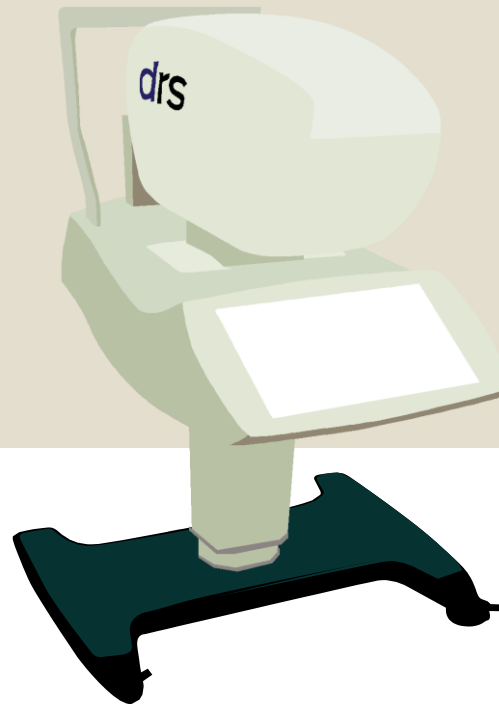# Ellex DRS

Retinal Camera Manual

Shelley Walters

This manual has been designed to help you obtain good quality photos to send to the Ophthalmologist to enable you, the patient, and the ophthalmologist to receive good outcomes for eye health.

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What are the reasons for taking a photo of the back of the eye?

Regular retinal checkups are an important part of caring for people with diabetes. The digital camera is used to screen clients with diabetes for diabetic eye disease, Diabetic Retinopathy.

This disease is the leading cause of blindness among Aboriginal people in the Kimberley. People with poorly controlled diabetes are at the greatest risk of developing diabetic retinopathy.

A retinal photo shows the damage to the small vessels in the back of the eye. Blindness can occur when this damage is not treated.

Getting to know your DRS camera

Forehead Rest

Screen

Power cord
from table t
wall outlet

Internet Port
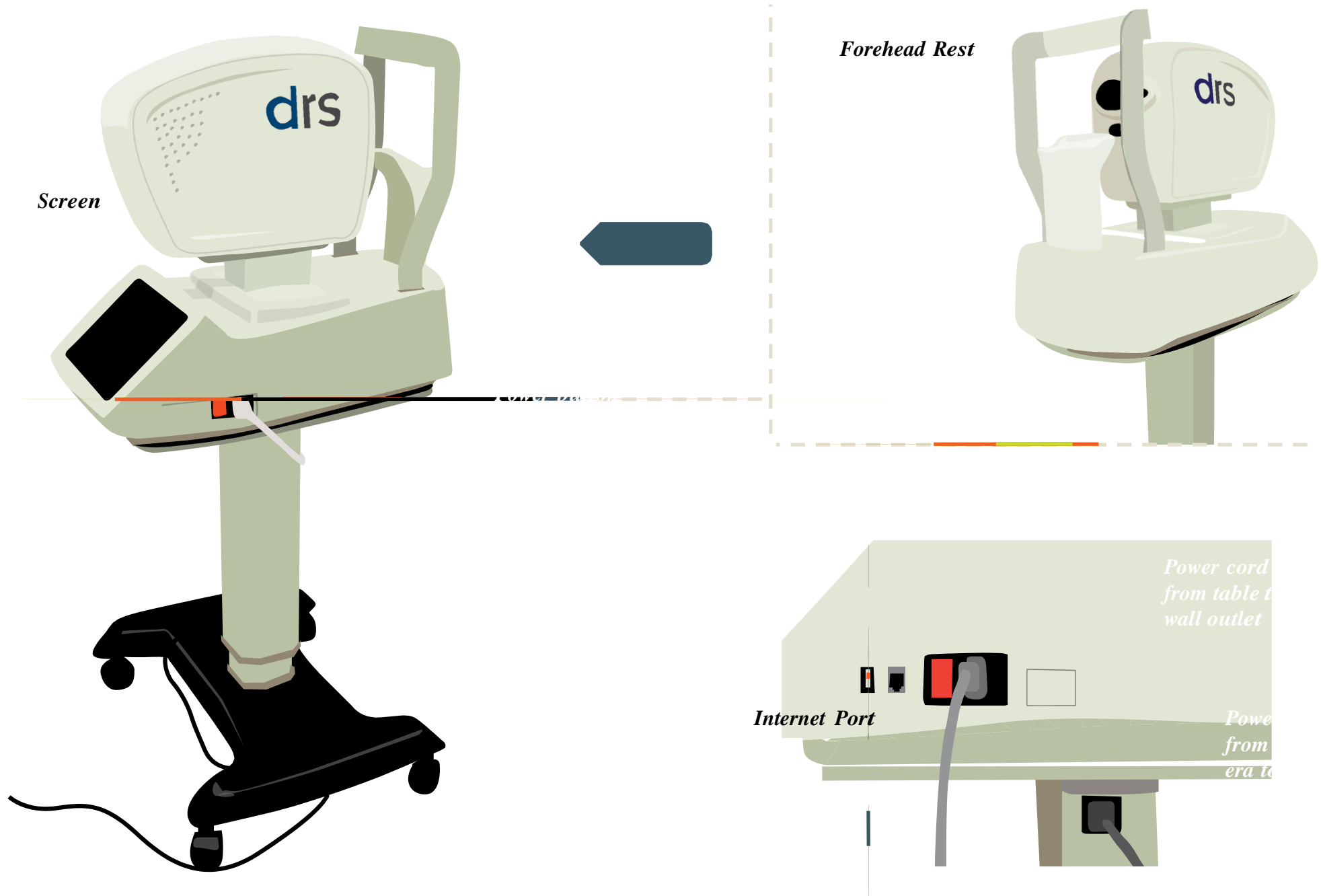
Powe
from
era t

Setting up the Room.

- The DRS camera does not require eye drops to be instilled but to achieve good quality photo's you will need to be able to work in a dark room.

- You will require to be near a power point and if possible an internet connection. This is not essential as you will be saving all photo's to the USB memory stick.

- The patient will need to be seated on a high to low chair to enable them to reach the camera properly. You may use a pillow to achieve height but please be aware of the risk of the patient slipping off the pillow. You may need assistance with these patients.

- Please be aware of all power cords that may cause injury to you or your patient.

- Please do not li" the camera on your own to avoid back injuries.

- When not in use cover the camera, unplug it from the wall and always remember to keep the lens cap on. The lens is the most expensive piece of the camera.

When performing retinal screening you will need additional equipment.

- Broadband or dial up link for sending photos
- Clean rag for cleaning the outside of the camera.
- Cotton buds or spectacle cloths for cleaning the lens
- Alcohol swab for cleaning chin and forehead rest.
- Spectacle cleaning spray.
- Pencil torch for checking the eyes if drops required
- Snellen "E" chart and Letter chart to test the eyes.

- Tape measure to measure meters, or large steps for distance from the snellen chart eg. 3 metre/6 metre
- Eye occluder with Pinhole for visual acuity testing
- Writing pad and pen

Visual acuity

Before doing the Visual Acuity, check the patient eyes with a pencil torch, to see if any of these eye problems are present.

What to look for:

- Cataracts
- Conjunctivitis
- Trachoma
- One or two red eyes.

Refer to a Doctor if you are unsure of the patient's eye condition.

Performing a visual acuity test. (VA).

- **The client must have a VA test with every retinal photo.**

- Unaided vision   R) eye first, then L) eye.

- Mark out 6 metres (with steps or by tape) from the chart. If space is an issue, the patient can have their visual acuities performed at 3 metres. Eg: 6/6 = 3/6

If you don't have an eye occluder – cover each eye not being tested with CLOSED cupped hand. Make sure patient can't see through their fingers.

Tell the patient to keep the covered eye open while it is covered.

- Tell the patient to read from the largest letter on the top of the eye chart to the smallest letter they are able to see.

- If the patient wears glasses all the time, do a VA with glasses on a"er performing unaided and/or Pinhole VA.

- When testing with glasses record VA ®/L= Aided then the line they read to (eg. Aided 6/12).

Remember if you perform VA at 3 metres to use 3 metre chart and at 6 metre use 6 metre chart

- If the client is unable to read, ask them to use the E chart and ask the patient to point which direction the legs of the E are facing.

- Record the metres over the line number they are able to read. Eg. 6 (metres)/line read.

If the patient is unable to see the top letter

- Test them with Count the fingers (CF). Starting at the eye chart move metre by metre to the patient asking them to count fingers. Record this as CF/how many metres. eg CF/2metres.

If the patient is unable to see CF.

- Test with Hand movements (Waving)

(HM). This is also recorded as HM/how many metres

If the patient is unable to see HM

- Shine a pencil torch in front of their eyes and ask them if they can see the light. Perception of light. (PL) or (NPL) (non perception of light). If the patient says they can't see the light. Make sure they only see Black ie. No light at all.

Pin Hole Refraction

If the client has vision of 6/9 or worse, to check if the client would see better, perform the pinhole test. Ask them to look through the little holes in the pinhole glasses then test visual acuity as before.

Eye Occluder with Pin Hole

Putting in the eye drops

The DRS camera does not require the installation of eye drops to dilate the pupils. Should a specialist or doctor request that dilation drops are required only health staff with the appropriate qualifications in medication administration are legally allowed to instill these drops.

People with dark eyes will need both eye drops to dilate their pupils
First drop: Tropicamide 1% 1 drop in both eyes, then Phenylepherine 2.5% 1 drop in both eyes. People with light eyes (eg blue/green) will only require the Tropicamide 1%. ALWAYS ask the patient if they have an allergy to eye drops and if in doubt DON'T dilate with drops instead place the patient in a dark room and document on the patients notes they are not dilated.

Right way to put in the drops.

- check the client's name, allergies; correct drop, strength and expiry date.
- Advice your patient of the purpose of the drops and the drops may sting.
- Ask the client to tilt their head backwards and to look up.
- Instill Tropicamide 1% first
- Gently pull the lower lid down and instill the eye drop in the space between the eye

Wrong way to put the drops in. Do NOT in!
the top eye lid!!

Right way to put the eye drops in (the bottom lid)

1. Set up the room – the room has to be as dark as possible.

2. Switch on the camera and take off the lens cap.

3. This is the HOME page.
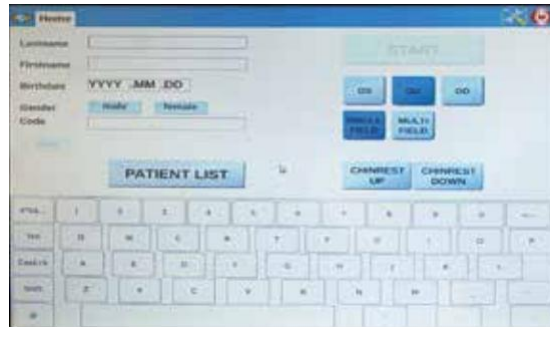
4. Enter the client's details (NAME, DATE OF BIRTH, GENDER) using the keyboard and press 'SAVE'.

When 'OU' and 'single field' is highlighted, the camera will automatically take the photo of one eye, and then the other.

"OS" means le" eye only.

"OD" means right eye only.

You can also adjust the chinrest up and down.

"PATIENT LIST" will take you to the list of patients and photos you have already taken.

5. A"er you have 'SAVED' the new patient's details, you will come to this screen:

Make sure the client is comfortable with their chin in the chinrest and forehead against the bar.

When the chin is resting properly, there should be a "click" sound and the green START button will light up.

6. Press 'START' and it will take the photos.

Tell the patient to look directly at the green or white dot they will see inside the lens.

Do not interrupt the camera unless it asks you to do something, eg taking off the lens cap.

7. When it is finished, you will see this screen:
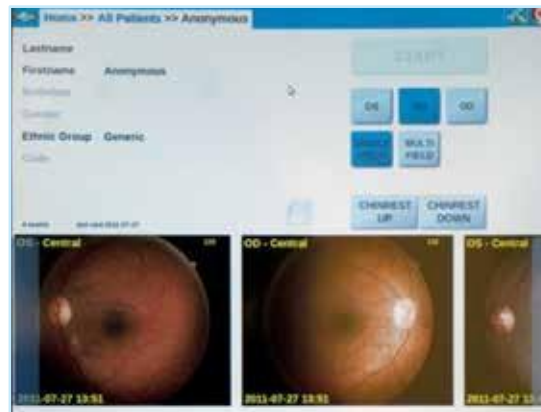
8. You can press on a photo to enlarge it:

Press on the patient's name to take you back to the screen above.

Slide up and down to zoom in-out on the photo

9. If you want to take another photo of the same patient, get them to put their chin on the chin rest and press 'START' again.

If you only want the le! eye again, highlight 'OS'.

*If you only want the right eye again, highlight 'OD'.*

10. If you want to take another photo of ANOTHER patient, press 'HOME' (at the top of the page) to enter a new patient's details.

11. If you want to review all the patients, press "ALL PATIENTS" or "PATIENT LIST". This will take you to this screen:

You can select a patient if you want to review their photos.

12. If you want to delete a patient's record and their photos, press on the recycle bin:
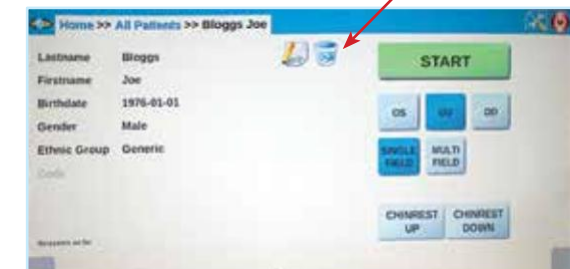
1. Put a USB in the camera's USB port on the side.

2. On the patient screen, you will see an icon with computer disks:

When the USB is inserted, this icon will light up and you can press it to save the photos onto USB.

3. Take out the USB and put it in the computer. Upload the photos on MMEx.

If you are a site that does not have access to MMEX, you will need to email to the Ophthalmologist your photo's or send direct the USB memory stick with the photo's. This will be in consultation with the specialist as how he would like them delivered.

PLEASE NOTE:

When saving to memory stick the following sessions/years photo's from the Patients data base or just an individual photo without sending the patients entire data base perform the following steps.

1. Highlight the individual photo. (it will open up into the whole screen)

2. Go to the top R) hand of screen to small icons

3. Press on round circle 2nd from L)

4. When this highlights with a tick, press on memory stick beside it.

5. The next screen will ask if you wish to save to PDF or Image. Always save to IMAGE.

6. Then press OK.

Repeat process for any more photo's you wish to save to memory stick and send for patient.
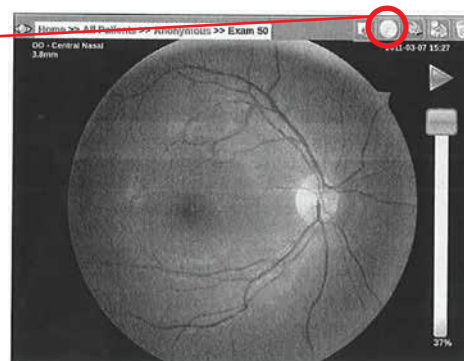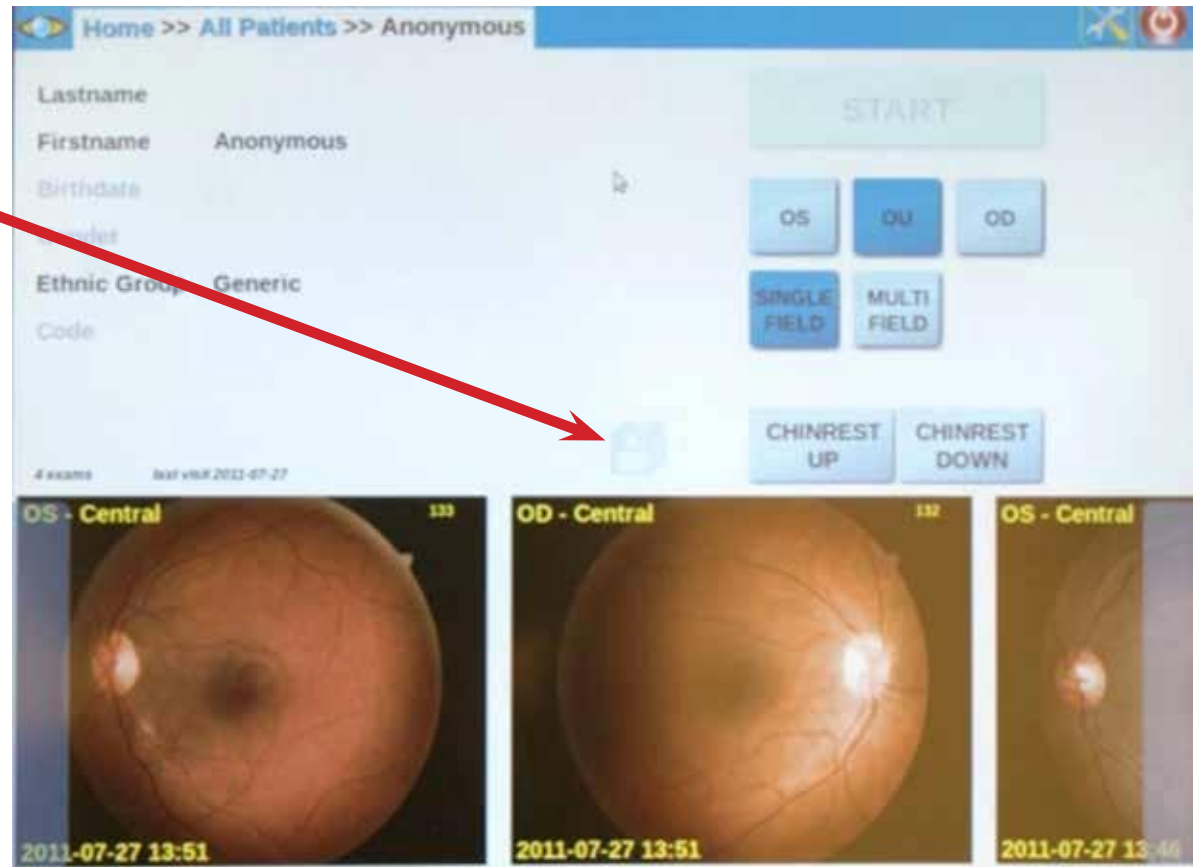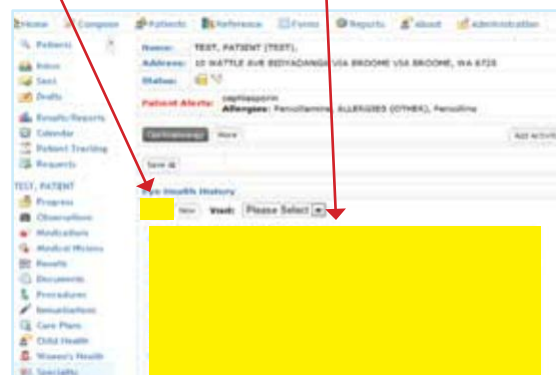

Figure 21 - Full image screen

Stage 3: Uploading the photos onto MMEx

After the photos are saved on the computer, they can be uploaded onto the patient's MMEx file and sent to the ophthalmologist.

1. Login to MMEx and open the patient's file

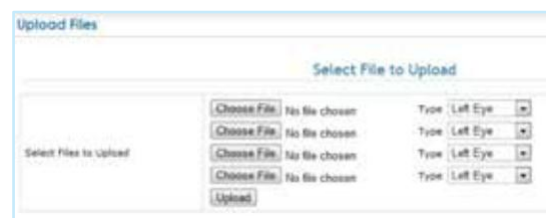2. Go to 'Speciality' on the left hand column

3. Enter the patient's visual acuities and click 'SAVE'

4. Scroll down to the bottom of the page.

5. Click on 'Images' then on 'Upload File'

6. Click on the first 'Choose File' and browse and select the Right eye photo from USB folder for patient. You will need to click on the drop down box to label this as the 'Right Eye'.
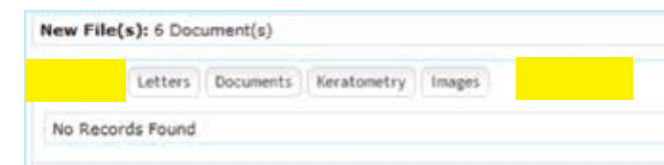

7. Click on the second 'Choose File' and browse and select for the Left eye photo. You can upload up to 4 images if you want to, but usually 2 is enough.
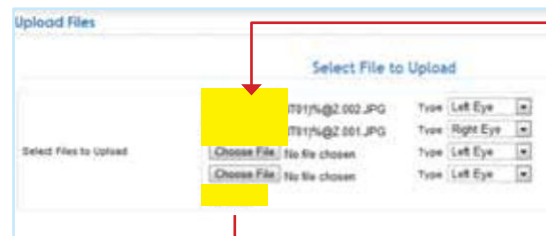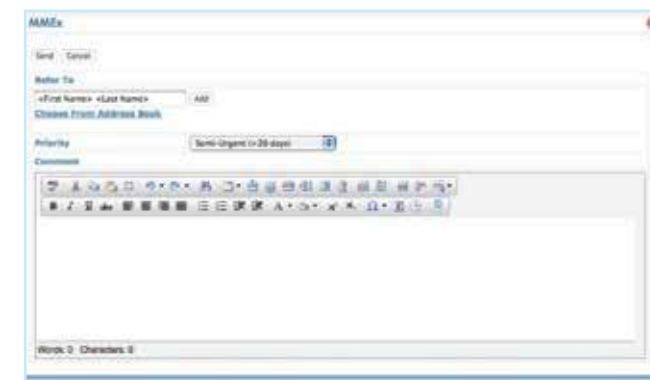

8. Click Upload Files and wait for the photos to load.

9. Click on 'Referrals' and then 'Add Referral'

10. Type the name of the doctor you are referring the images to into the Refer to box and select it from the drop down list that will appear from the box. The name should then appear directly below.

11. Select the priority from the drop down list and add any comments.

Eg,

Dear doctor,

Here is a retinal photo of Joe Bloggs. He is diabetic.
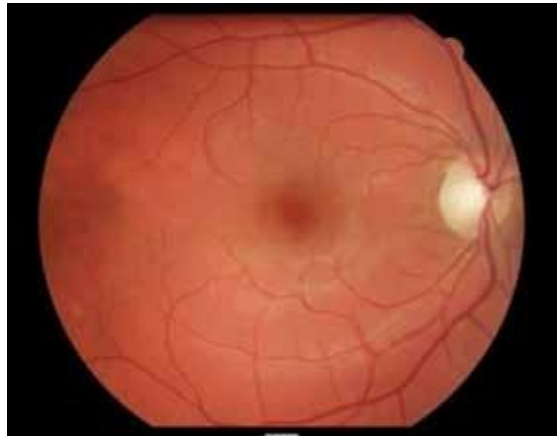
Regards,

Bob (AHW)

13. Click Send.

- Turn ON the power.

- Look into the lens with a pencil torch to find dust and smudges.

- Use puffer to clear dust debribe

- If the smudge is still on the photos, repeat this process until lens clean

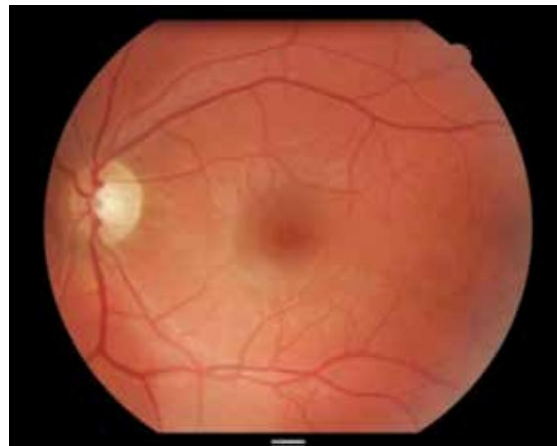- Wash glasses cleaning cloth in soapy water, rinse well and dry for next time.

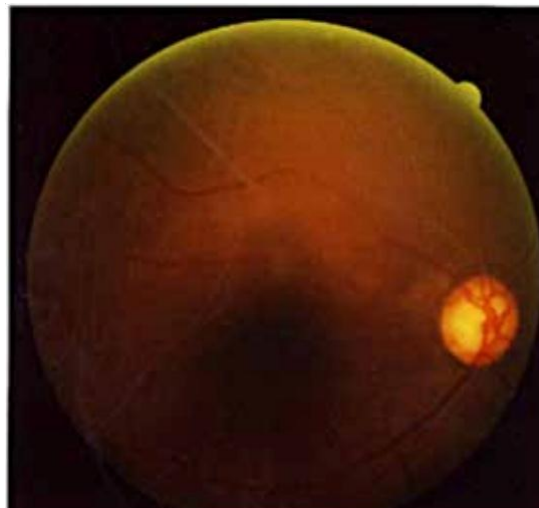# Here are some examples of photographs...

These are good photos:

Right eye

Le" eye

Here are some photographs showing you various problems. *(Photos supplied by Lions Eye institute Perth)*

Eye lashes on the screen.

Not dilated enough.

Eye conditions that may cause difficulty with taking photo's of the Retina.

Cataract

Ptergium

Terminology and check lists.

Unaided: Without glasses *(with glasses is written as Aided).*

Pupil dilation: Eye drops are used to open up the pupil, this is done when checking for retinopathy.

Retina: inside the eye is a thin lining on the back of the eye, this is called retina. The retina is like a film in a camera, it collects the picture to send to the brain.

Macular: is the central part of the retina a the back of the eye, thisis the most important part for good sight

Perimacular: around the macular.

Macular oedema: This is swelling on the macular which causes eyesight problems in people with diabetes.

Exudates: This is fluid, spots of fat or other matter that have been slowly leaking from retinal blood vessels.

Diabetic Maculopathy: Hard exudates and fluid are seen at the macular.

Micro vascular: Tiny blood vessels

Macrovascular: Large blood vessels.

Occlusion: A blockage in a narrow blood vessel.

Optic disk: Beginning of the optic nerve.

Retinopathy: Any non-inflammatory disease of the retina.

Diabetic Retinopathy: This is a disease, caused when diabetes damages the very fine blood vessels in the retina of the eye.

Proliferative retinopathy: Advanced stages of retinopathy where the blood vessels are bleeding or scarring has occurred in the retina.

Non proliferative retinopathy: A fancy word for the early stages of retinopathy.

Detached Retina: This when the retina falls away from the inside of the eye.

Laser: An extremely concentrated beam of light used in the treatment of diabetes retinopathy, macular degeneration and some other skin conditions.

Optometrist: This eye professional is the person who can assess eyes, prescribe and supply glasses, and can refer to ophthalmologist.

Ophthalmologist: This person is the specialist eye doctor who can assess your eyes, check retinal photos, prescribe medications and perform surgery.

If you have any difficulties or questions involved in any of the above information or require assistance with taking Retinal Photo's please contact the Eye Health Support and Training Officer on 91 921 113