



Diabetic macular oedema

What is diabetic macular oedema?

Diabetic eye disease is a leading cause of blindness registration among working age adults in England and Wales. It is caused by changes to the tiny blood vessels of the retina (the light sensitive layer at the back of the eye). In diabetic macular oedema, blood vessels leak fluid into the retina.

How does diabetic macular oedema cause vision loss?

Vision loss occurs when the fluid reaches the macula (the centre of the retina that provides sharp vision) and builds up, causing swelling. At first, you may not notice changes to your vision. Over time, diabetic macular oedema can cause your central vision to become blurred. A healthy macula is essential for good vision.

Who is at risk of diabetic macular oedema?

All people with type 1 and type 2 diabetes are at risk of diabetic macular oedema.

You are at greater risk if you:

- Have had diabetes for a long time—about one in three people living with

diabetes for 20 years or more will develop diabetic macular oedema

- Have poorly controlled blood sugars
- Have high blood pressure
- Have high cholesterol levels
- Smoking
- Are pregnant

Large studies have shown that people who have well-controlled blood sugar, blood pressure and cholesterol levels, and do not smoke are less likely to develop diabetic macular oedema.

How to reduce the risks of diabetic macula oedema

To reduce the risk of diabetic macular oedema, it is important not to smoke and to ensure that your blood sugar, blood pressure, and cholesterol levels are well controlled. This can be achieved by regular visits to your diabetes nurse, general practitioner or hospital doctor.

Please ask to see the diabetes specialist nurse at Moorfields if you wish to discuss any aspects of your diabetes management.

How is diabetic macular oedema detected?



Diabetic macula oedema may be detected during your annual eye screening visits, which are offered to all patients with diabetes. Digital photographs of your retina may show signs of early diabetic macular oedema. You may not notice any changes in your vision at this stage.

If diabetic macular oedema is detected, you will be referred to the medical retina clinic at Moorfields for further assessment. If you are attending clinics at Moorfields, you do not need to attend your local diabetes eye screening programme. If you do not require treatment or when your treatment is complete, you will be discharged from Moorfields. After being discharged, it is important to resume attending your annual local diabetes eye screening appointments.

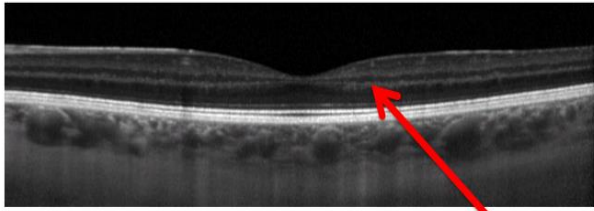
What happens when I attend the medical retina clinic?

You will have a comprehensive eye examination that includes:

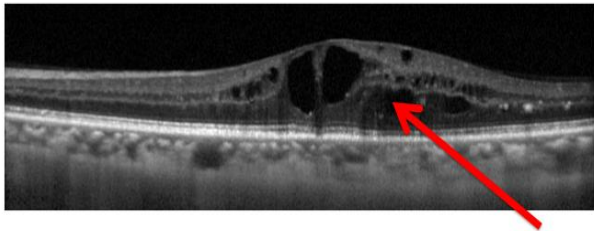
- **Visual acuity test:** A sight test that measures how well you see at different distances
- **Eye pressure test:** A test that measures the pressure of your eyes – numbing drops may be used as part of this test
- **Dilated eye examination:** Drops are placed in your eyes to dilate (widen) your pupils so that the back of your eyes can be examined

You may also undergo tests such as a:

- **Fluorescein angiography**, a diagnostic test which involves the injection of fluorescein (yellow) dye into your bloodstream via a vein in your hand or arm, followed by a series of retinal photographs taken over several minutes. The test gives your doctor more information about the condition of your retina and this helps decide which treatment is most appropriate.
- **Optical coherence tomography (OCT)** measures the amount of retinal swelling (macular oedema) which, like fluorescein angiography, helps decide which treatment is most appropriate. OCT is also used to monitor your retina over time and to show how effective treatment may have been. It is effectively ‘optical ultrasound’, a non-invasive test, using reflections from within your retina to provide a cross-sectional picture of the retina.



A normal OCT scan of the macula with no fluid



An OCT scan showing macula oedema with fluid

Example of an OCT scan of a healthy macula (first image) and diabetic macular oedema (second image).

How is diabetic macular oedema treated?

In the early stages of diabetic macular oedema, no treatment is needed.

If treatment is required, the treatments for diabetic macular oedema are:

1. Laser therapy
2. Injection therapy

What is laser therapy?

A laser is used to produce small burns on areas of leaking blood vessels in the macula. Usually, laser burns are applied over several sessions. The goal of laser therapy is to reduce the amount of fluid in the macula. Several sessions may be required to achieve this. The full effects of laser therapy only occur after several months. This is why you may be asked to return to clinic three or four months after laser therapy.

Studies have shown that laser therapy reduces the risk of visual loss by 50%. The aim of laser therapy is to stabilise your vision. Improvement in vision only happens in a small number of cases.

What happens during laser therapy?

Laser therapy takes place in the outpatient medical retina clinic. You will be given eye drops to widen your pupils and numb your eye. The lights in the room will be dim. You will sit facing the laser machine and the doctor will place a contact lens on your eye. This will allow the doctor to see in to the back of your eye and prevent you from blinking. During laser therapy, you will see flashes of light. You may feel a stinging sensation, which can be uncomfortable.

After laser therapy, your vision will be a little blurred for the rest of the day. You may wish to bring a pair of sunglasses with you as your eyes will be sensitive to bright lights for a few hours after treatment.

What are the side effects of laser therapy?

You may experience temporary worsening of vision on the day of laser therapy. This is caused by the bright flashing lights from the laser treatment. The vision usually recovers by the next day. Very rarely, you may develop blind spots in your vision or significant loss of central vision which may be permanent. This is less common with the development of more advanced lasers. Laser treatment helps to stop your vision from getting worse – it does not

usually improve vision. Sometimes, laser therapy does not work and your vision can still get worse despite treatment.

What is injection therapy?

This treatment involves the injection of medication into the eye. The drug works by reducing fluid leakage from blood vessels around the macula. This in turn reduces swelling of the macula. Studies have shown that this treatment is effective in preventing visual loss and can improve vision in some patients. A course of injections is required to treat diabetic macular oedema. At the start of treatment, usually one injection per month is needed. It is important to attend all appointments while receiving injection therapy. This treatment will not work if you do not have the injection at a regular interval. The length of time between injections, and how long you will need to stay on injection therapy will depend on how you respond to the treatment.

Can I have injection therapy?

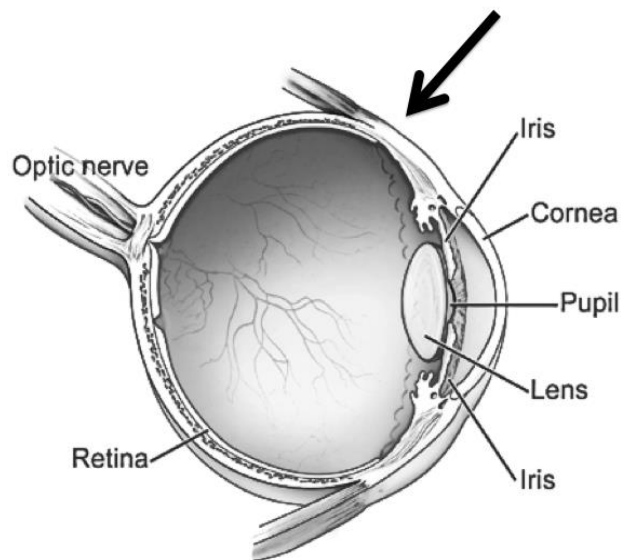
Not everyone with diabetic macular oedema will benefit from injection therapy. We follow guidance from the National Institute of Health and Care Excellence (NICE) when assessing if you will be eligible for injection therapy.

What happens during injection therapy?

This treatment takes place in a designated room for injection therapy. You will have eye drops to widen your pupil and have an OCT image taken. A

doctor or optometrist will then examine your eye and place a mark above the eye undergoing treatment. If both of your eyes require treatment, you will have a mark above both.

A diagram of the eye. The arrow represents the location on the eye where the injection is given.



You will be asked to lie down on an examination couch for the injection. Numbing drops will be placed on your eye. The doctor or nurse practitioner giving the injection will clean around your eye and cover the area with a transparent cover. You will usually have a clip placed between your eyelids to keep your eye open. More numbing drops will be placed in your eye at this point. You will be asked to look up or down as we measure the area to be injected. The treatment is injected with a fine needle and takes only a few seconds. During the injection, you may feel a dull aching sensation, which can be uncomfortable. After the injection, antibiotic drops are placed on your eye.



The whole procedure usually takes about 15 to 20 minutes.

After injection therapy, you will be given lubricating drops to use as needed. You may be asked to wait for approximately 30 minutes to have your eye pressure checked. Your vision will be a little blurry for the rest of the day.

What are the side effects of injection therapy?

You may have redness in the area of the eye that was injected. Your eye may feel sore or gritty for one to two days. The lubricating drops will help to relieve this temporary discomfort. You may see small round floating objects in your vision. These are air bubbles from the injection, and are harmless; they will disappear after a day. Your eye pressure may increase after injection therapy. This can be treated with eye drops or tablets. These are the common side effects of injection therapy.

Serious side effects of injection therapy are uncommon. A comprehensive list can be found in the individual drug patient information leaflets. They include bleeding or inflammation in the eye, subconjunctival haemorrhage, cataract, retinal detachment, infections inside the eye, and very rarely permanent loss of vision. These happen in less than one in 1,000 people and will be discussed during your clinic appointment. There is a very small risk of strokes and heart attacks. This is why you should not have

injection therapy if you have had a stroke or heart attack in the previous three months.

When should I seek urgent advice?

If your eye becomes progressively red and painful, or if your vision gets worse after injection therapy, you must seek medical help. This might indicate infection and normally occurs within the first week after the injection.

How do I contact the hospital?

Contact the following numbers:

- Moorfields retinal services helpline on 07872 419 211, Monday to Friday 08.00 – 16.30
- Moorfields Direct advice line on 020 7566 2345, Monday to Friday 09.00 – 16.30
- Moorfields Eye Hospital pharmacy department on 020 7566 2369, Monday to Friday 09.00 - 17.30
- Out of hours: 020 7253 3411 or go to the A&E department at Moorfields Eye Hospital, City Road, London EC1V 2PD, or your local A&E department.

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**Moorfields Eye Hospital NHS
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City Road, London EC1V 2PD
Phone: 020 7253 3411
www.moorfields.nhs.uk



Moorfields Direct telephone helpline

Phone: 020 7566 2345
Monday-Friday, 8.30am-9pm
Saturday, 9am-5pm
Information and advice on eye conditions and treatments from experienced ophthalmic-trained nurses.

Patient advice and liaison service (PALS)

Phone: 020 7566 2324/ 020 7566 2325
Email: moorfields.pals@nhs.net
Moorfields' PALS team provides confidential advice and support to help you with any concerns you may have about the care we provide, guiding you through the different services available at Moorfields. The PALS team can also advise you on how to make a complaint.

Your right to treatment within 18 weeks

Under the NHS constitution, all patients have the right to begin consultant-led treatment within 18 weeks of being referred by their GP. Moorfields is committed to fulfilling this right, but if you feel that we have failed to do so, please contact our patient advice and liaison service (PALS) who will be able to advise you further (see above). For more information about your rights under the NHS constitution, visit www.nhs.uk/choiceinthenhs

