

A CLOSE UP OF RETINAL DISEASE



'Retinal diseases' are a broad range of eye diseases that affect any part of the retina, a thin layer of tissue at the back of the eye. The retina is involved in sending information to the brain, enabling sight.¹



Diseases of the retina are among the main causes of blindness and visual impairment globally.² While some are hereditary, they can also be related to ageing, diabetes or other diseases.¹



Vision loss can have a devastating impact on people affected and their families. People living with reduced or no vision may be less able to carry out everyday tasks, relying on family and friends for activities such as shopping, cleaning and dressing. Their ability to work or have an active social life may also be affected, which may lead to increased social isolation, depression and anxiety disorders.³



Retinal diseases can be difficult to treat because how they develop and progress varies from person to person.⁴ Many people living with retinal diseases have limited or no treatment options.^{1,5} The options available can be burdensome and people often continue to have vision problems in the long-term.^{6,7} There is a significant need for more effective and longer-lasting therapies for people with retinal diseases.¹

FOCUS IN ON...



Diabetic Retinopathy

Diabetic eye diseases, the leading cause of vision loss in people of working-age

In people with diabetes, uncontrolled high blood sugar levels can lead to damage of the tiny blood vessels (the capillaries) in the retina, causing eye diseases such as diabetic retinopathy (DR) and diabetic macular edema (DME).⁸

93
million people
globally



21
million people
globally

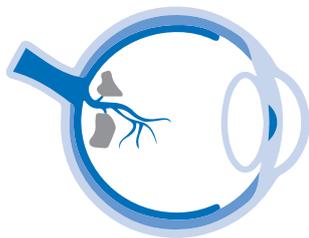
Diabetic Macular Edema

Diabetic retinopathy (DR) occurs when damage to the blood vessels causes blood and/or fluid to leak into the retina, leading to swelling, as well as blockage of blood supply to some areas of the retina.

As the condition progresses, vision becomes impaired.⁸

DR affects 93 million people globally, resulting in blindness in almost five million people – around 5% of all cases of blindness.⁹ Vision lost to DR can be irreversible, but early detection and treatment can reduce the risk of blindness by 95%.⁸

At first, DR may cause no, or only mild, eyesight problems, so treatment is often delayed until complications occur, such as development of diabetic macular edema (DME), which leads to vision loss.⁸



Diabetic Macular Edema (DME) is a complication of DR, which happens when the damaged blood vessels leak into, and cause swelling in, the macula.⁸ The macula is an area of the retina responsible for the sharp vision needed for reading and driving.⁸

DME is the leading cause of vision loss for people with diabetes, affecting 21 million people globally. As the rate of diabetes continues to grow, more and more people will be affected by DME.¹⁰

DME can cause blurred vision, loss of contrast sensitivity (the ability to distinguish between shades of light and dark) and patches of vision loss, which may appear as small black dots or lines 'floating' across the front of the eye.¹¹

In many patients, DME can be managed and vision loss avoided if the condition is diagnosed early and effectively treated. DME is often treated with injections in the eye that block the actions of a specific protein, vascular endothelial growth factor (VEGF), which increases leakiness in retinal blood vessels.¹² This 'anti-VEGF' treatment effectively stops blood vessels from leaking in many patients, but is not effective in some patients and in others requires very frequent injections and clinic visits.^{6,7,12,13,14} As such, more effective and longer lasting treatment options are needed.^{6,7}



17
million people
globally

Neovascular age-related macular degeneration, the leading cause of vision loss in people over 60

Age-related macular degeneration (AMD) affects the macula, the part of the retina that provides sharp, central vision needed for activities like reading.¹⁵ **Neovascular (also known as "wet") AMD (nAMD)** is an advanced form of the disease, which can cause severe vision loss.⁶ It develops when new and abnormal blood vessels grow uncontrollably under the macula, causing swelling, bleeding and/or fibrosis.¹⁷

nAMD affects 17 million people worldwide and is the leading cause of vision loss in people over the age of 60.^{15,18,19} In addition to age, other risk factors include smoking, race (with nAMD being more common among Caucasians), family history and genetics.^{18,20,21} Symptoms of nAMD include sudden blurred vision, difficulty seeing at distance or doing detailed work, blind spots developing in the line of sight, colours becoming hard to distinguish, edges and straight lines appearing wavy.^{17,22}

Anti-VEGF injections are also used to treat nAMD to prevent the uncontrolled growth of new blood vessels, mostly under the retina. However, this treatment may require monthly eye injections during prolonged periods of time, which for some patients can lead to problems with adherence, under-treatment and subsequent declining vision long-term.^{6,7} Other treatment options include photodynamic therapy, a laser treatment of select areas of the retina, designed to target and destroy the abnormal blood vessels.²⁰

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VISUALISING THE REALITY

Different retinal diseases have many symptoms in common. Recognising these changes in vision will help to improve diagnosis and management.

blurry or distorted vision

wavy lines

dark spot in central vision

patches of vision loss



TAKE A GLANCE AT...

Geographic atrophy

Geographic atrophy (GA) is responsible for 10-20% of blindness in AMD, affecting more than five million people globally.²³

Many people with AMD do not immediately recognise the symptoms, mistaking it for a normal sign of ageing, which leads to more severe vision loss.^{16,5} GA is an advanced form of AMD, where the light-sensitive cells in the retina begin to degenerate and die, creating blind spots in the central field of vision.⁵ GA is progressive and irreversible, and there are currently no available treatments for this condition.²³

The most consistent risk factors for GA are age, family history and smoking.²³



GA affects >5 million globally

Myopic choroidal neovascularisation

Myopic choroidal neovascularisation (mCNV) is a common, vision-threatening complication of severe short-sightedness (also known as pathological myopia), occurring in 1 in 10 highly myopic people.²⁴ As a result of myopia, new abnormal blood vessels can grow underneath the retina, leaking blood and/or fluid.²⁵

mCNV can cause irreversible central vision loss.²⁶ Other symptoms include blurred vision, distorted view of objects and lines, and difficulty distinguishing between colours.²⁵

mCNV is most common in people aged between 45 and 64 years, with women at higher risk than men. Race is also a factor, with mCNV being more common in people of East Asian descent.^{26,27}



1 in 10 people with severe short-sightedness



16.4 million people globally

Retinal vein occlusion

Retinal vein occlusion (RVO) is one of the most common causes of vision loss due to blood vessel damage in the retina, affecting approximately 16.4 million adults globally.²⁸

An RVO is a blockage of the blood supply to the retina, which 'starves' the retina of oxygen so that it is unable to send visual information to the brain. When a retinal vein is blocked, it can no longer drain blood from the retina, which leads to haemorrhages and fluid leakage into the retina, causing swelling.²⁹

Symptoms of RVO include sudden, painless blurring or vision loss affecting central vision and/or part of the visual field in one eye.^{30,31}

RVO typically affects people over 50, becoming more common with increasing age. Those with a history of high blood pressure, diabetes and atherosclerosis (build-up of fatty plaques in arteries) are at increased risk of developing RVO.^{30,31}

There is an urgent need to address the burden of retinal diseases, by improving existing treatments for people living with these conditions and developing new treatments where there are currently no options.^{1,5}

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