

1 Why is diabetic eye screening important?

Diabetic retinopathy is a leading cause of preventable vision impairment and blindness in the WHO European Region¹. It occurs in about a third of people with diabetes and its damaging effects on vision can be prevented by early detection and treatment through screening^{2,3}. Vision impairment and blindness have major economic consequences in terms of health and social care resources and impact on economic productivity. In England and Wales, it is estimated that around 7% of people who are newly registered blind have lost their sight because of diabetes.

Diabetic eye screening checks for retinopathy are different from regular sight tests and specifically look for any early signs of damage. Eyes should be checked from the age of 12 years or around the time a person is diagnosed with diabetes. If there are signs that damage may be developing, the person will be offered another check or may be referred to an eye specialist at a hospital, according to the most recent NICE guidance. Detecting diabetic retinopathy early on can be effective at reducing or preventing damage from the condition.

2 What is diabetic retinopathy?

Diabetic retinopathy is a common complication of diabetes. It occurs when high blood sugar levels damage the cells at the back of the eye, known as the retina. Blood vessels can become leaky or blocked. Abnormal blood vessels can grow from the retina, which can bleed or cause scarring of the retina and result in permanent vision impairment or blindness. Vision impairment most commonly occurs due to thickening in the central part of the retina – diabetic macular oedema – which can lead to irreversible vision impairment.

3 How often is diabetic eye screening performed, including changes to screening intervals?

People considered at 'low risk' have no identified diabetic retinopathy on two successive screening tests. Evidence, gathered over several years from early implementor sites, shows it is now safe for people in the low risk category to wait up to 24 months between screening appointments.

Learnings from pathfinder sites have been used to manage risks, build in failsafe processes and develop and



amend communication plans. Variable screening intervals have now been introduced in England and Scotland and changes in Northern Ireland and Wales are expected once IT updates allow.

4 What are the stats on uptake of eye screening?

Regional breakdowns for uptake in screening is variable. This is despite compelling evidence that systematic diabetic retinopathy screening, coupled with timely treatment, can reduce vision impairment and blindness. Statistics for England and Wales for 2018-19 and Scotland for 2019 range between 62-94%^{4,5,6}.

5 What is being done to restore diabetic eye screening under Covid-19 restrictions?

Public Health England (PHE), NHS England and NHS Improvement (NHSEI) have been working together to support the safe restoration of NHS diabetic eye screening (DES) services that the coronavirus pandemic has impacted. PHE and NHSEI have developed and approved a Covid-19 information sheet for local NHS DES services to send with all screening invitations until further notice. The sheet includes an updated national invitation and results letter templates, and provides guidance on staying safe while travelling to and from appointments, advice on the use of face coverings, and safety measures to

expect at screening clinics.

The key message for any person with diabetes is to attend if they have received an appointment for screening even during lockdown. Certain cohorts require closer surveillance and include those who:

- are pregnant – pregnancy increases the risk of rapid progression of diabetic retinopathy
- have pre-proliferative retinopathy – signs of diabetic retinopathy that has progressed but does not yet require treatment
- have previously had successful treatment for sight-threatening retinopathy
- have diabetic maculopathy that does not yet require treatment.

Closer monitoring in a surveillance clinic can be offered every three, six, nine or 12 months depending on the type and progression of the changes. Invitations will also be sent to people who did not attend their last appointment and those with a new diagnosis of diabetes.

6 What are the barriers to the uptake of diabetic eye screening?

Barriers to diabetic eye screening can include a general lack of awareness of the importance of eye screening and a belief that sight tests and diabetic eye screening are the same.

Additionally, people with complex needs may find navigating and

understanding the need for multiple appointments difficult. This could be due to problems understanding and processing instructions, fear that the procedure will hurt, previous poor experiences and the need to interact with strangers. It is also important to remember that people with complex needs are more likely to rely on family carers or paid support staff to enable them to attend appointments.

To support the understanding of the key messages and benefits of eye screening, new materials are now available for people with diabetes in accessible formats and translated into 10 languages – Arabic, Bengali, Chinese, Gujarati, Hindi, Polish, Portuguese, Punjabi, Romanian and Urdu. Go to www.gov.uk for diabetic eye screening information leaflets.

7 What practical considerations can you discuss with patients attending diabetic eye screening?

- Plan the journey. Advise them not to drive themselves. The eye drops given during the test may affect vision for a few hours.
- It is advisable to bring sunglasses to protect the eyes afterwards.

- Bring glasses or contact lenses along with the contact lens case.
- Wheelchair users or a person with learning disabilities are advised to let the screening unit know their needs in advance. The service provider can then ensure that the room and time allocation is appropriate.
- Eat and drink as normal prior to the appointment.
- The results of the eye screening will be sent by letter, usually within six weeks.

8 What modifiable factors can improve eye health?

- attendance at diabetes appointments
- blood glucose (HbA1c) and or improvements in time in range
- blood pressure management
- cholesterol management
- healthy, balanced diet
- weight management, if overweight
- understanding and taking medication as prescribed
- increasing physical activity
- cutting down or stopping smoking
- visiting an optician regularly for a normal eye examination, as well as attending diabetic eye screening appointments.

9 What are the current treatment options?

Laser treatment (photocoagulation) is the most common treatment for proliferative diabetic retinopathy and is most effective when the condition is detected early. It aims to stabilise changes in the eyes caused by diabetes and prevent further sight loss. The treatment involves focusing an intense beam of light on to the retina in small spots and may involve more than one visit to the laser clinic before changes are controlled.

Injections of vascular endothelial growth factor (VEGF) inhibitor drugs can reduce the risk of sight loss in some patients diagnosed with diabetic macular oedema. This is a condition that occurs with fluid build up on or under the macula. VEGF-A causes blood vessels to leak, therefore by inhibiting this action this treatment can reduce oedema and pressure build up.

Current NICE criteria for treatment with VEGF inhibitors is based on the measurement of central retinal thickness of 400µm or more at the start of treatment. Injections of steroid medication may sometimes be used instead of anti VEGF treatment. Finally, surgery may be required to remove the vitreous humour.



10 When should a person with diabetes seek urgent help for their eye(s)?

The following 'red flag' symptoms are rare but need to be checked quickly by the emergency eye clinic via A&E:

- sudden vision loss or distorted vision
- extreme eye pain
- eyes turn red
- sight is still blurry after six hours.

References

- 1 Flaxman SR, Bourne RRA, Resnikoff S et al (2017). Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis. *Lancet Global Health* 5(12):e1221–34
- 2 Lee R, Wong TY, Sabanayagam C (2015). Epidemiology of diabetic retinopathy, diabetic macular edema and related vision loss. *Eye and Vision* 2(1), 1–25. <http://dx.doi.org/10.1186/s40662-015-0026-2>.
- 3 Thomas RL, Halim S, Gurudas S et al (2019). IDF Diabetes Atlas: a review of studies utilising retinal photography on the global prevalence of diabetes related retinopathy between 2015 and 2018. *Diabetes Research and Clinical Practice* 157:107840
- 4 Public Health England, Diabetic Eye Screening – uptake 2018/19. <https://fingertips.phe.org.uk/>
- 5 Diabetic Eye Screening Wales, Diabetic Eye Screening Wales Annual Statistical Report 2018-19, February 2020. <https://phw.nhs.wales/>
- 6 NHS Scotland, Scottish Diabetes Survey 2019, August 2020. <https://www.diabetesinscotland.org.uk>

Additional resources

- 1 Eye damage | Information for the public | Type 2 diabetes in adults: management | Guidance | NICE
- 2 An easy guide to diabetic eye screening.pdf (publishing.service.gov.uk)
- 3 Video explanation Diabetic eye screening – NHS (www.nhs.uk)
- 4 WHO/Europe | Publications – Diabetic retinopathy screening: a short guide (2020)
- 5 <https://www.diabetes.org.uk/guide-to-diabetes/managing-your-diabetes/diabetic-eye-screening>
- 6 NHS Digital (2016). Health and Care of People with Learning Disabilities: England 2014-2015, Experimental Statistics
- 7 <https://phscreeching.blog.gov.uk/2021/01/20/all-our-health-population-screening-e-learning-resource-now-available/>