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Diabetic Eye Screening Wales

Annual Statistical Report 2021-2022

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About us

Public Health Wales exists to protect and improve health and wellbeing and reduce health inequalities for people in Wales.

We are part of the NHS and report to the Minister for Health and Social Services in the Welsh Government.

Our vision is for a healthier, happier and fairer Wales. We work locally, nationally and, with partners, across communities in the following areas:

Health protection – providing information and advice and taking action to protect people from communicable disease and environmental hazards

Primary, community and integrated care – strengthening its public health impact through policy, commissioning, planning and service delivery

Microbiology – providing a network of microbiology services which support the diagnosis and management of infectious diseases

Safeguarding - providing expertise and strategic advice to help safeguard children and vulnerable adults

Screening – providing screening programmes which assist the early detection, prevention and treatment of disease

Health intelligence – providing public health data analysis, evidence finding and knowledge management

NHS quality improvement and patient safety – providing the NHS with information, advice and support to improve patient outcomes

Policy, research and international development – influencing policy, supporting research and contributing to international health development

Health improvement – working across agencies and providing population services to improve health and reduce health inequalities

Further information

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This report is a detailed summary of information on work undertaken by Diabetic Eye Screening Wales for the year from April 2021 to the end of March 2022.

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Rydym yn croesawu gohebiaeth a galwadau ffôn yn Gymraeg. Byddwn yn ateb gohebiaeth yn Gymraeg heb oedi / We welcome correspondence and phone calls in Welsh. We will respond to correspondence in Welsh without delay.

Quality Assurance Statement

Screening data records are constantly changing. The databases used by Public Health Wales Screening Division are updated on a daily basis when records are added, changed or removed (archived). This might relate to when a person has been identified as needing screening; has had screening results that need to be recorded, or has a change of status and no longer needs screening respectively. Data is received from a large number of different sources with varying levels of accuracy and completeness. The Screening Division checks data for accuracy by comparing datasets – for example GP practice data – and corrects the coding data where possible. It should be noted that there are sometimes delays in data collection – for example a person might not immediately register with their GP. These delays will therefore affect the completeness of the data depending on individual circumstances. In addition, the reader should be aware that data is constantly updated and there might be slight readjustments in the numbers cited in this document year on year because of data refreshing.



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Table of Contents

1. Introduction.....	6
2. Key messages for the public	6
3. Programme delivery.....	7
4. Screening pathway	7
5. Headline Statistics 2021-22	8
6. Data	9
6.1 Coverage	9
6.2 Uptake	10
6.3 Timely offer of screening	10
6.4 Report of screening result	11
6.5 Retinopathy identified.....	11
6.6 Referrals to Ophthalmology.....	13
7. Definitions	14
8. Production Team	16

Tables and Graphs

Table 1: Diabetic eye screening coverage.....	10
Table 2: Coverage by deprivation quintile	10
Table 3: Uptake	10
Table 4: Participants recalled within 12 months	11
Table 5: Results letters printed	11
Table 6: Presence of retinopathy breakdown	12
Table 7: Retinopathy outcomes.....	12
Table 8: Urgent referrals for active proliferative retinopathy (R3A) to ophthalmology within 14 days	13
Table 9: All urgent referrals to Ophthalmology.....	13

1. Introduction

Welcome to the fifth annual statistical report published by Diabetic Eye Screening Wales (DESW), Public Health Wales.

DESW (previously Diabetic Retinopathy Screening Service for Wales) was initially commissioned as a national service by Welsh Government in July 2002. DESW became operational in June 2003 and by 2004 was delivering a service to participants in all health board areas in Wales. The service was hosted by Cardiff and Vale University Health Board until April 2016 when it transferred to join the other population-based Screening Programmes delivered by the Screening Division of Public Health Wales.

The service aims to detect diabetic retinopathy before sight loss occurs. Research evidence shows that with early identification and treatment, loss of vision can be prevented in 70 – 90% of people with sight threatening diabetic retinopathy^{1 2}.

People aged 12 years and over with a diagnosis of diabetes, who are registered with a GP in Wales, are eligible and are invited for regular retinal screening with DESW.

2. Key messages for the public

- Regular eye screening reduces your risk of sight loss caused by diabetic retinopathy.
- Diabetic retinopathy is a common complication of diabetes that affects the 'seeing' part of the eye: the retina.
- Retinopathy is caused when small blood vessels in the retina grow or leak. Over time, this can affect vision temporarily or permanently.
- Until it reaches a late stage, most people with retinopathy do not experience any symptoms or loss of vision; they do not know they are affected.
- Regular eye screening is the best way to identify if you have any retinopathy.
- Early-stage retinopathy can be reversed through keeping blood sugar levels within the target range; more advanced retinopathy can be treated by eye injections or by laser.

¹ Diabetic Retinopathy Study Research Group (1981) Photocoagulation treatment of proliferative diabetic retinopathy. Clinical application of Diabetic Retinopathy Study (DRS) findings, DRS Report Number 8. *Ophthalmology* 88: 583–600

² Early Treatment Diabetic Retinopathy Study (ETDRS) Research Group (1985) Photocoagulation for diabetic macular edema. Early Treatment Diabetic Retinopathy Study report number 1. *Arch Ophthalmol* 103: 1796–806

- DESW screening is a free NHS test carried out in community venues across Wales.
- The screening test is not 100% accurate and treatment for diabetic retinopathy carries risks.
- Taking part in diabetic eye screening is the participant's choice.

3. Programme delivery

The Screening Division of Public Health Wales is responsible for managing, delivering and quality assuring the programme. The programme employs a full time Head of Programme, sessional Clinical Director, and Associate Specialist. From October 2020, the clinical and professional oversight of screening has been undertaken by four full-time nurses following a service restructure across the Programme, which took place in 2019. In addition, to increased clinical staffing resource, the DESW management team was expanded to 10 members of staff. This team is responsible for overseeing and supporting the delivery of the programme across all Wales including the clinic booking, clinic delivery and image grading functions.

A temporary change in management structure within the programme in January 2022 enabled the beginning of the Transformation Programme for DESW. In lieu of a Head of Programme role, two temporary positions of Optimisation Manager and Transformation Manager have been introduced, along with a Stakeholder Lead position. The plan is for the Transformation Manager to take forward the changes needed to create a future service model, while the Optimisation Manager and Stakeholder Lead focus on the day-to-day running of the programme.

The screening clinics are staffed by 60 Health Care Support Workers (Screeners), operating from four bases across Wales. Thirty-eight of these staff are additionally trained to capture retinal images. Following the service restructure, Screeners are supported by a team of five Senior Screeners who combine management and clinic delivery responsibilities. All retinal images taken across Wales are reviewed and graded by our grading team of 12 members of staff who are based in Treforest, South Wales. The Graders are managed by three Senior Graders who perform both grading and management duties.

4. Screening pathway

- People aged 12 years and older with a diagnosis of diabetes, who are registered with a GP in Wales, are referred to DESW for regular eye screening.
- Eligible people are invited to attend for eye screening in more than 70 community venues across Wales, such as hospitals, health centres, GP practices, or suitable hired community venue space.



- Participants have a short consultation with a DESW Health Care Support Worker. After a check of visual acuity (eye chart), eye drops are administered to make pupils bigger.
- After around a 20-minute wait for the eye drops to work, the Health Care Support Worker will take photographs of the back of the eyes using a special camera.
- The images will be graded to identify whether there are any signs of diabetic retinopathy present, and if present the severity of the retinopathy.
- Letters containing the screening results and explaining the next steps are sent to all participants:
 - Where there is no retinopathy, or only a limited amount of background retinopathy present, the participant will be re-invited for screening by DESW in around 12 months.
 - Where there is retinopathy that is just short of being referable with additional risk factors, the participant may be re-called for DESW screening in six months to monitor their retinopathy (surveillance)
 - Participants with potentially sight threatening retinopathy are referred to their local hospital Ophthalmology Department for specialist assessment.
 - If the participant is pregnant, they will be seen at least twice during their pregnancy, regardless of whether any retinopathy is present. If there are any concerns, then a third appointment will also be offered.
 - Sometimes, the images taken are not clear enough to make a full assessment ('inadequate' images). These participants are either re-invited for more images to be taken or referred to Ophthalmology for an assessment with different equipment.

5. Headline Statistics 2021-22

This report covers activity from April 2021 to March 2022 inclusive.

- Coverage of the programme was 23.5% within 12 months (at 31 March 2022)
- The uptake rate of offered screening appointments was 57.85% (at 31 March 2022).

Between 1 April 2021 and 31 March 2022:

- 12,586 additional referrals were received for people who were newly diagnosed with diabetes or newly registered with a GP in Wales
- 84,076 individuals were invited to attend eye screening
- 48,637 individuals attended eye screening clinics (including people who attended on more than one occasion)

- 42.1% of those invited did not attend a DESW eye screening appointment
- DESW reported 47,850 screening results, including 4,305 (9%) reported as 'inadequate'
- DESW identified the presence of some diabetic retinopathy in 18,426 individuals (38.5% of those screened)
- 4,561 people (9.5% of those who received a screening result) were identified with potentially sight threatening diabetic retinopathy and referred by DESW to Ophthalmology for specialist assessment
- Throughout 2021-22, screening coverage and recall waiting times was below standard, with variation in waiting times seen in different geographical areas.

Delivery of the service during this period was affected by recovery from a pause in screening during the COVID-19 pandemic response. In March 2020, Public Health Wales took the difficult decision to pause a number of screening programmes, including DESW. Screening clinic delivery was paused on 18 March 2020 but the programme continued to produce screening results for all outstanding cases, fully pausing normal delivery on 3 April 2020, when this work had been completed. Screening resumed in September 2020.

6. Data

Because of the pause in screening during the pandemic and the lower number of participants invited during the year 2021-22, the data presented in this report is at All-Wales level and not broken down by health board.

6.1 Coverage

Standard: A minimum of 80% of eligible active participants should have a reported result in the last 12 months.

Coverage is defined as the percentage of eligible active participants, at a particular point in time, who have a reported result in the previous 12 months. Ineligible participants include those who have no perception of light in both eyes (are completely blind). Inactive participants include those who are under hospital eye service care, or who have chosen to 'opt-out' of eye screening during the period.

Service growth decreased during 2021-22 at a rate of -1.54%, with a further 12,586 referrals received by the programme for people receiving a diabetes diagnosis or registering with a GP in Wales.

DESW invited 84,076 participants for eye screening, with 48,638 individuals attending our clinics (including people who attended on more than one occasion).

The service non-attendance rate, for those people who do not take up their screening invite, was 42.15%, which is high and not consistent with previous years. This has been attributed to the ongoing pandemic, as well as the offer of a retinal review made to participants to uptake at designated optometrist in lieu of a screening appointment.

The coverage standard is not reached either across Wales. This is due to screening clinic capacity and the increasing number of people within our eligible active population across Wales.

Table 1: Diabetic eye screening coverage

	Eligible active participants	Reported results	Coverage (%)
All Wales	179,804	42,248	23.5%

Table 2 shows the coverage information described by deprivation quintile. Tackling inequalities is a key public health priority to support good health and wellbeing across the whole population. At an all-Wales level, the difference in coverage between most and least deprived is 6.3%.

Table 2: Coverage by deprivation quintile

	Least deprived 1	2	3	4	Most deprived 5	Total
All Wales	21.1%	21.5%	23.6%	24.9%	27.4%	23.5%

6.2 Uptake

Table 3: Uptake

	Invited	Attended	Uptake (%)
All Wales	84,076	48,637	57.85%

6.3 Timely offer of screening

Standard: A minimum of 95% of eligible active participants should be offered a recall appointment within 12 months of their last screening outcome.

97% of participants screened are recalled for DESW screening, rather than being referred to Ophthalmology. The vast majority (95%) are placed on a routine recall pathway, which means that they should be screened within 12 months of their last screening result. Participants who do not attend their screening appointment are sent a reminder letter and offered a routine recall in 12 months.

This standard is not reached either across Wales. This is due to clinic capacity. Waiting times for screening appointments vary between health board areas, with appointments offered typically between 14 and 18 months from the last screening result.

Table 4: Participants recalled within 12 months

	Recall offered	Recall offered within 12 months	%
All Wales	64,391	4,223	6.6%

6.4 Report of screening result

Standard: A minimum of 85% of participant result letters should be printed within 21 calendar days of the screening appointment. During this period this standard was met.

Table 5: Results letters printed

	Results letters printed	Results printed within 21 days	%
All Wales	47,850	47,804	99.9%

6.5 Retinopathy identified

Table 6 shows the number and proportion of participants whose screening result shows any retinopathy or no retinopathy. The all-Wales figures show that 52.5% of the screened population across Wales had no retinopathy identified from their screening. This figure is impacted by the risk-based approach to restarting screening following the pandemic pause, inviting highest risk participants back into the programme first. This approach continued for 2021, but the process reverted back to inviting the longest waiting participant first from January 2022.

The figure showing 'any retinopathy' includes the presence of all retinopathy grades: from mild, background retinopathy to proliferative retinopathy that requires urgent hospital referral. The presence and severity of retinopathy can fluctuate dependent on the person's blood glucose level over time. An individual who is in the

'any retinopathy' category one year can move to 'no retinopathy' at their next screening event.

The 'inadequate' category relates to those participants who have attended for their eye screening assessment, but it has not been possible to capture a clear photograph of their retina to enable grading to take place. An example of this would be that the participant has a cataract which obscures the retina from view, or there have been technical issues with the camera. Participants with inadequate images may be either referred to hospital eye services or recalled for screening, dependent upon individual circumstances.

Table 6: Presence of retinopathy breakdown

	Results reported	No retinopathy	%	Any retinopathy	%	Inadequate image	%
All Wales	47,850	25,119	52.5%	18,426	38.51%	4,305	9.00%

The data below provides further detail on the figures shown in table 6. As can be seen, whilst across Wales 38.51% of participants screened have some retinopathy, a much smaller proportion have sight threatening retinopathy identified, which may require referral to hospital eye services for specialist assessment and treatment.

Table 7: Retinopathy outcomes

	Sight threatening retinopathy/maculopathy	% of screened diabetic population with sight threatening retinopathy/maculopathy by Health Board	Severe retinopathy/maculopathy *	% of screened diabetic population with severe retinopathy/maculopathy by Health Board
All Wales	4,575	9.56%	541	1.13%

* number of people with sight threatening retinopathy/maculopathy that is severe – note, these participants appear in both the sight threatening and severe categories.

6.6 Referrals to Ophthalmology

DESW refers participants to Ophthalmology on both an urgent and routine basis, dependent upon the severity of their retinopathy.

Of those receiving a potentially sight threatening diabetic retinopathy grade, a total of 4,575 people (9.56% of those who received a screening result) were referred by DESW to Ophthalmology for specialist assessment. Most of these referrals (88.1%, 4,020 individual referrals) were routine.

From April 2018, the service has a standard of 95% of participants with an urgent diabetic retinopathy result (R3A – active proliferative retinopathy) being referred to Ophthalmology within 2 weeks of their screening appointment.

Table 8: Urgent referrals for active proliferative retinopathy (R3A) to ophthalmology within 14 days

	Number of urgent R3A referrals made	R3A referrals made within 14 days	%
All Wales	541	478	88.3%

Table 9 shows the number of urgent referrals made by DESW during 2021-22. At an all-Wales level, 81.5% of urgent referrals related to diabetic retinopathy, and 18.40% to other observed issues.

Table 9: All urgent referrals to Ophthalmology

	All urgent referrals to Ophthalmology for DR	All urgent referrals to Ophthalmology for other lesions *	Total urgent referrals
All Wales	541	122	663

* If, whilst assessing an image for diabetic retinopathy, the grader observes a non-diabetic issue of concern, this may also prompt a routine or urgent referral.

7. Definitions

This section provides further detail on the calculations used in this report.

Eligible active

Eligible active population definition includes participants in the following states:

- Awaiting a screening appointment/procedure
- Undergoing screening / grading
- Under Ophthalmology care for non-diabetic conditions
- Marked as post office return

Eligible active population excludes suspended and inactive participants:

Suspended:

- Under ophthalmology care for diabetic retinopathy
- Screening postponed
- Temporary physical/learning or mental disability
- Screening refused
- Under 12 years of age

Inactive:

- Opted out of screening
- Medically unfit
- No light perception in both eyes
- Terminal illness
- Deceased
- Discharged
- Moved out of area
- No longer diabetic
- Permanent physical/learning/mental disability
- Registered blind

Uptake

Uptake: % of eligible participants who have attended a screening invitation.

The uptake of diabetic eye screening is set within the principles of informed choice and a standard of 80% of participants attending a digital screening event where images are captured.

Denominator = Eligible active participants who have been offered a screening appointment between month start and month end.

Numerator = Eligible active participants who have attended a screening appointment between month start and month end. This includes participants who attended but couldn't be photographed for technical reasons and participants who were unable to comply with the screening procedure.



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Coverage

Coverage: % of a defined cohort of eligible active participants who have a reported result in the last 12 months

Denominator = Eligible active participants as recorded at month end.

Numerator = Eligible active participants at month end, for whom a result letter was printed within the previous 12 months.

Health Board

This is the participant's health board of residence.

Invited

Participants who have a first offered appointment (not cancelled by programme), within the report month.

Tested

The number of participants with a final grading result.

Sight Threatening Retinopathy/Maculopathy

Comprised of grading outcomes indicating pre-proliferative or proliferative retinopathy: R2M0, R2M1, R3AM0, R3AM1, R3SM1. Also includes a grading outcome of minimal background retinopathy with maculopathy R1M1.

Severe Retinopathy/Maculopathy

Comprised of grading outcomes indicating severe (proliferative) retinopathy: R3AM0, R3AM1.



8 Production Team

The production team for this report employed within Public Health Wales are listed below:

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