



Sgrinio Llygaid Diabetig Cymru
Diabetic Eye Screening Wales



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Diabetic Eye Screening Wales Annual Statistical Report 2018-19

February 2020



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

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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 2018 to the end of March 2019.

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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	5
1.1	Key messages for the public	5
1.2	Programme delivery	6
1.3	Screening pathway.....	6
2	HEADLINE STATISTICS 2017-18	7
3	DATA.....	8
3.1	Coverage	8
3.2	Timely offer of screening.....	11
3.3	Report of screening result	13
3.4	Retinopathy identified.....	14
3.5	Referrals to Ophthalmology	17
4	DEFINITIONS.....	19
5	PRODUCTION TEAM	21

Tables and Graphs

Table 1:	Diabetic eye screening coverage by health board.....	8
Chart 1:	Diabetic eye screening coverage by health board.....	9
Table 2:	Coverage by deprivation quintile.....	9
Chart 2:	Coverage by deprivation quintile.....	10
Table 3:	Participants recalled by health board.....	11
Chart 3:	Participants recalled by health board.....	12
Table 4:	Results reported by health board.....	13
Chart 4:	Results reported by health board.....	13
Table 5:	Retinopathy breakdown by health board.....	15
Table 6:	Retinopathy outcomes by health board.....	16
Table 7:	Urgent referrals for active proliferative retinopathy (R3A) to ophthalmology within 14 days by health board.....	17
Table 8:	All urgent referrals to ophthalmology by health board.....	18

1 Introduction

Welcome to the second annual statistical report and the first Official 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. 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 Screening Division, 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 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.

1.1 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 gets to a late stage, 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

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

- Early stage retinopathy can be reversed through maintaining optimal blood sugar levels; more advanced retinopathy can be treated by eye injections or by laser
- 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 your choice

1.2 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. Clinical and professional oversight of screening is undertaken by two full time nurses. Following a service restructure in 2019, the DESW management team supporting all Wales delivery across the clinic booking, clinic delivery and image grading functions has increased to nine, with support from a secretarial and administration team.

The screening team, who deliver the screening clinics, are staffed by 31 Health Care Assistants and 30 Retinal Photographers, operating from three bases across Wales. Following the service restructure, our Screeners are supported by local managers who combine management and clinic delivery responsibilities. All retinal images taken across Wales are reviewed and graded by our grading team of 15 who are based in Treforest, South Wales.

1.3 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 over 130 community venues across Wales, such as hospitals, health centres, GP practices, or a DESW mobile unit
- Participants have a short consultation with a DESW Health Care Assistant. 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 photographer will take photographs of the back of the eyes using a special camera
- The images will be graded to identify whether there is any 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 6 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 re-called in 3 months, regardless of whether any retinopathy is present.

2 **Headline Statistics 2018-19**

This report covers activity from April 2018 to March 2019 inclusive.

- Coverage of the programmes was 67.5% within 12 months (at 31st March 2019)

Between 1st April 2018 and 31st March 2019:

- 12,592 additional referrals were received for people who were newly diagnosed with diabetes or newly registered with a GP in Wales
- 164,855 individuals were invited to attend eye screening
- 131,200 individuals attended eye screening clinics (including people who attended on more than one occasion)
- 20.4% of those invited did not attend a DESW eye screening appointment
- DESW reported 125,100 screening results, including 2,613 (2.1%) reported as 'inadequate'
- DESW identified the presence of some diabetic retinopathy in 36,603 individuals (29.3% of those screened)
- 3,615 people (2.9% of those who received a screening result) were identified with potential sight threatening diabetic retinopathy and referred by DESW to Ophthalmology for specialist assessment

- Throughout 2018-19, screening coverage and recall waiting times was below standard, with variation in waiting times seen in different geographical areas.

3 Data

3.1 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 continued during 2018-19 at a consistent rate as in previous years, with a further 12,592 referrals received by the programme for people receiving a diabetes diagnosis or registering with a GP in Wales.

DESW invited 164,855 participants for eye screening, with 131,200 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 20.41% which is consistent with previous years.

The coverage standard is not reached either across Wales or for any individual health board. 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 by health board

Health Board	Eligible active participants	Reported results	Coverage (%)
Abertawe Bro Morgannwg UHB	30,848	19,365	62.8%
Aneurin Bevan UHB	36,188	24,965	69.0%
Betsi Cadwaladr UHB	37,337	24,666	66.1%
Cardiff and Vale UHB	22,856	15,615	68.3%
Cwm Taf UHB	17,905	12,028	67.2%
Hywel Dda UHB	22,474	16,149	71.9%
Powys Teaching HB	7,706	5,614	72.9%
All Wales	175,314	118,402	67.5%

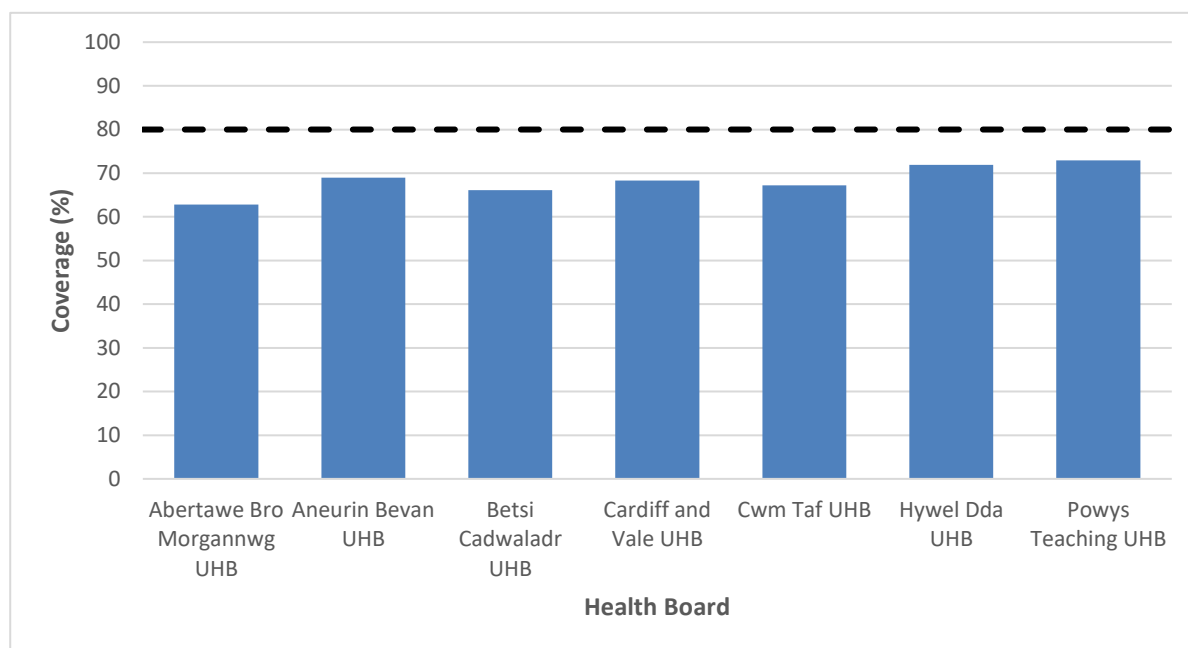
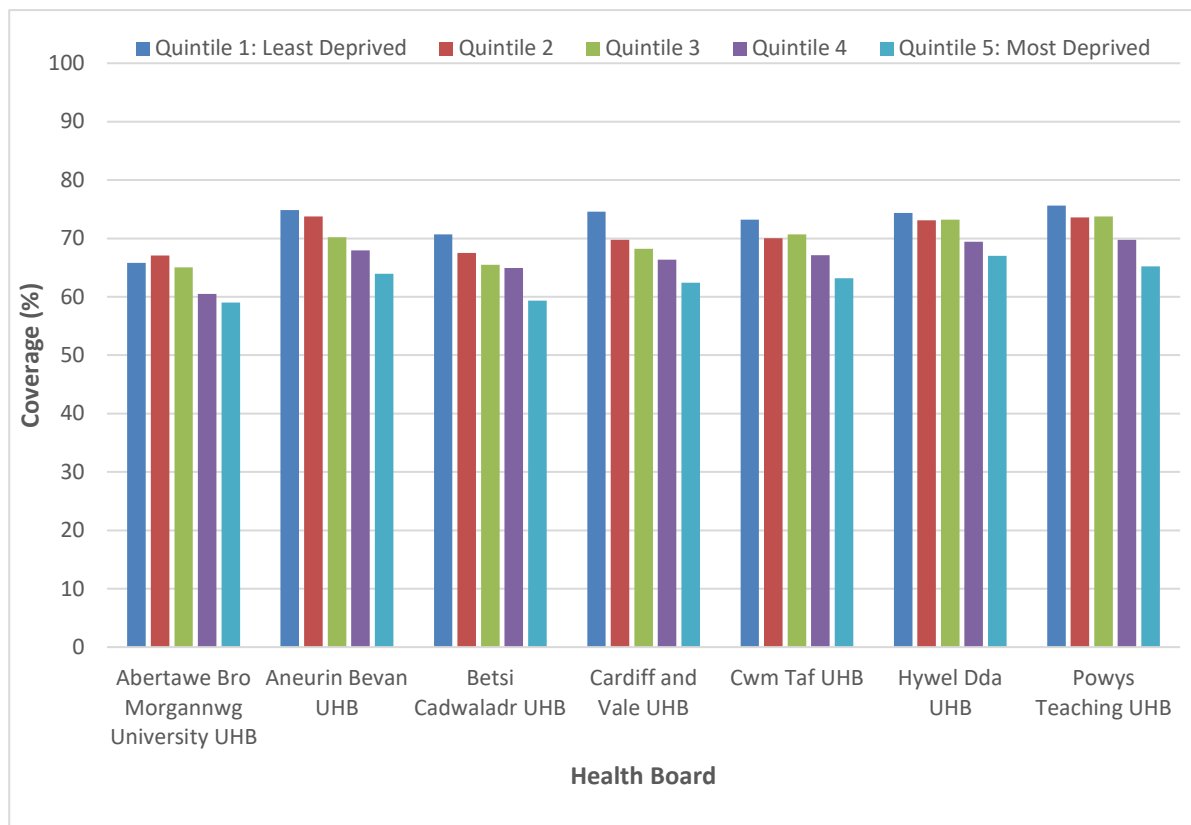
Chart 1: Diabetic eye screening coverage by health board

Table 2 and chart 2 show 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 9.8%.

Table 2: Coverage by deprivation quintile

Health Board	Least deprived 1	2	3	4	Most deprived 5	Total
Abertawe Bro Morgannwg UHB	65.8%	67.1%	65.0%	60.5%	59.0%	63.5%
Aneurin Bevan UHB	74.9%	73.7%	70.2%	68.0%	64.0%	70.1%
Betsi Cadwaladr UHB	70.7%	67.5%	65.5%	64.9%	59.4%	65.6%
Cardiff and Vale UHB	74.6%	69.7%	68.2%	66.4%	62.4%	68.3%
Cwm Taf UHB	73.2%	70.0%	70.7%	67.1%	63.2%	68.8%
Hywel Dda UHB	74.4%	73.1%	73.2%	69.5%	67.0%	71.4%
Powys Teaching HB	75.6%	73.6%	73.8%	69.8%	65.2%	71.6%
All Wales	72.7%	70.7%	69.5%	66.6%	62.9%	68.5%

Chart 2: Coverage by deprivation quintile



3.2 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.

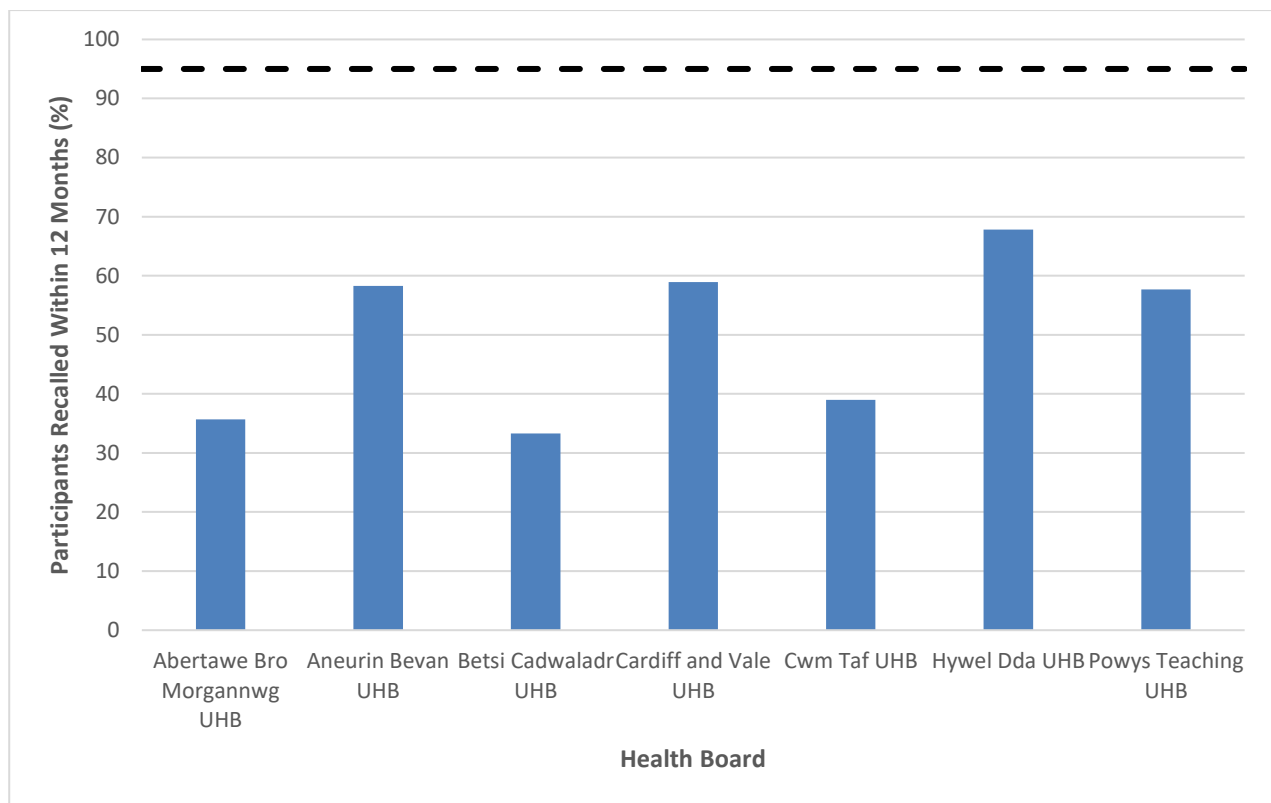
97% of participants screened are recalled for DESW screening, rather than being referred to Ophthalmology. The vast majority (95%) are placed on a routine recall pathway, which means that they should be screened within 12 months of their last screening result. Participants who do not attend their screening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

This standard is not reached either across Wales or for any individual health board. This is due to clinic capacity across Wales. 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 3: Participants recalled within 12 months by health board

Health Board	Recall offered	Recall offered within 12 months	%
Abertawe Bro Morgannwg UHB	22,683	8,096	35.7%
Aneurin Bevan UHB	28,626	16,689	58.3%
Betsi Cadwaladr UHB	27,618	9,198	33.3%
Cardiff and Vale UHB	18,030	10,625	58.9%
Cwm Taf UHB	13,617	5,306	39.0%
Hywel Dda UHB	18,019	12,217	67.8%
Powys Teaching HB	6,131	3,536	57.7%
All Wales	134,724	65,667	48.7%

Chart 3: Participants recalled within 12 months by health board



3.3 Report of screening result

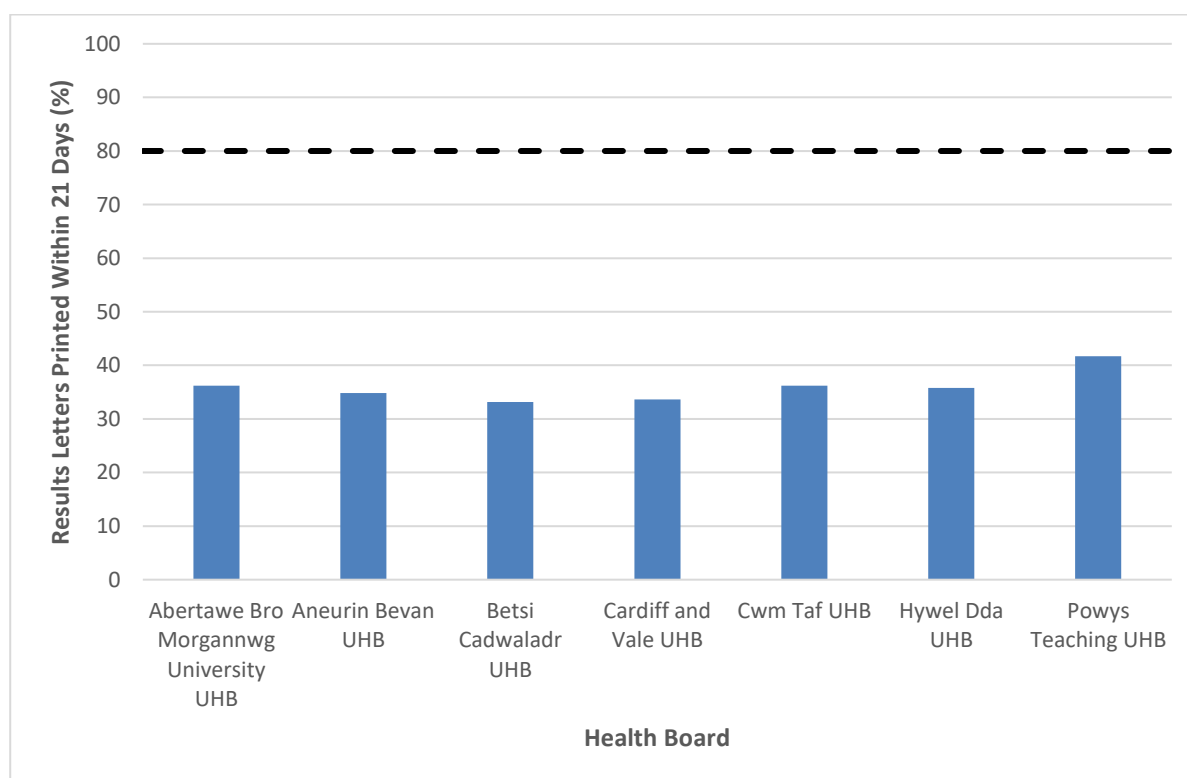
Standard: A minimum of 85% of participant result letters should be printed within 21 calendar days of the screening appointment.

During this period this standard was not met due to capacity within the service. This has been rectified and this standard is now consistently being met.

Table 4: Results letters printed by health board

Health Board	Results letters printed	Results printed within 21 days	%
Abertawe Bro Morgannwg UHB	20,496	7,414	36.2%
Aneurin Bevan UHB	26,304	9,166	34.8%
Betsi Cadwaladr UHB	26,035	8,629	33.1%
Cardiff and Vale UHB	16,519	5,560	33.7%
Cwm Taf UHB	12,751	4,616	36.2%
Hywel Dda UHB	17,041	6,096	35.8%
Powys Teaching HB	5,954	2,483	41.7%
All Wales	125,100	43,964	35.1%

Chart 4: Results letters printed by health board



3.4 Retinopathy identified

Table 5 shows the number and proportion of participants in each health board area whose screening result shows any retinopathy or no retinopathy. The all Wales figures show that 68.7% of the screened population across Wales had no retinopathy identified from their screening.

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 Service or recalled for screening, dependent upon individual circumstances.

Table 5: Presence of retinopathy breakdown by health board

Health Board	Results reported	No retinopathy	%	Any retinopathy	%	Inadequate image	%
Abertawe Bro Morgannwg UHB	20,496	13,915	67.89	6,194	30.22	387	1.89
Aneurin Bevan UHB	26,304	18,256	69.40	7,526	28.61	522	1.98
Betsi Cadwaladr UHB	26,035	18,166	69.78	7,335	28.17	534	2.05
Cardiff and Vale UHB	16,519	11,169	67.61	4,998	30.26	352	2.13
Cwm Taf UHB	12,751	8,763	68.72	3,704	29.05	284	2.23
Hywel Dda UHB	17,041	11,524	67.63	5,109	29.98	408	2.39
Powys Teaching HB	5,954	4,091	68.71	1,737	29.17	126	2.12
All Wales	125,100	85,884	68.65%	36,603	29.26%	2,613	2.09%

The data below provides further detail on the figures shown in table 5. As can be seen, whilst across Wales 29.26% of participants screened have some retinopathy, a much smaller proportion have sight threatening retinopathy identified, which may require referral to hospital eye service for specialist assessment and treatment.

Table 6: Retinopathy outcomes by health board

Health Board	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
Abertawe Bro Morgannwg UHB	1,397	6.82	263	1.28
Aneurin Bevan UHB	1,583	6.02	353	1.34
Betsi Cadwaladr UHB	1,463	5.62	270	1.04
Cardiff and Vale UHB	1,138	6.89	172	1.04
Cwm Taf UHB	841	6.60	184	1.44
Hywel Dda UHB	1,141	6.70	254	1.49
Powys Teaching HB	372	6.25	58	0.97
All Wales	7,935	6.34%	1,554	1.24%

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

3.5 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 potential sight threatening diabetic retinopathy grade, a total of 3,615 people (2.9% of those who received a screening result) were referred by DESW to Ophthalmology for specialist assessment. The majority of these referrals (79.5%, 2,874 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 7 summarises performance against this standard by health board.

Table 7: Urgent referrals for active proliferative retinopathy (R3A) to ophthalmology within 14 days by health board

Health Board	Number of urgent R3A referrals made	R3A referrals made within 14 days	%
Abertawe Bro Morgannwg UHB	133	119	89.5%
Aneurin Bevan UHB	169	147	87.0%
Betsi Cadwaladr UHB	124	108	87.1%
Cardiff and Vale UHB	74	65	87.8%
Cwm Taf UHB	92	79	85.9%
Hywel Dda UHB	105	92	87.6%
Powys Teaching HB	22	17	77.3%
All Wales	719	627	87.2%

Table 8 shows the number of urgent referrals made by DESW during 2018-19. At an all-Wales level, 65% of urgent referrals related to diabetic retinopathy, and 35% to other observed issues (table 9).

Table 8: All urgent referrals to ophthalmology by health board

Health Board	All urgent referrals to Ophthalmology for DR	All urgent referrals to Ophthalmology for other lesions *	Total urgent referrals
Abertawe Bro Morgannwg UHB	137	59	196
Aneurin Bevan UHB	174	88	259
Betsi Cadwaladr UHB	128	74	202
Cardiff and Vale UHB	81	60	141
Cwm Taf UHB	96	39	135
Hywel Dda UHB	105	58	163
Powys Teaching HB	23	21	44
All Wales	741	399	1140

* 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.

4 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

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.

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, R3SM0, 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, R3SM0, R3SM1.

5 Production Team

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

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Pre-Release List

These Official Statistics were sent to the people on this pre-release list, five working days prior to publication in accordance with the Pre-publication Official Statistics Order Access (Wales) 2009.

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