Public Health England

NHS

NHS Diabetic Eye Screening Programme

Programme performance report and dataset calculations

April 2018

Public Health England leads the NHS Screening Programmes

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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About PHE screening

Screening identifies apparently healthy people who may be at increased risk of a disease or condition, enabling earlier treatment or better informed decisions. National population screening programmes are implemented in the NHS on the advice of the UK National Screening Committee (UK NSC), which makes independent, evidence-based recommendations to ministers in the four UK countries. The Screening Quality Assurance Service ensures programmes are safe and effective by checking that national standards are met. PHE leads the NHS Screening Programmes and hosts the UK NSC secretariat.

www.gov.uk/topic/population-screening-programmes
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Introduction

This document relates every report field within the programme performance report to the specific dataset fields required to calculate it. This is designed to minimise differing interpretations of the report field descriptions. It should be noted that dataset fields alone do not provide specific information on related events. For example, defining dataset fields for a screening outcome and a patient result letter does not ensure that the screening letter counted will have been generated as a result of the specified screening outcome.

Document version

This document is version 2.7, and is the first updated version to be published since the previous version 1.2 (15 May 2015). This version incorporates changes that allow the updated diabetic eye screening standards and performance objectives (new for April 2017) to be calculated. It refers to version 4.5 (15/02/2017) of the diabetic eye screening dataset.

Reporting requirements

The software must provide the ability to produce this report for each:

- programme
- region within the defined boundaries of the programme
- local authority (LA) within the defined boundaries of the programme
- clinical commissioning group (CCG) within the defined boundaries of the programme

Mapping data allowing these areas to be mapped to current GP practice code and patient postcode is available from the NHS Digital organisation data service.

Key:

s	Start – denotes start date of report (for annual report submission this will always be 1 April)
f	Finish – denotes finish date of report (for annual report submission this will always be 31 March)
d	Day – denotes number of days required
Red text	Changes from the previous document
~~Red text~~	Typing errors in the previously released report template and changes following revision of the standards

Summary of key changes from v1.0

The following table summarises the key changes in the dataset calculation document from version 1.0 (07-06-2013). The changes are denoted in red throughout the document.

Report field	Change	Notes
1.3a, 1.3b	'Area' amended to 'Authority'	
3.1.7a & b	New field to count RDS patients	
3.1.8	new field	RDS by category to support PS-1
3.2c, d and e	new fields	to count cohort of patients under RDS on the final day
3.2.2a	definition revised	now looks at whether an appointment was offered due to occur within 3 months of the programme being notified (rather than being offered within 3 months)
3.2.2b	definition revised	Previously 3.2.2, now revised to 'within 14 days'
3.4.2	new fields	annual screening
3.4.3	new field	support repeat non-attenders standard
3.7.3	added to guidance note	
3.8.1	new field	support pregnancy standard
3.8.2	new field	support pregnancy standard
3.8.3	new field	support exception reporting of pregnancy standard
5.4	definition amended	now states results for RDS
5.5	new field	support timeliness of results for DS
5.6	new field	support timeliness of results for SLBS
Footnote 17	corrected field reference	
6.1a, 6.1b	amended wording	6.1a and b description altered due to addition of routine referral times
6.1c	new field	support routine referral timeliness standard
6.2.b	added 'RD' to clarify type of screening encounter	
6.3a, 6.3b, 6.3c, 6.3d	definition revised	date of notification of positive test replaced with date of last screen, final grade references altered
6.3e, 6.3f	deleted fields	
6.4.6	corrected to R1M1	
9.1.2c & d	New fields	To count SLB invitations
9.1.3	definition clarified	now states referrals from RDS and DS
9.1.4	definition revised	date of referral into pathway replaced with date of last screen. Referrals from RDS and DS
9.1.5a, 9.1.5b	new field	support slit lamp biomicroscopy timeliness standard
10.1.2c & d	New fields	To count DS invitations

10.1.3.1	corrected headings to align with 10.1.1.1	
10.1.3.2	new field	support referral into digital surveillance standard
10.1.3.3	New field	Routine referrals to DS
10.1.4	new field	support pregnancy standard
10.1.5.1 to 10.1.5.10	new fields	support digital surveillance timeliness standards
10.1.6.1 to 10.1.6.10	new fields	support digital surveillance timeliness standards
10.2.8, 10.2.9	corrected to R3A	
10.3	added additional outcomes of 4, 5, 7 8, 10 and 11 month recall to number of patients retained in DS pathway	
Multiple fields	corrected lowercase ‘a’ and ‘s’ to uppercase for all instances of R3A and R3S	
Multiple fields	removed references to QA Standards and Performance Objectives and replaced with new pathway standards	
Multiple fields	updated the performance objective references	new pathway standard references now included
Definitions	clarified definition of positive test	

Report fields

Name	Description	Notes
1.1 Programme name	Unique name[1] for this diabetic eye screening programme	
1.1.1 Programme region	Region that the programme is located in, or lead region if the programme lies within the boundaries of one or more region	If there is more than one region, the lead region will need to be decided
1.2a CCG units that commission the programme	List of CCG Units[2] that commission the programme denoting the lead CCG where applicable	
1.3a Local areas wholly covered	List of Local Authorities (LAs)[3] falling wholly within the defined boundaries of this programme	
1.3b Local areas covered in part	List of Local Authorities (LAs)[4] falling partly within the defined boundaries of this programme	
1.4 Programme manager	Name, job title and contact details for the programme lead / manager	
1.5 Accountable clinical lead	Name, title, job title and contact details for the accountable clinical lead	
1.6 Location	Address, contact name, contact e-mail and contact telephone for the administrative centre for the programme	
1.7 Referral and treatment centres	A list of the acute Trust(s) and hospitals into which patients are referred for assessment and/or treatment following a positive test, and the name, title, and job title of the lead ophthalmologist based at each location	Assessment and treatment centres may require manual input
1.8 GP practice participation	1.8.a Number of GP practices within the defined boundaries of the programme referring in to the programme 1.8.b Number of GP practices within the defined boundaries of the programme	
2.1 Programme structure / model	Brief summary of how screening is delivered, including whether the programme issues invitations for screening from a single location, plus:	

[1] Should identify the screening programme and not just the Clinical Commissioning Group (CCG) areas that it covers; for example 'Gloucestershire Diabetic Eye Screening Service'.
[2] Term 'CCG Units' to denote relationship of commissioning organisations (Clinical Commissioning Groups) to the area of registered populations within and between which the DESP screening populations will be defined. Note that these will reflect registered populations (as per GP registrations).
[3] Term 'Administrative Units' to denote area of resident populations (eg Local Authorities) which fall within the defined boundaries of the programme. Note that these will reflect where populations live and where they are registered with a GP practice.
[4] *ibid.*

	• number of static sites • number of mobile sites • number of optometric sites, and • whether any independent/external provider is used	
2.2 Cameras used	• number of static cameras in non optometric sites • number of mobile cameras • number of static cameras on optometric sites	
2.3 Management software used	Supplier, product and version	
3. Patient throughput		
3.1.0 Patients seen in different DESP	[These patients are off-register and do not appear within any other fields] a) Number of living people aged 12 and above within catchment area of DESP who have chosen to have screening at a different DESP at final day of reporting period b) List of DESP names which are providing screening to the patients in [3.1.0.a] above	
3.1 Programme size	The number of living people aged 12 and above on the programme register[5] at final day of reporting period	
3.1.1 Patients eligible for screening	Number of people eligible for screening by this programme: at final day of reporting period DES-PS-1.2 DES-PS-1.3	
3.1.2 Patients ineligible for screening – NPL	Number of people ineligible for screening by this programme at final day of reporting period, due to having no perception of light (NPL) in both eyes	
3.1.3 Patients excluded from screening	Number of people excluded: a) at final day of reporting period;	Please note that b) will not include patients who were not registered with the programme

[5] [3.1] should be the total of all patients listed on the Register and will include patients who fall into the following categories; categories: eligible, ineligible, excluded and suspended.

	b) within the reporting period[6] DES-PS-1.3 (3.1.3a)	at the first day of the report period (and were subsequently registered then excluded).
3.1.4 Patients excluded from screening according to category	Number of people excluded at final day of reporting period, categorised as[7]: a) Informed opt-out b) Medically unfit	
3.1.5 Patients suspended from screening	Number of people suspended a) At final day of reporting period b) Within reporting period DES-PS-1.2 (3.1.5a)	Please note that b) will not include patients who were not registered with the programme at the first day of the report period even (and were subsequently registered then suspended).
3.1.6 Patients suspended from screening according to category	Number of people suspended at final day of reporting period according to category: a) Slit Lamp Biomicroscopy Surveillance (SLBS) b) Digital Surveillance (DS) c) Hospital Eye Service (HES)	
3.1.7 Routine Digital Screening (RDS) patients	Number of people RDS a) at final day of reporting period b) of those at final day of reporting period [3.1.7a] who have been on the register as RDS patients exclusively for the previous 3 years DES-PS-1.1 (3.1.7a) DES-PS-8 (3.1.7b)	b) this excludes patients who have been removed from the RDS category at any time during the previous 3 years eg. have been excluded or suspended at any point
3.1.8 Routine Digital Screening (RDS) patients according to category	Number of people RDS at final day of reporting period: a) Total RDS (including HES for non-DR) b) Number within [3.1.8a] in HES for non-DR	

[6] The circumstances under which a patient can be marked as either Suspended or Excluded are detailed in the 'Suspensions and Exclusions paper, '*Exclusions and suspensions and management of ungradable images'*. Patients who are Excluded continue to count within the Eligible category.

[7] *ibid*

3.2 Number of people invited for Routine Digital Screening (RDS)	Number of people invited for a RDS screening event[8]: a) during the reported time period[9]; and b) which was due to take place within the reported time period[10] c) number within [3.2a], and categorised as RDS on the final day of the reported time period [3.1.8a] d) number within [3.2c] and categorised as screened in HES for non-DR on the final day of the reported time period [3.1.8b] e) excluding those in [3.2c], number categorised as RDS on the final day of the reported time period [3.1.8a] and invited for a RDS screening event within the 3 months following the reporting period DES-PS-7 (3.2b) DES-PS-1.1 (3.2c)	
3.2.1 Invitations made for first screening[11]	Number of new additions to the register [3.5][12] who were issued a first invitation for first RDS event within the reported time period	Please note that new patients added to the register near the end of the report period and so not issued an invitation until the subsequent report period will not be included in this count
3.2.2 Invitations made for first screening within 3 months	a) Number of new additions to the register [3.5] who were issued a first invitation for first RDS event, which is due to occur within 3 months of the programme being notified of their diagnosis b) Number of new additions to the register [3.5] who were issued a first invitation for first RDS event, within 14 days of the programme being notified of their diagnosis DES-PS-2	Please note that new patients added to the register near the end of the report period and so not issued an invitation until the subsequent report period will not be included in this count, regardless of if they were invited within 3 months Please also note that this count does not distinguish between newly diagnosed new patients and patients that are newly

[8] Note that this return should represent the number of people who have received an invitation, rather than the number of invitations sent: if more than one invitation was issued for screening events within the reported time period, only the initial invitation should be counted. Patients attending for routine screening without a prior appointment or invitation should be deemed as receiving an invitation on the date of screening.

[9] ie. the invitation was issued within the reporting period, but the proposed appointment date might fall outside the reporting period.

[10] Counts invitations that were issued at any time for a proposed appointment date within the reporting period. Programmes with partial booking systems which offer a range of dates during which the patient can arrange an appointment should use the first date in this range as the proposed appointment date. For open appointment models (where no proposed date is offered to the patient). where a realisable invitation is not taken up, see Appendix B.

[11] First Screening refers to new patients' first screening event within the DESP. See definitions in glossary for 'first screening' and 'new registrations' for further detail.

[12] Note that this is a subset of new additions to the register within the reported time period (field 3.5)

		registered but are not newly diagnosed (i.e. may have been previously screened by another DESP)
3.2.3 Newly registered patients who DNA/DNR following first invitation to first screening	Number of new additions to the register [3.5][13] who were issued a first invitation for first RDS event within the reported time period who DNA first booked appointment or DNR to first invitation for first RDS event	NB – this assumes the data fields stated are for related events i.e. the invitation stated is the invitation to which no response was received etc
3.3 DNA/DNR patients	Patients who have received final reminder/invitation letter within the reported time period, without attending any RDS appointment: a) total number within reported time period b) total number within [3.3.a] above, aged between 12 and 44 years at final day of reported time period c) total number within [3.3.a] above, aged 45 years or over at final day of reported time period	*Please also note that this count requires a 'final letter date' dataset item. This is not currently in the dataset but it is assumed that the software will include this and so it is denoted by 'X'. This allows a time limit for the DNA to be included in the calculation. For b) and c) please note that age is a calculation based on P1.06 at f
3.4 Patients screened	Number of people who have attended a successful RDS event during the reported time period[14] DES-PS-7 DES-PS-9 DES-PS-10	
3.4.1 Patients screened while in HES	Number (out of 3.4) who received screening for DR while in HES for a non-DR condition[15]	
3.4.2 Annual screening	a) Number of people on RDS on the final day of the reporting period [3.1.8a] who have a RDS recall due date during the reporting period b) Within [3.4.2a], number of people offered an appointment that is due to occur up to 6 weeks before to 6 weeks after their RDS recall due date c) Within [3.4.2a], number of people offered an appointment that is due to occur before 6 weeks of their RDS recall due date	Note the planned invitation date (A1.03) can occur outside of the start and finish dates.

[13] Note that this is a subset of new additions to the register within the reported time period (field 3.5).
[14] Section [3.4] should not include patients who are recorded as exceptions [4.2] unless they have subsequently attended RDS and a gradeable or U digital image has been taken.
[15] Patients who are seen in HES for a non-DR lesion may have their DR screening while in hospital under agreement between HES and DESP; further detail available in 'Exclusions, Suspensions and Management of Ungradables'.

	DES-PS-3 (3.4.2a and b)	
3.4.3 Patients in RDS with no attendance date	Number RDS for the previous 3 years [3.1.7b] who, on the final day of the reporting period, have not attended a RDS event within the previous 3 years DES-PS-8 (3.4.3)	This excludes patients who have been removed from the RDS category at any time during the previous 3 years eg. have been excluded or suspended at any point
3.5 New registrations	Number of new additions to the register within the reported time period DES-PS-2	
3.6 Moved off-register	Number of people with diabetes who moved off-register within the reported time period	
3.7 Cohort-based performance measures	**[Reporting measures within section 3.7 reflect the performance of only the cohort of patients who are eligible for screening and not suspended on the final day of the reporting period]**	
3.7.1 Number eligible and not suspended	Number of patients eligible and not suspended on the final day of the report period[16]	
3.7.2 Cohort performance measure – number invited	Number of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event during the reported time period[17]	
3.7.3 Cohort performance measure - number screened	Number of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event [3.7.2] that subsequently attended a RDS event during the 15 month period that starts from the first day of the reported time period[18]	
3.7.4 Cohort performance measure – percentage invited	Percentage of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event during the reported time period	
3.7.5 Cohort performance measure – percentage screened	Percentage of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event [3.7.2] that subsequently attended a RDS event during the 15 month period that starts from the first day of the reported time period	
3.8.1 Pregnancy notification	a) Number of women (excluding those already suspended: HES) notifying the programme of their pregnancy in the reporting period	Notification may be by the GP on behalf of the women

[16] This is equivalent to field [3.1.1.] minus [3.1.4.a].
[17] This measure will therefore not include patients that became eligible near the end of the report period and were sent an invitation after the final day of the report period.
[18] Extending the reported time period by 3 months allows programmes 3 months for the patients to attend a RDS event arising from a realisable appointment.

	b) Number within [3.8.1a] who attended a successful screening or surveillance event in the 3 months prior to or the same day as the date of notification DES-PS-6 (3.8.1a and b)	Note: this count also excludes patients that, on the date of pregnancy notification, are suspended under HES.
3.8.2 Expected number of women delivering	Number of women due to deliver in the reporting period based upon the expected delivery date	
3.8.3 Pregnancy outcomes	Number of women with an outcome notified to the programme in the reporting period	This is reliant on the programme being notified and may not be completed for all pregnancies.
[4.1 RDS outcomes by grade:][19]	[The aggregate outcomes within each grading category should relate to Routine Digital Screening (RDS) screening events within the reported time period.[20] The category should represent the final grading outcome for the eye for which action is most urgently required.[21]]	Software providers should refer to grading hierarchy published in pathway documentation for guidance on grade and worst eye classification and take in to account patients with only one screenable eye (dataset fields S2.01 or S2.02)
4.1.1 Grade: R0M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	(Not referable)
4.1.2 Grade: R1M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	(Not referable)
4.1.3 Grade: R1M1	Number of patients, according to [4.1] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	(Routine referral)
4.1.4 Grade: R2M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	(Routine referral – not treatable)
4.1.5 Grade: R2M1	Number of patients, according to [4.1] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	(Routine referral)

[19] Note that the numbers of grading outcomes falling within each grading category [4.1.1 to 4.1.10] should sum to exactly the number of patients screened [3.4]. Patients attending for photography and subsequently referred for slit-lamp biomicroscopy during the reported time period should be counted in this section *and* section 6. It is recommended that all image sets are graded to completion, regardless of any change to the patient status occurring after the digital screening encounter.

[20] Therefore these figures will relate to grading activity outside the reporting period for patients screened near the end of the financial year. Where a patient attends a RDS encounter on more than one occasion during the reported time period, only the final grading outcome of the final RDS encounter should be reported.

[21] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C along with the inferred outcomes for that grade. It is recommended that all image sets are graded to completion regardless of the status of the patient (for example if a patient status changes to 'deceased' during the grading process).
Drill down should be available from numbered totals into patient identified lists. This facility is required at the programme only for the purpose of checking submissions and is not required within the report for submission to EARS.
An additional management report is required for the programmes internal use as described in Appendix F

4.1.6 Grade: R3SM0	Number of patients, according to [4.1] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M0 - No maculopathy'	(Not referable)
4.1.7 Grade: R3SM1	Number of patients, according to [4.1] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 - Maculopathy'	(Routine referral)
4.1.8 Grade: R3AM0	Number of patients, according to [4.1] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M0 - No maculopathy'	(Urgent referral)
4.1.9 Grade: R3AM1	Number of patients, according to [4.1] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M1 - Maculopathy'	(Urgent referral)
4.1.10 Grade: U	Number of patients, according to [4.1] above, deemed ungradable DES-PS-9	
4.2 Image capture exceptions	Number of patients for whom no photograph could be taken at time of appointment[22]	
4.3 [RDS Outcomes by Action]	[This section should relate to patients for which completed actionable referral outcome grades (ROG) were assigned during the reported time period. Therefore this section will relate to some RDS events that occurred outside of the reported time period.]	
4.3.1 RDS Outcomes by Action/inferred grade	a) Number of patients returned to RDS annual recall (no referral to surveillance or HES required), within reported time period b) Number of patients referred from RDS into DS within reported time period c) Number of patients referred from RDS into SLBS within reported time period d) Number of routine DR referrals made to HES within reported time period e) Number of urgent DR referrals made to HES within reported time period f) Number of routine referrals made for non-DR lesions within reported time period[23] g) Number of urgent referrals made for non-DR lesions within reported time period[24]	

[22] Exceptions do not close out a screening event and the designation of 'exception' is not a grading outcome; patients whose appointments end in exceptions are re-invited to RDS for screening event and will be included in both [4.1] and [4.2].
[23] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[24] *ibid*

	h) **Number of patients excluded or removed[25] from the register within the reported time period**	
4.3.8 Outcome changes made at ROG	Report (table format) to compare final grading outcomes from RDS encounters that took place during the reported time period against action outcomes determined at ROG. Please see Appendix D for full description.	
5.1 Grader workload	For each retinopathy grader in the service, provide a pseudonymised[26] report (table format) of activity relating to all full grading carried out within the reported time period.[27] Please see Appendix E for full description.	
5.2 Individual Grader Tables – Comparison of grading with final grade: Kappa Table	Please see Appendix F for full description	
5.3 Summary of Individual grader tables	Please see Appendix F for full description	
5.4 Result notification times (RDS)	Number of result letter notifications issued following a RDS screening encounter within the reported period[28]: a) within 3 weeks of RDS screening encounter b) within 6 weeks of RDS screening encounter DES-PS-10 (5.4a)	
5.5 Result notification times (DS)	Number of result letter notifications issued following a DS screening encounter within the reported period within 3 weeks of the DS screening encounter DES-PS-10	

[25] Please note that 'removed from register' is not a ROG outcome, but an administrative outcome that may occur between the date of the final grade being assigned and the ROG being assigned. This has been included to ensure the sum of digital screening outcomes equals the sum of ROG outcomes.

[26] For example, 'Grader A', 'Grader B', etc. This should allow problems with individual graders to be traced back if necessary without compromising workforce confidentiality.

[27] The assessment of grading workload does not therefore relate to digital screening encounters within the reported time period; often, grading carried out near the start of the financial year will relate to digital screening encounters from the previous financial year. Please refer to appendix 2 of this report for guidance on how to calculate grader workload.

[28] Issuing of results letters must be to both GP and patient for the count to be included in this section.

5.6 Result notification times (SLBS)	Number of result letter notifications issued following a SLBS screening encounter within the reported period within 3 weeks of the SLBS screening encounter DES-PS-10	
6. Ophthalmology (HES) referrals / outcomes	[Note that this section should be used to report ophthalmology outcomes that result from RDS screening or surveillance encounters from all DESP pathways (RDS, SLBS or DS) within the reported time period]	
6.1 Referral times	Number of patients referred to an ophthalmology clinic in relation to a screening or surveillance event that took place within the reported time period, within: a) 1 week of screening or surveillance event (R3AM0/R3AM1)[29] b) 2 weeks of screening or surveillance event (R3AM0/R3AM1) c) 3 weeks of screening or surveillance event (R3SM1/R2M1/R1M1/R2M0) DES-PS-11.1 (6.1b) DES-PS-11.2 (6.1c)	Note the referral date (G4.02) can occur outside of the start and finish dates.
6.2 Ophthalmology referrals: all patients	Number of patients referred to an ophthalmology clinic following a positive test relating to: a) a screening or surveillance event that took place within the reported time period b) a RD screening event that took place within the reported time period[30] c) a DS event that took place within the reported time period d) a SLBS event that took place within the reported time period	
6.2.1 Ophthalmology referrals: by category	Number of patients referred to an ophthalmology clinic following a positive test relating to a screening or surveillance event that took place within the reported time period with: a) a final grading outcome[31] of 'R3AM0 proliferative retinopathy without maculopathy'	

[29] ie. grading completed and appropriate referral made within 1 week of screening encounter.
[30] This refers to patients who are referred to HES as determined by ROG outcome; screening encounters that end in referable grade but sent to another DESP pathway (eg., DS) are not included in this category.
[31] Final grading outcome should be measured on the eye for which action is most urgently required. The agreed hierarchy for 'eye for which action is most urgently required' is: R3AM1 > R3AM0 > R3SM1 > R2M1 > R1M1 > R2M0 > U > R3SM0 > R1M0 > R0M0, see Appendix C for further details.

	b) a final grading outcome[32] of 'R3AM1 Proliferative retinopathy with maculopathy' c) a final grading outcome of 'R3SM0' stable proliferative retinopathy without maculopathy d) a final grading outcome of 'R3SM1' stable proliferative retinopathy with maculopathy e) a final grading outcome of 'R2M0 Pre-proliferative retinopathy' f) a final grading outcome of 'R2M1' g) a final grading outcome of 'R1M1' h) any other final grading outcome (R1M0, R0M0, U) – excluding referrals for eye diseases other than diabetic retinopathy DES-PS-11.1 (6.2.1a and b) DES-PS-11.2 (6.2.1d, e, f and g) DES-PS-12.1 (6.2.1a and b) DES-PS-12.2 (6.2.1d, e, f and g)	
6.3 Consultation times: by category	Number of patients within [6.2.1] above with: a) a final grading outcome of 'R3AM0/R3AM1 Proliferative retinopathy' receiving consultation within 6 weeks of the last successful screen b) a final grading outcome of 'R3SM1 Stable post treatment proliferative retinopathy' receiving consultation within 13 weeks of the last successful screen c) a final grading outcome of 'R2M0/R2M1 Pre-proliferative retinopathy' receiving consultation within 13 weeks of notification of positive test the last successful screen d) a final grading outcome of 'R1M1 Maculopathy' receiving consultation within 13 weeks of the last successful screen DES-PS-12.1 (6.3a) DES-PS-12.2 (6.3b and c)	Note the consultation date (C1.04) can occur outside of the start and finish dates.

[32] *ibid*.

6.4 Patients listed for first laser treatment at first visit	a) Number of patients listed at first visit for first laser treatment for 'R3AM0 Proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period b) Number of patients listed at first visit for first laser treatment for 'R3AM1 Proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period c) Number of patients listed at first visit for first laser treatment for 'R2M0 Pre-proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period d) Number of patients listed at first visit for first laser treatment for 'R2M1 Pre-proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period e) Number of patients listed at first visit for first laser treatment for 'R1M1 Maculopathy' following a positive test relating to a screening event that took place within the reported time period	
6.4.1 Laser treatment waiting times from screening for R3AM0/R3AM1	Number of patients within [6.4.] above, having received first laser treatment for R3 Proliferative retinopathy: a) within 4 weeks of screening or surveillance event b) within 6 weeks of screening or surveillance event	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here. NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.2 Laser treatment waiting times from screening for R2M0/R2M1	Number of patients within [6.4.] above, having received first laser treatment for R2 pre-proliferative retinopathy: a) within 15 weeks of screening or surveillance event	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related

	b) within 18 weeks of screening or surveillance event	to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here. NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.3 Laser treatment waiting times from screening for R1M1	Number of patients within [6.4.] above, having received first laser treatment for R1M1 maculopathy: a) within 15 weeks of screening or surveillance event b) within 18 weeks of screening or surveillance event	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here. NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.4 Laser treatment waiting times from listing for R3AM0/R3AM1*	Number of patients within [6.4.] above, having received first laser treatment for R3 Proliferative retinopathy within 2 weeks of listing	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.
6.4.5 Laser treatment waiting times from listing for R2M0/R2M1*	Number of patients within [6.4.] above, having received first laser treatment for R2 pre-proliferative retinopathy within 10 weeks of listing	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.
6.4.6 Laser treatment waiting times from listing for R1M1*	Number of patients within [6.4.] above, having received first laser treatment for R1M1 Maculopathy within 10 weeks of listing	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related

		to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.
7.1 Evidence of external quality assurance	Date of participation in most recent a peer-review EQA visit programme	
7.2 Report submission date	Date of submission of current report.	
8.1 New certifications of severe sight impairment*	Number of new certifications of severe sight impairment within the reported time period amongst current patients, which are predominantly due to diabetic retinopathy	
8.2 New certifications of sight impairment*	Number of new certifications of sight impairment within the reported time period amongst current patients, which are predominantly due to diabetic retinopathy	
8.3 Incident visual acuity: 6/60 or worse	Number of current patients with visual acuity of 6/60[33] or worse in the better seeing eye being recorded for the first time within the reporting period	
8.4 Incident visual acuity: 6/18 or worse	Number of current patients with visual acuity of 6/18[33] or worse in the better seeing eye being recorded for the first time within the reporting period	
8.5 Number of patients with a concurrent visual acuity measurement recorded	Number of current patients attending a screening encounter in the reporting period with a concurrent visual acuity measurement recorded for at least one eye	
8.6 Incident visual acuity: 6/60 or worse predominantly due to diabetic retinopathy	Number of current patients referred with visual acuity of 6/60[337] or worse in the better seeing eye being recorded for the first time within the reporting period, which is predominantly due to diabetic retinopathy	Please note the dataset does not currently support: 1) A VA measurement being recording during specialist eye examination (HES) without concurrent certification of visual impairment. 2) Diabetic retinopathy to be assigned as a reason for a VA or 6/60 or 6/18 or worse.
8.7 Incident visual acuity: 6/18 or worse predominantly due to diabetic retinopathy	Number of current patients referred with visual acuity of 6/18[33] or worse in the better seeing eye being recorded for the first time within the reporting period, which is predominantly due to diabetic retinopathy	Please note the dataset does not currently support: 1) A VA measurement being recording during specialist eye examination (HES) without concurrent certification of visual impairment.

[33] log MAR equivalent: +1.0. This should be the most recent best corrected VA measurement.

		2) Diabetic retinopathy to be assigned as a reason for a VA or 6/60 or 6/18 or worse.
9.1.1 SLB surveillance patients	Total number of patients within the SLBS pathway on the final day of the reporting period	
9.1.2 SLB surveillance assessments	a) Number of SLBS assessments carried out during the reported time period b) Number of patients who have attended a SLBS event during the reported time period c) Number invited for SLBS at least once during the report period and categorised as SLBS on the final day of the report period [3.1.6a] d) Excluding those in [9.1.2c], number invited for SLBS at least once in the 3 months after the report period and categorised as SLBS on the final day of the report period [3.1.6a] DES-PS-10 (9.1.2b)	d) Requires 3 months to have elapsed after the final day of the report period.
9.1.3 New SLB surveillance referrals	Number of patients referred into SLB surveillance within the reported time period[34] DES-PS-13	
9.1.4 New SLB surveillance referrals seen < 13 weeks	Number of patients referred into SLB surveillance within the reported time period [9.1.3], who attended a SLB surveillance event within 13 weeks of date of last routine digital screening or digital surveillance event. DES-PS-13	
9.1.5 SLBS: patients offered annual assessment	a) Number of patients in SLBS on the final day of the reporting period [9.1.1] who have a 12 monthly assessment due date during the reporting period b) Within [9.1.5a] number of people offered an appointment that is due to occur up to 42 days before to 42 days after ~~a~~ their 12 monthly due date DES-PS-4 (9.1.5a and b)	Note the planned invitation date (A1.03) can occur outside of the start and finish dates.

[34] Each referral counted separately; if a patient referred >1 in reporting period, this would count as >1 within this reporting measure. This should be measured from the data at which the patient status was changed on the screening programme register to 'suspended – SLBS'.

[9.2 SLBS assessment outcomes by grade:][35]	[The aggregate outcomes within each grading category should relate to slit lamp biomicroscopy surveillance (SLBS) events that take place within the reported time period.[36] The category should represent the final grading outcome for the eye for which action is most urgently required.[37]]	
9.2.1 Grade: R0M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	
9.2.2 Grade: R1M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	
9.2.3 Grade: R1M1	Number of patients, according to [9.2] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	
9.2.4 Grade: R2M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	
9.2.5 Grade: R2M1	Number of patients, according to [9.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	
9.2.6 Grade: R3SM0	Number of patients, according to [9.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M0 No maculopathy'	
9.2.7 Grade: R3SM1	Number of patients, according to [9.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 Maculopathy'	
9.2.8 Grade: R3AM0	Number of patients, according to [9.2] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M0 No maculopathy'	
9.2.9 Grade: R3AM1	Number of patients, according to [9.2] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M1 Maculopathy'	
9.2.10 Grade: U	Number of patients, according to [9.2] above, deemed ungradable following biomicroscopy examination	
[9.3 SLBS Outcomes by Action]	[This section should relate to patients for which completed actionable outcomes were assigned during the reported time period. Therefore this section will relate to some SLBS events that occurred outside of the reported time period]	
9.3 SLBS Outcomes by Action	a) Number of patients retained in SLBS pathway, no referral to HES or DS required, patient not returned to RDS b) Number of patients retained in SLBS pathway for 6 month recall	

[35] Note that this section should be used to report biomicroscopy assessments which take place in the SLB Surveillance pathway.
[36] Where a patient attends a slit lamp biomicroscopy screening encounter on more than one occasion during the reported time period, only the final grading outcome of the final screening encounter should be reported.
[37] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C.

	c) Number of patients retained in SLBS pathway for 12 month recall d) Number of patients returned to RDS annual recall within reported time period e) Number of patients referred to DS within reported time period f) Number of routine DR referrals made to HES within reported time period g) Number of urgent DR referrals made to HES within reported time period h) Number of routine referrals made for non-DR lesions within reported time period[38] i) Number of urgent referrals made for non-DR lesions within reported time period[39] j) Number of patients excluded whilst in SLBS pathway within reported time period	
10.1.1 Digital surveillance patients	Total number of patients within the DS pathway on the final day of the reported time period	
10.1.1.1 Digital surveillance patients by category	Total number of patients within the DS pathway on the final day of the reported time period [10.1.1] according to category: a) Pregnant b) Maculopathy (R1M1, R2M1, R3SM1) c) Pre-proliferative, no maculopathy (R2M0) d) Stable proliferative (R3SM0) e) Other	
10.1.2 Digital surveillance assessments	a) Number of DS assessments carried out during the reported time period b) Number of patients who have attended a DS event during the reported time period c) Number invited for DS at least once during the report period and categorised as DS on the final day of the report period [3.1.6b] d) Excluding those in [10.1.2c], number invited for DS at least once in the 3 months after the report period and categorised as DS on the final day of the report period [3.1.6b]	d) Requires 3 months to have elapsed after the final day of the report period.

[38] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[39] *ibid*

	DES-PS-10 (10.1.2b)	
10.1.3 New DS referrals	Number of patients referred into DS within the reported time period[40]	
10.1.3.1 New DS referrals by category	Number of patients referred into DS within the reported time period [10.1.3] referred according to category: a) Pregnant b) Maculopathy (R1M1, R2M1, R3SM1) c) Pre-proliferative, no maculopathy (R2M0) d) Stable proliferative ~~R3~~ (R3SM0/~~R3SM1~~) e) Other	
10.1.3.2 Routine referrals to DS seen in 13 weeks	Number of patients referred into DS within the reported time period [10.1.3.3] with a) a final grading outcome of "R1M1/R2M1/R3SM1" receiving consultation in digital surveillance within 13 weeks of last attended screen b) a final grading outcome of "R2M0" receiving consultation in digital surveillance within 13 weeks of last attended screen DES-PS-12.2 (10.1.3.2a and b)	
10.1.3.3 Routine referrals to DS	Number of patients referred into DS following a positive test (R1M1, R2M1, R3SM1, R2M0) relating to a screening event that took place within the reported time period by category: a) maculopathy (R1M1, R2M1, R3SM1) b) pre-proliferative, no maculopathy (R2M0) DES-PS-12.2 (10.1.3.3a and b)	
10.1.4 Pregnant women seen in DS within 6 weeks	Number of women attending a DS event within 6 weeks of notification to programme DES-PS-6	Note – this excludes those screened in the 3 months prior to the notification of the pregnancy
10.1.5 DS recall assessments due	Number of appointments for DS recall due within the reporting period a) 3 monthly recall b) 4 monthly recall	Note, this counts appointments not patients. If a patient has more than one recall date within the period, each one will be counted.

[40] Each referral counted separately; if a patient referred >1 in reporting period, this would count as >1 within this reporting measure. This should be measured from the data at which the patient status was changed on the screening programme register to 'suspended – DS'.

	c) 5 monthly recall d) 6 monthly recall e) 7 monthly recall f) 8 monthly recall g) 9 monthly recall h) 10 monthly recall i) 11 monthly recall j) 12 monthly recall DES-PS-5 (10.1.5 a to j)	
10.1.6 DS recall assessments offered within timeframe	Number of appointments for DS recall offered an appointment that occurs a) up to 7 days before to 7 days after a 3 monthly due date b) up to 14 days before to 14 days after a 4 monthly due date c) up to 14 days before to 14 days after a 5 monthly due date d) up to 21 days before to 21 days after a 6 monthly due date e) up to 21 days before to 21 days after a 7 monthly due date f) up to 28 days before to 28 days after an 8 monthly due date g) up to 28 days before to 28 days after a 9 monthly due date h) up to 35 days before to 35 days after a 10 monthly due date i) up to 35 days before to 35 days after an 11 monthly due date j) up to 42 days before to 42 days after a 12 monthly due date DES-PS-5 (10.1.6 a to j)	Note, this counts appointments not patients. If a patient has more than one recall date within the period, each one will be counted.
10.2 Digital surveillance assessment by grade:]	[The aggregate outcomes within each grading category should relate to DS screening encounters that take place within the reported time period. The category should represent the final grading outcome for the eye for which action is most urgently required.[41]]	
10.2.1 Grade: R0M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	
10.2.2 Grade: R1M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	

[41] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C

10.2.3 Grade: R1M1	Number of patients, according to [10.2] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	
10.2.4 Grade: R2M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	
10.2.5 Grade: R2M1	Number of patients, according to [10.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	
10.2.6 Grade: R3SM0	Number of patients, according to [10.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M0 No maculopathy'	
10.2.7 Grade: R3SM1	Number of patients, according to [10.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 Maculopathy'	
10.2.8 Grade: R3AM0	Number of patients, according to [10.2] above, with a final grading outcome of 'R3As - Active Proliferative retinopathy, M0 No maculopathy'	
10.2.9 Grade: R3AsM1	Number of patients, according to [10.2] above, with a final grading outcome of 'R3As - Active Proliferative retinopathy, M1 Maculopathy'	
10.2.10 Grade: U	Number of patients, according to [10.2] above, deemed ungradable following digital surveillance examination	
[10.3 DS Outcomes by Action]	[This section should relate to patients for which completed actionable outcomes were assigned during the reported time period. Therefore this section will relate to some DS events that occurred outside of the reported time period]	
10.3 DS Outcomes by Action	a) Number of patients retained in DS pathway, no referral to HES or SLBS required, patient not returned to RDS b) Number of patients retained in DS pathway for 3 month recall c) Number of patients retained in DS pathway for 4 month recall d) Number of patients retained in DS pathway for 5 month recall e) Number of patients retained in DS pathway for 6 month recall f) Number of patients retained in DS pathway for 7 month recall g) Number of patients retained in DS pathway for 8 month recall h) Number of patients retained in DS pathway for 9 month recall i) Number of patients retained in DS pathway for 10 month recall j) Number of patients retained in DS pathway for 11 month recall k) Number of patients retained in DS pathway for 12 month recall l) Number of patients returned to RDS annual recall within reported time period m) Number of patients referred to SLBS within reported time period	

	n) Number of routine DR referrals made to HES within reported time period o) Number of urgent DR referrals made to HES within reported time period p) Number of routine referrals made for non-DR lesions within reported time period[42] q) Number of urgent referrals made for non-DR lesions within reported time period[43] r) Number of patients excluded from the DS pathway within reported time period	

[42] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[43] *ibid*

PPR with dataset calculations

The following table details the PPR report with references to dataset fields used by software suppliers to calculate each report field:

Name	Description	Expressed using dataset item	Notes
1. Programme information			
1.1 Programme name	Unique name[44] for this diabetic eye screening programme	1.1.1	
1.1.1 Programme region	Region that the programme is located in, or lead region if the programme lies within the boundaries of one or more region	1.1.4	If there is more than one region, the lead region will need to be decided
1.2a CCG units that commission the programme	List of CCG Units[45] that commission the programme denoting the lead CCG where applicable	Display all instances of 1.2.4	
1.3a Local areas wholly covered	List of Local Authorities (LAs)[46] falling wholly within the defined boundaries of this programme	Display all instances of 1.2.3 = 02	
1.3b Local areas covered in part	List of Local Authorities (LAs)[47] falling partly within the defined boundaries of this programme	Display all instances of 1.2.3 = 01	
1.4 Programme manager	Name, job title and contact details for the programme lead / manager	1.1.6	

[44] Should identify the screening programme and not just the Clinical Commissioning Group (CCG) areas that it covers; for example 'Gloucestershire Diabetic Eye Screening Service'.
[45] Term 'CCG Units' to denote relationship of commissioning organisations (Clinical Commissioning Groups) to the area of registered populations within and between which the DESP screening populations will be defined. Note that these will reflect registered populations (as per GP registrations).
[46] Term 'Administrative Units' to denote area of resident populations (eg., Local Authorities) which fall within the defined boundaries of the programme. Note that these will reflect where populations live and where they are registered with a GP practice.
[47] *ibid.*

1.5 Accountable clinical lead	Name, title, job title and contact details for the accountable clinical lead		
1.6 Location	Address, contact name, contact e-mail and contact telephone for the administrative centre for the programme	Display the following on individual lines: 1.1.7 1.1.8 1.1.9 1.1.11	
1.7 Referral and treatment centres	A list of the acute Trust(s) and hospitals into which patients are referred for assessment and/or treatment following a positive test, and the name, title, and job title of the lead ophthalmologist based at each location	Repeating display of the following fields per hospital: 1.4.2 1.4.3 1.4.9 + 1.4.10 + 1.4.11 1.4.12 1.4.13	Assessment and not treatment centres may require manual input
1.8 GP practice participation	1.8.a Number of GP practices within the defined boundaries of the programme referring in to the programme 1.8.b Number of GP practices within the defined boundaries of the programme	a) Count of GP practice codes within the boundaries of the programme with at least 1 patient registered with the DESP where: - **1.8.2 = 01 and** - **P1.12 = 1.8.1** b) Count of unique GP practice code in: **1.8.2 = 01**	
2. Delivery model			
2.1 Programme structure / model	Brief summary of how screening is delivered, including whether the programme issues invitations for screening from a single location, plus: • number of static sites • number of mobile sites • number of optometric sites, and • whether any independent/external provider is used	• Count number of instances of: - 1.3.3 = 01 and - 1.3.2 = 01 and - 1.3.4 = 01 • Count number of instances of: - 1.3.3 = 01 and - 1.3.2 = 02 • Count number of instances of: - 1.3.3 = 01 and - 1.3.2 = 01 and - 1.3.4 = 02 • If: - 1.3.3 = 01 and	

		-1.3.4 = 03 then state “Yes”, else state “No”	
2.2 Cameras used	• number of static cameras in non optometric sites • number of mobile cameras • number of static cameras on optometric sites		
2.3 Management software used	Supplier, product and version	If: - 1.5.1 = 01 then: Display data domain value for: - 1.5.1 and - 1.5.2 Else: If: - 1.5.1 = 02 then: Display data domain value for: - 1.5.1 and - 1.5.3 Else: If: - 1.5.1 = 03 then: Display data domain value for: - 1.5.1 and - 1.5.4 Else: If: - 1.5.1 = 04 then: Display data domain value for: - 1.5.1 and - 1.5.5 Else: If: - 1.5.1 = 05 then:	

		Display data domain value for: - 1.5.6 and - 1.5.7	
3. Patient throughput	**[Please see Appendix A for a diagram showing the programme register and PPR fields that relate to it}**		
3.1.0 Patients seen in different DESP	[These patients are off-register and do not appear within any other fields] c) Number of living people aged 12 and above within catchment area of DESP who have chosen to have screening at a different DESP at final day of reporting period d) List of DESP names which are providing screening to the patients in [3.1.0.a] above	a) Count distinct patients having off-register status at f matching: - **1.14.13 = 06** b) Manual input	
3.1 Programme size	The number of living people aged 12 and above on the programme register[48] at final day of reporting period	Count distinct patients having on-register status at f matching: - **1.14.12 = 01**	
3.1.1 Patients eligible for screening	Number of people eligible for screening by this programme: at final day of reporting period DES-PS-1.2 DES-PS-1.3	Count distinct patients having eligibility pathway status at f matching: - **1.14.18 = 01, 02 and 03**	
3.1.2 Patients ineligible for screening – NPL	Number of people ineligible for screening by this programme at final day of reporting period, due to having no perception of light (NPL) in both eyes	Count distinct patients having on-register status at f matching: - **1.14.16 = 02**	
3.1.3 Patients excluded from screening	Number of people excluded: a) at final day of reporting period; b) within the reporting period[49]	a) Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 03**	Please note that b) will not include patients who were not registered with the programme at the first day

[48] [3.1] should be the total of all patients listed on the Register and will include patients who fall into the following categories ; categories: eligible, ineligible, excluded and suspended.

[49] The circumstances under which a patient can be marked as either Suspended or Excluded are detailed in the 'Suspensions and Exclusions paper, '*Exclusions and suspensions and management of ungradable images'*. Patients who are Excluded continue to count within the Eligible category.

	DES-PS-1.3 (3.1.3a)	b) Count distinct patients having eligible pathway status at s matching: - **1.14.18 = 01 and** Eligible pathway status at f matching: - **1.14.18 = 03**	of the report period (and were subsequently registered then excluded).
3.1.4 Patients excluded from screening according to category	Number of people excluded at final day of reporting period, categorised as[50]: a) Informed opt-out b) Medically unfit	a) Count distinct patients having excluded reason at f matching: - **1.14.24 = 01** b) Count distinct patients having excluded reason at f matching: - **1.14.24 = 02**	
3.1.5 Patients suspended from screening	Number of people suspended a) At final day of reporting period b) Within reporting period DES-PS-1.2 (3.1.5a)	a) Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 02** b) Count distinct patients having eligible pathway status at s matching: - **1.14.18 = 01 and** at f matching: - **1.14.18 = 02**	Please note that b) will not include patients who were not registered with the programme at the first day of the report period even (and were subsequently registered then suspended).
3.1.6 Patients suspended from screening according to category	Number of people suspended at final day of reporting period according to category: a) Slit Lamp Biomicroscopy Surveillance (SLBS) b) Digital Surveillance (DS) c) Hospital Eye Service (HES)	Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 02 and** a) having suspended reason at f matching: - **1.14.24 = 03** b) having suspended reason at f matching: - **1.14.24 = 02** c) having suspended reason at f matching: - **1.14.24 = 01**	

[50] *ibid*

3.1.7 Routine Digital Screening (RDS) patients	Number of people RDS a) at final day of reporting period b) of those at final day of reporting period [3.1.7a] who have been on the register as RDS patients exclusively for the previous 3 years DES-PS-1.1 (3.1.7a) DES-PS-8 (3.1.7b)	a) Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01** b) Count distinct patients having eligible pathway status at f and f-3 years matching: - **1.14.18 = 01 at f and f-3 years and;** Having no instances of patients eligible pathway of suspended or excluded between f and f- 3 years - **1.14.18 does not = 02 or 03 between f anf f – 3 years**	b) this excludes patients who have been removed from the RDS category at any time during the previous 3 years eg. have been excluded or suspended at any point
3.1.8 Routine Digital Screening (RDS) patients according to category	Number of people RDS at final day of reporting period: a) Total RDS (including HES for non-DR) b) Number within [3.1.8a] in HES for non-DR	Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01 and** a) having patient RDS category at f matching: - **1.14.20 = 01 and 02** b) having patient RDS category at f matching: - **1.14.20 = 02**	
3.2 Number of people invited for Routine Digital Screening (RDS)	Number of people invited for a RDS screening event[51]: a) during the reported time period[52]; and b) which was due to take place within the reported time period[53] c) number within [3.2a], and categorised as RDS on the final day of the reported time period [3.1.8a] d) number within [3.2c] and categorised as screened in HES for non-DR on the final day of the reported time period [3.1.8b]	a) Count distinct patients Having invitation pathway type matching: - **1.15.0 = 01** and; Offered DES date matching: - **A1.01 = between s and f** b) Count distinct patients having invitation pathway type matching: - **1.15.0 = 01** and; Planned DES date matching: - **A1.03 = between s and f**	

[51] Note that this return should represent the number of people who have received an invitation, rather than the number of invitations sent: if more than one invitation was issued for screening events within the reported time period, only the initial invitation should be counted. Patients attending for routine screening without a prior appointment or invitation should be deemed as receiving an invitation on the date of screening.

[52] ie. the invitation was issued within the reporting period, but the proposed appointment date might fall outside the reporting period.

[53] Counts invitations that were issued at any time for a proposed appointment date within the reporting period. Programmes with partial booking systems which offer a range of dates during which the patient can arrange an appointment should use the first date in this range as the proposed appointment date. For open appointment models (where no proposed date is offered to the patient). where a realisable invitation is not taken up, see Appendix B.

	e) excluding those in [3.2c], number categorised as RDS on the final day of the reported time period [3.1.8a] and invited for a RDS screening event within the 3 months following the reporting period DES-PS-7 (3.2b) DES-PS-1.1 (3.2c)	c) Count distinct patients having invitation pathway type matching: - **1.15.0 = 01** and; Offered DES date matching: - **A1.01 = between s and f** and; Having eligibility pathway status at f matching: - **1.14.18 = 01** d) Count distinct patients having invitation pathway type matching: - **1.15.0 = 01** and; Offered DES date matching: - **A1.01 = between s and f** and; -Having eligibility pathway status at f matching: - **1.14.18 = 01** and; Having patient RDS screening category at f matching - **1.14.20 = 02** e) Count distinct patients having eligibility pathway status at f matching: - **1.14.18 = 01** Having invitation pathway type matching: - **1.15.0 = 01** and; Offered DES date matching: A1.01 = between f + 1d and f + 90d A1.01 = is NULL between s and f	
3.2.1 Invitations made for first screening[54]	Number of new additions to the register [3.5][55] who were issued a first invitation for first RDS event within the reported time period	Count distinct patients having new patient notification date matching: - **P2.01 = between s and f** and; Invitation pathway type between s and f matching: - **1.16.1 = 01** and;	Please note that new patients added to the register near the end of the report period and so not issued an invitation until the subsequent report period

[54] First Screening refers to new patients' first screening event within the DESP. See definitions in glossary for 'first screening' and 'new registrations' for further detail.
[55] Note that this is a subset of new additions to the register within the reported time period (field 3.5)

		Offered screening date matching: - **A1.01 = between s and f**	will not be included in this count
3.2.2 Invitations made for first screening within 3 months	a) Number of new additions to the register [3.5] who were issued a first invitation for first RDS event, which is due to occur within 3 months of the programme being notified of their diagnosis b) Number of new additions to the register [3.5] who were issued a first invitation for first RDS event, within 14 days of the programme being notified of their diagnosis DES-PS-2	a) Count distinct patients having new patient notification date matching: - **P2.01 = between s and f** and; Invitation pathway type between s and f matching: - **1.15.1 = 01** and; Offered screening date matching: - **A1.03 = between P2.01 and +89d** b) Count distinct patients having new patient notification date matching: - **P2.01 = between s and f** and; Invitation pathway type between s and f matching: - **1.15.1 = 01** and; Offered screening date matching: A1.01 = between P2.01 and +14d	Please note that new patients added to the register near the end of the report period and so not issued an invitation until the subsequent report period will not be included in this count, regardless of if they were invited within 3 months Please also note that this count does not distinguish between newly diagnosed new patients and patients that are newly registered but are not newly diagnosed (i.e. may have been previously screened by another DESP)
3.2.3 Newly registered patients who DNA/DNR following first invitation to first screening	Number of new additions to the register [3.5][56] who were issued a first invitation for first RDS event within the reported time period who DNA first booked appointment or DNR to first invitation for first RDS event	Count distinct patients having new patient notification date matching: - **P2.01 = between s and f** and; Either Invitation pathway type between s and f matching: - **1.15.0 = 01** and; Offered screening date matching: - **A1.01 = between s and f and;** Booking system type matching: - **A1.05 = 02 or 03** and; Invitation response status matching:	NB – this assumes the data fields stated are for related events i.e. the invitation stated is the invitation to which no response was received etc

[56] Note that this is a subset of new additions to the register within the reported time period (field 3.5)

		- **1.15.3 = 02** Or - **1.15.0 = 01** and; - **A1.01 = between s and f and;** - **A1.05 = 01** and; Having related attended or DNA status matching: - **S1.03 = 03**	
3.3 DNA/DNR patients	Patients who have received final reminder/invitation letter within the reported time period, without attending any RDS appointment: a) total number within reported time period b) total number within [3.3.a] above, aged between 12 and 44 years at final day of reported time period c) total number within [3.3.a] above, aged 45 years or over at final day of reported time period	a) Count of distinct patients having invitation pathway type and final letter date* between s and f matching: - **1.15.0 = 01 and;** - **X* = between s and f and;** Either Booking system matching: - **A1.05 = 02 or 03 and;** Invitation response status matching: - **1.15.3 = 02** Or Booking system matching: - **A1.05 = 01 and;** Having attendance date matching: - **S1.02 = between A1.01 and (A1.01 + 90d) and;** Related attended or DNA status matching: - **S1.03 = 03 and;** Not having attendance date matching: - **S1.02 = between A1.01 and (A1.01 + 90d) and;** - **S1.03 = 01** b) Count of patients within 3.3a where: - **P1.06 = age 12 to 44 years**	*Please also note that this count requires a 'final letter date' dataset item. This is not currently in the dataset but it is assumed that the software will include this and so it is denoted by 'X'. This allows a time limit for the DNA to be included in the calculation. For b) and c) please note that age is a calculation based on P1.06 at f

		c) Count of patients within 3.3a where: **- P1.06 = age 45 years or over**	
3.4 Patients screened	Number of people who have attended a successful RDS event during the reported time period[57] DES-PS-7 DES-PS-9 DES-PS-10	Count of distinct patients having attendance type and date between s and f matching: - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Attended or DNA status matching: - **S1.03 = 05 or 06 and** - **S1.06 is null** Having RDS category between s and f matching: - **1.14.20 = 01 or 02 and;** Having image capture type matching: - **1.19.1 = 01**	
3.4.1 Patients screened while in HES	Number (out of 3.4) who received screening for DR while in HES for a non-DR condition[58]	Count of distinct patients having attendance type and date between s and f matching: - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Attended or DNA status matching: - **S1.03 = 05 or 06 and** - **S1.06 is null** Having RDS category between s and f matching: - **1.14.20 = 02 and;** Having image capture type matching: - **1.19.1 = 01**	
3.4.2 Annual screening	a) Number of people on RDS on the final day of the reporting period [3.1.8a] who have a RDS recall due date during the reporting period	a) Count of distinct patients having a patient eligible pathway of routine digital screening at f and a RDS recall due date between s and f - **1.14.18 = 01 and**	Note the planned invitation date (A1.03) can occur outside of the start and finish dates.

[57] Section [3.4] should not include patients who are recorded as exceptions [4.2] unless they have subsequently attended RDS and a gradeable or U digital image has been taken.

[58] Patients who are seen in HES for a non-DR lesion may have their DR screening while in hospital under agreement between HES and DESP; further detail available in 'Exclusions, Suspensions and Management of Ungradables'.

	b) Within [3.4.2a], number of people offered an appointment that is due to occur up to 6 weeks before to 6 weeks after their RDS recall due date c) Within [3.4.2a], number of people offered an appointment that is due to occur before 6 weeks of their RDS recall due date DES-PS-3 (3.4.2a and b)	- **1.15.4 = between s and f** b) As a) having an invitation pathway type of routine digital screening and a planned date between the recall due date -42 days and the recall due date +42 days - **1.14.18 = 01 and** - **1.15.4 = between s and f and** - **1.15.0 = 01** - **A1.03 = between 1.15.4 -42d and 1.15.4 +42d** c) As a) having an invitation pathway type of routine digital screening and a planned date between 364 and 43 days before the recall due date - **1.14.18 = 01 and** - **1.15.4 = between s and f and** - **1.15.0 = 01** A1.03 = between 1.15.4 -364d and 1.15.4 -43d	
3.4.3 Patients in RDS with no attendance date	Number RDS for the previous 3 years [3.1.7b] who, on the final day of the reporting period, have not attended a RDS event within the previous 3 years DES-PS-8 (3.4.3)	Count of distinct patients having patient eligible pathway of routine digital screening at finish date and 3 years prior - **1.14.18 = 01 at f and f- 3 years** and Having no instances of patients eligible pathway of suspended or excluded between f and f- 3 years - **1.14.18 does not = 02 or 03 between f anf f – 3 years** Having an attendance type of routine digital screening and an attendance date between f and f – 3 years or attendance date is null - **1.16.1 = 01 and** S1.02 between f and f -3 years is null	This excludes patients who have been removed from the RDS category at any time during the previous 3 years eg. have been excluded or suspended at any point
3.5 New registrations	Number of new additions to the register within the reported time period DES-PS-2	Count distinct patients having new patient notification date matching: - **P2.01 = between s and f**	

3.6 Moved off-register	Number of people with diabetes who moved off-register within the reported time period	Count distinct patients having registration status at s matching: - **1.14.12 = 01 and** Registration status between s and f matching: - **1.14.12 = 02**	
3.7 Cohort-based Performance Measures	[Reporting measures within section 3.7 reflect the performance of only the cohort of patients who are eligible for screening and not suspended on the final day of the reporting period]		
3.7.1 Number eligible and not suspended	Number of patients eligible and not suspended on the final day of the report period[59]	Count distinct patients having on register status at f matching: **-1.14.16 = 01 and;** Eligible pathway status at f matching: **-1.14.18 = 01 or 03**	
3.7.2 Cohort performance measure – number invited	Number of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event during the reported time period[60]	Count distinct patients having on register status at f matching: **-1.14.16 = 01 and;** Eligible pathway status at f matching: **-1.14.18 = 01 or 03 and;** Having invitation pathway type between s and f matching: - **1.15.0 = 01** and; Offered DES date matching: - **A1.01 = between s and f**	
3.7.3 Cohort performance measure - number screened	Number of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event [3.7.2] that subsequently attended a RDS event during the 15 month period that starts from the first day of the reported time period[61]	Count distinct patients having on register status at f matching: **-1.14.16 = 01 and;** Eligible pathway status at f matching: **-1.14.18 = 01 or 03 and;** Having invitation pathway type between s and f matching: - **1.15.0 = 01** and; Offered DES date matching:	

[59] This is equivalent to field [3.1.1.] minus [3.1.4.a].
[60] This measure will therefore not include patients that became eligible near the end of the report period and were sent an invitation after the final day of the report period.
[61] Extending the reported time period by 3 months allows programmes 3 months for the patients to attend a RDS event arising from a realisable appointment.

		- **A1.01 = between s and f and;** Having attendance type and date between s and within +90d of f matching; - **1.16.1 = 01 and** - **S1.02 = between s and (f + 90d)**	
3.7.4 Cohort performance measure – percentage invited	Percentage of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event during the reported time period	Calculation:- Field 3.7.2/field 3.7.1 * 100 = X% to 1 decimal place	
3.7.5 Cohort performance measure – percentage screened	Percentage of patients eligible and not suspended on the final day of the report period [3.7.1] who were invited for an RDS event [3.7.2] that subsequently attended a RDS event during the 15 month period that starts from the first day of the reported time period	Calculation:- Field 3.7.3/ field 3.7.2 * 100 = X% to 1 decimal place	
3.8.1 Pregnancy notification	a) Number of women (excluding those already suspended: HES) notifying the programme of their pregnancy in the reporting period b) Number within [3.8.1a] who attended a successful screening or surveillance event in the 3 months prior to or the same day as the date of notification DES-PS-6 (3.8.1a and b)	a) Count of distinct patients having a pregnancy status of pregnant - **1.9.11 = 02 and** Having a pregnancy notification date between s and f - **1.9.12 = between s and f** and excluding those suspended under HES at the pregnancy notification date: At date of 1.9.12: • **1.14.18 must = 01 or 02** ○ **if it's 02 then 1.14.22 must = 02 or 03** b) Count of distinct patients having a pregnancy status of pregnant - **1.9.11 = 02 and** Having a pregnancy notification date between s and f - **1.9.12 = between s and f and** Having attendance type and date between s and f matching: - **1.16.1 = 01, 02 or 03 and** - **S1.02 = between 1.9.12 and (1.19.12 – 89 d)**	Notification may be by the GP on behalf of the women Note: this count also excludes patients that, on the date of pregnancy notification, are suspended under HES

		With no exception recorded - **S1.06 = null**	
3.8.2 Expected number of women delivering	Number of women due to deliver in the reporting period based upon the expected delivery date	Count of distinct patients having an expected due date between s and f - **1.9.15 = between s and f**	
3.8.3 Pregnancy outcomes	Number of women with an outcome notified to the programme in the reporting period	Count of distinct patients having a pregnancy outcome notification date between s and f - **1.9.17 = between s and f**	This is reliant on the programme being notified and may not be completed for all pregnancies.
4. Routine Digital Screening (RDS) outcomes by grade			
[4.1 RDS outcomes by grade:][62]	[The aggregate outcomes within each grading category should relate to Routine Digital Screening (RDS) screening events within the reported time period.[63] The category should represent the final grading outcome for the eye for which action is most urgently required.[64]]	Count distinct patients having attendance type and date between s and f matching; - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Having grading finalised for imageset relating to specified attendance date matching: - **G3.01 = 01 and;**	Software providers should refer to grading hierarchy published in pathway documentation for guidance on grade and worst eye classification and take in to account patients with only one screenable eye (dataset fields S2.01 or S2.02)
4.1.1 Grade: R0M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 00 and** - **G1.13 = 00, if this represents worst seeing eye, else:**	(Not referable)

[62] Note that the numbers of grading outcomes falling within each grading category [4.1.1 to 4.1.10] should sum to exactly the number of patients screened [3.4]. Patients attending for photography and subsequently referred for slit-lamp biomicroscopy during the reported time period should be counted in this section *and* section 6. It is recommended that all image sets are graded to completion, regardless of any change to the patient status occurring after the digital screening encounter.

[63] Therefore these figures will relate to grading activity outside the reporting period for patients screened near the end of the financial year. Where a patient attends a RDS encounter on more than one occasion during the reported time period, only the final grading outcome of the final RDS encounter should be reported.

[64] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C along with the inferred outcomes for that grade. It is recommended that all image sets are graded to completion regardless of the status of the patient (for example if a patient status changes to 'deceased' during the grading process).
Drill down should be available from numbered totals into patient identified lists. This facility is required at the programme only for the purpose of checking submissions and is not required within the report for submission to EARS.
An additional management report is required for the programmes internal use as described in Appendix F

		Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 00 and** - **G1.14 = 00 if this represents worst seeing eye**	
4.1.2 Grade: R1M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 01 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 01 and** - **G1.14 = 00 if this represents worst seeing eye**	(Not referable)
4.1.3 Grade: R1M1	Number of patients, according to [4.1] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 01 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 01 and** - **G1.14 = 01 if this represents worst seeing eye**	(Routine referral)
4.1.4 Grade: R2M0	Number of patients, according to [4.1] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 02 and** - **G1.13 = 00, if this represents worst seeing eye, else:**	(Routine referral – not treatable)

		Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 02 and** - **G1.14 = 00 if this represents worst seeing eye**	
4.1.5 Grade: R2M1	Number of patients, according to [4.1] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 02 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 02 and** - **G1.14 = 01 if this represents worst seeing eye**	(Routine referral)
4.1.6 Grade: R3SM0	Number of patients, according to [4.1] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M0 - No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 05 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 05 and** - **G1.14 = 00 if this represents worst seeing eye**	(Not referable)
4.1.7 Grade: R3SM1	Number of patients, according to [4.1] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 - Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 05 and**	(Routine referral)

		- **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 05 and** - **G1.14 = 01 if this represents worst seeing eye**	
4.1.8 Grade: R3AM0	Number of patients, according to [4.1] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M0 - No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 04 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 04 and** - **G1.14 = 00 if this represents worst seeing eye**	(Urgent referral)
4.1.9 Grade: R3AM1	Number of patients, according to [4.1] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M1 - Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.09 = 04 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 4.1 matching: - **G1.10 = 04 and** - **G1.14 = 01 if this represents worst seeing eye**	(Urgent referral)
4.1.10 Grade: U	Number of patients, according to [4.1] above, deemed ungradable	Having right eye image status, relating to correct imageset specified in 4.1 matching:	

	DES-PS-9	- **1.21.2 = 02, if this represents worst seeing eye, else:** Having left eye image status, relating to correct imageset specified in 4.1 matching: - **1.21.3 = 02 if this represents worst seeing eye**	
4.2 Image capture exceptions	Number of patients for whom no photograph could be taken at time of appointment[65]	Count distinct patients having attendance type and date between s and f matching: - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Exception between s and f matching: - **S1.06 = 02, 03, 04, 05 or 99**	
4.3 [RDS Outcomes by Action]	[This section should relate to patients for which completed actionable referral outcome grades (ROG) were assigned during the reported time period. Therefore, this section will relate to some RDS events that occurred outside of the reported time period.]		
4.3.1 RDS Outcomes by Action/inferred grade	a) Number of patients returned to RDS annual recall (no referral to surveillance or HES required), within reported time period b) Number of patients referred from RDS into DS within reported time period c) Number of patients referred from RDS into SLBS within reported time period d) Number of routine DR referrals made to HES within reported time period e) Number of urgent DR referrals made to HES within reported time period	Count distinct patients having outcome and outcome date between s and f matching: a): - **1.22.5 = 01 and** - **1.22.4 = between s and f** b): - **1.22.5 = 02, 03, 04 or 05 and** - **1.22.4 = between s and f** c): - **1.22.5 = 06 and** - **1.22.4 = between s and f** d): - **1.22.5 = 08 and** - **1.22.4 = between s and f**	

[65] Exceptions do not close out a screening event and the designation of 'exception' is not a grading outcome; patients whose appointments end in exceptions are re-invited to RDS for screening event and will be included in both [4.1] and [4.2].

	f) Number of routine referrals made for non-DR lesions within reported time period[66] g) Number of urgent referrals made for non-DR lesions within reported time period[67] h) Number of patients excluded or removed[68] from the register within the reported time period	e): - **1.22.5 = 07 and** - **1.22.4 = between s and f** f): - **1.22.5 = 10 and** - **1.22.4 = between s and f** g): - **1.22.5 = 09 and** - **1.22.4 = between s and f** h): - **1.22.5 = 13 or 14 and** - **1.22.4 = between s and f**	
4.3.8 Outcome changes made at ROG	Report (table format) to compare final grading outcomes from RDS encounters that took place during the reported time period against action outcomes determined at ROG. Please see Appendix D for full description.	N/A	
5. Grading process			
5.1 Grader workload	For each retinopathy grader in the service, provide a pseudonymised[69] report (table format) of activity relating to all full grading carried out within the reported time period.[70] Please see Appendix E for full description.	N/A	

[66] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[67] *ibid*
[68] Please note that 'removed from register' is not a ROG outcome, but an administrative outcome that may occur between the date of the final grade being assigned and the ROG being assigned. This has been included to ensure the sum of digital screening outcomes equals the sum of ROG outcomes.

[69] For example, 'Grader A', 'Grader B', etc. This should allow problems with individual graders to be traced back if necessary without compromising workforce confidentiality.
[70] The assessment of grading workload does not therefore relate to digital screening encounters within the reported time period; often, grading carried out near the start of the financial year will relate to digital screening encounters from the previous financial year. Please refer to appendix 2 of this report for guidance on how to calculate grader workload.

5.2 Individual Grader Tables – Comparison of grading with final grade: Kappa Table	Please see Appendix F for full description	N/A	
5.3 Summary of Individual grader tables	Please see Appendix F for full description	N/A	
5.4 Result notification times (RDS)	Number of result letter notifications issued following a RDS screening encounter within the reported period[71]: a) within 3 weeks of RDS screening encounter b) within 6 weeks of RDS screening encounter DES-PS-10 (5.4a)	Count distinct patients having attendance and attendance date between s and f matching: - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Having image capture type relating to specified attendance date matching: - **1.19.1 = 01 and;** Having result type relating to specified attendance date matching: - **1.23.1 = 01 and;** a) Having patient notified date relating to specified date matching: - **G4.03 = between S1.02 and (S1.02 +21d)** GP notified date relating to specified date matching: - **G4.04 = between S1.02 and (S1.02 +21d)** Other named healthcare professional notified date related to specified date matching: - **G4.05 = between S1.02 and (S1.02 +21d)** b) Having patient notified date relating to specified date matching: - **G4.03 = between S1.02 and (S1.02 +42d)** GP notified date relating to specified date matching: - **G4.04 = between S1.02 and (S1.02 +42d)**	

[71] Issuing of results letters must be to both GP and patient for the count to be included in this section.

		Other named healthcare professional notified date related to specified date matching: - **G4.05 = between S1.02 and (S1.02 +42d)**	
5.5 Result notification times (DS)	Number of result letter notifications issued following a DS screening encounter within the reported period within 3 weeks of the DS screening encounter DES-PS-10	Count of distinct patients having attendance and attendance date matching: - **1.16.1 = 02 and** - **S1.02 = between s and f and;** Having image capture type relating to specified attendance date matching: - **1.19.1 = 02 and;** Having result type relating to specified attendance date matching: - **1.23.1 = 02 and;** Having patient notified date relating to specified date matching: - **G4.03 = between S1.02 and (S1.02 +21d)** GP notified date relating to specified date matching: - **G4.04 = between S1.02 and (S1.02 +21d)** Other named healthcare professional notified date related to specified date matching: - **G4.05 = between S1.02 and (S1.02 +21d)**	
5.6 Result notification times (SLBS)	Number of result letter notifications issued following a SLBS screening encounter within the reported period within 3 weeks of the SLBS screening encounter DES-PS-10	Count of distinct patients having attendance and attendance date matching: - **1.16.1 = 03 and** - **S1.02 = between s and f and;** Having result type relating to specified attendance date matching: - **1.23.1 = 03 and;** Having patient notified date relating to specified date matching: - **G4.03 = between S1.02 and (S1.02 +21d)** GP notified date relating to specified date matching: - **G4.04 = between S1.02 and (S1.02 +21d)** Other named healthcare professional notified date related to specified date matching: - **G4.05 = between S1.02 and (S1.02 +21d)**	

6. Ophthalmology (HES) referrals / outcomes	[Note that this section should be used to report ophthalmology outcomes that result from RDS screening or surveillance encounters from all DESP pathways (RDS, SLBS or DS) within the reported time period]	In this section, **consider** the **final** attendance (based on S1.02) for each patient which matches: S1.02 between s and f and S1.03 = 01 and 1.16.1 = 01 or 02 or 03 and **include the patient only** if this final attendance matches: G3.01 = 01 and G4.02 is not null (i.e. patient has been referred) When considering the series of data from ophthalmology, consider the **data relating to this specific referral**. All grading outcomes listed are based on representing the worst seeing eye.	
6.1 Referral times	Number of patients referred to an ophthalmology clinic in relation to a screening or surveillance event that took place within the reported time period, within: a) 1 week of screening or surveillance event (R3AM0/R3AM1)[72] b) 2 weeks of screening or surveillance event (R3AM0/R3AM1) c) 3 weeks of screening or surveillance event (R3SM1/R2M1/R1M1/R2M0) DES-PS-11.1 (6.1b) DES-PS-11.2 (6.1c)	Considering only those episodes specified in 6 a) Count patients having right eye screening examination for retinopathy and maculopathy matching: - **G1.09 = 04 and** - **G1.13 = 00 or 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy matching: - **G1.10 = 04 and** - **G1.14 = 00 or 01 and;** Having outcome matching: - **1.22.5 = 07**	Note the referral date (G4.02) can occur outside of the start and finish dates.

[72] ie. grading completed and appropriate referral made within 1 week of screening encounter.

		- **or 1.22.6 = 07** - **or 1.22.7 = 05** And where referral date is within 7 days of attendance date, so: - **G4.02 = between S1.02 and (S1.02 +7d)** b) Count patients having right eye screening examination for retinopathy and maculopathy matching: - **G1.09 = 04 and** - **G1.13 = 00 or 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy matching: - **G1.10 = 04 and** - **G1.14 = 00 or 01 and;** Having outcome matching: - **1.22.5 = 07** - **or 1.22.6 = 07** - **or 1.22.7 = 05** And where referral date is within 14 days of attendance date, so: - **G4.02 = between S1.02 and (S1.02 +14d)** c) Count patients having right eye screening examination for retinopathy and maculopathy matching: - **G1.09 = 05 or 01 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy matching: - **G1.10 = 05 or 01 and**	

		- **G1.14 = 01 and; if this represents worst seeing eye, else:** Count patients having right eye screening examination for retinopathy and maculopathy matching: - **G1.09 = 02 and** - **G1.13 = 00 or 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy matching: - **G1.10 = 02 and** - **G1.14 = 00 or 01 and; if this represents worst seeing eye, else:** Having outcome matching: - **1.22.5 = 07 or 08** - **or 1.22.6 = 07 or 08** - **or 1.22.7 = 05 or 06** And where referral date is within 21 days of attendance date, so: - **G4.02 = between S1.02 and (S1.02 +21d)**	
6.2 Ophthalmology referrals: all patients	Number of patients referred to an ophthalmology clinic following a positive test relating to: a) a screening or surveillance event that took place within the reported time period b) a RD screening event that took place within the reported time period[73]	Considering only those episodes specified in 6 a) Count distinct patients having outcome (RDS) matching: - **1.22.5 = 07 or 08**, or; Outcome (DS) matching: - **1.22.6 = 07 or 08, or;** Outcome (SLBS) matching: - **1.22.7 = 05 or 06**	

[73] This refers to patients who are referred to HES as determined by ROG outcome; screening encounters that end in referable grade but sent to another DESP pathway (eg, DS) are not included in this category.

	c) a DS event that took place within the reported time period d) a SLBS event that took place within the reported time period	b) Count distinct patients having outcome (RDS) matching: - **1.22.5 = 07 or 08** c) Count distinct patients having outcome (DS) matching: - **1.22.6 = 07 or 08** d) Count distinct patients having outcome (SLBS) matching: - **1.22.7 = 05 or 06**	
6.2.1 Ophthalmology referrals: by category	Number of patients referred to an ophthalmology clinic following a positive test relating to a screening or surveillance event that took place within the reported time period with: a) a final grading outcome[74] of 'R3AM0 proliferative retinopathy without maculopathy' b) a final grading outcome[75] of 'R3AM1 Proliferative retinopathy with maculopathy' c) a final grading outcome of 'R3SM0' stable proliferative retinopathy without maculopathy d) a final grading outcome of 'R3SM1' stable proliferative retinopathy with maculopathy e) a final grading outcome of 'R2M0 Pre-proliferative retinopathy' f) a final grading outcome of 'R2M1' g) a final grading outcome of 'R1M1'	Of patients counted in report field 6.2.a and: a) As for report field 4.1.8 b) As for report field 4.1.9 c) As for report field 4.1.6 d) As for report field 4.1.7 e) As for report field 4.1.4 f) As for report field 4.1.5 g) As for report field 4.1.3 h) As for report field 4.1.1, 4.1.2 and 4.1.10	

[74] Final grading outcome should be measured on the eye for which action is most urgently required. The agreed hierarchy for 'eye for which action is most urgently required' is: R3AM1 > R3AM0 > R3SM1 > R2M1 > R1M1 > R2M0 > U > R3SM0 > R1M0 > R0M0, see Appendix C for further details.

[75] *ibid*.

	h) any other final grading outcome (R1M0, R0M0, U) – excluding referrals for eye diseases other than diabetic retinopathy DES-PS-11.1 (6.2.1a and b) DES-PS-11.2 (6.2.1d, e, f and g) DES-PS-12.1 (6.2.1a and b) DES-PS-12.2 (6.2.1d, e, f and g)		
6.3 Consultation times: by category	Number of patients within [6.2.1] above with: a) a final grading outcome of 'R3AM0/R3AM1 Proliferative retinopathy' receiving consultation within 6 weeks of the last successful screen b) a final grading outcome of 'R3SM1 Stable post treatment proliferative retinopathy' receiving consultation within 13 weeks of the last successful screen c) a final grading outcome of 'R2M0/R2M1 Pre-proliferative retinopathy' receiving consultation within 13 weeks of notification of positive test the last successful screen d) a final grading outcome of 'R1M1 Maculopathy' receiving consultation within 13 weeks of the last successful screen DES-PS-12.1 (6.3a) DES-PS-12.2 (6.3b and c)	Considering only those episodes specified in 6 a) Of patients counted in report fields 6.2.1.a and 6.2.1.b, and having specialist eye examination attendance status matching: - **1.26.5 = 01 and;** Specialist eye examination date within 14d of last attended screen, so: - **C1.04 = between S1.02 and (S1.02 + 42d)** b) Of patients counted in report field 6.2.1.d and having specialist eye examination attendance status matching: - **1.26.5 = 01 and;** Specialist eye examination date within 91d of last attended screen, so: C1.04 = between S1.02 and (S1.02 + 91d) c) Of patients counted in report fields 6.2.1.e and 6.2.1.f, and having specialist eye examination attendance status matching: - **1.26.5 = 01 and;** Specialist eye examination date within 91d of last attended screen, so: - **C1.04 = between S1.02 and (S1.02 + 91d)**	Note the consultation date (C1.04) can occur outside of the start and finish dates.

		d) Of patients counted in report field 6.2.1.g and having specialist eye examination attendance status matching: - **1.26.5 = 01 and;** Specialist eye examination date within 91d of last attended screen, so: - **C1.04 = between S1.02 and (S1.02 + 91d)**	
6.4 Patients listed for first laser treatment at first visit	a) Number of patients listed at first visit for first laser treatment for 'R3AM0 Proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period b) Number of patients listed at first visit for first laser treatment for 'R3AM1 Proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period c) Number of patients listed at first visit for first laser treatment for 'R2M0 Pre-proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period d) Number of patients listed at first visit for first laser treatment for 'R2M1 Pre-proliferative retinopathy' following a positive test relating to a screening event that took place within the reported time period e) Number of patients listed at first visit for first laser treatment for 'R1M1	Considering only: - those screening episodes specified in 6 and - the **first** subsequent specialist eye examination (C1.04 >= S1.02) with patient attending (1.26.5 = 01) and a) Count patients having ophthalmology grade matching: - **1.26.6 = 04 and** - **1.26.8 = 00** **and/or** - **1.26.7 = 04 and** - **1.26.9 = 00 or;** **If ophthalmology grade is missing then;** Count patients having screening examination outcome matching: - **G1.09 = 04 and** - **G1.13 = 00** **and/or** - **G1.10 = 04 and** - **G1.14 = 00 or;** Having planned procedure 'listed for laser' matching: - **C2.01 = code 10, 11, 12, 13 or 14 (Appendix 3), and;**	

	Maculopathy' following a positive test relating to a screening event that took place within the reported time period	Having date listed for procedure equalling specialist eye examination date, matching: - **C2.01 = C1.04** b) Count patients having ophthalmology grade matching: - **1.26.6 = 04 and** - **1.26.8 = 01 and/or** - **1.26.7 = 04 and** - **1.26.9 = 01 or;** **If ophthalmology grade is missing then;** Count patients having screening examination outcome matching: - **G1.09 = 04 and** - **G1.13 = 01** **and/or** - **G1.10 = 04 and** - **G1.14 = 01 or;** Having planned procedure 'listed for laser' matching: - **C2.01 = code 10, 11, 12, 13 or 14 (Appendix 3), and;** Having date listed for procedure equalling specialist eye examination date, matching: - **C2.01 = C1.04** c) Count patients having ophthalmology grade matching: - **1.26.6 = 02 and** - **1.26.8 = 01 and/or** - **1.26.7 = 02 and** - **1.26.9 = 01 or;** **If ophthalmology grade is missing then;**	

		Count patients having screening examination outcome matching: - **G1.09 = 02 and** - **G1.13 = 00** **and/or** - **G1.10 = 02 and** - **G1.14 = 00 or;** Having planned procedure 'listed for laser' matching: - **C2.01 = code 10, 11, 12, 13 or 14 (Appendix 3), and;** Having date listed for procedure equalling specialist eye examination date, matching: - **C2.01 = C1.04** d) Count patients having ophthalmology grade matching: - **1.26.6 = 02 and** - **1.26.8 = 01 and/or** - **1.26.7 = 02 and** - **1.26.9 = 01 or;** **If ophthalmology grade is missing then;** Count patients having screening examination outcome matching: - **G1.09 = 02 and** - **G1.13 = 01** **and/or** - **G1.10 = 02 and** - **G1.14 = 01 or;** Having planned procedure 'listed for laser' matching: - **C2.01 = code 10, 11, 12, 13 or 14 (Appendix 3), and;**	

		Having date listed for procedure equalling specialist eye examination date, matching: - **C2.01 = C1.04** e) **Count patients having ophthalmology grade matching:** - **1.26.6 = 01 and** - **1.26.8 = 01 and/or** - **1.26.7 = 01 and** - **1.26.9 = 01 or;** **If ophthalmology grade is missing then;** Count patients having screening examination outcome matching: - **G1.09 = 01 and** - **G1.13 = 01** **and/or** - **G1.10 = 01 and** - **G1.14 = 01 or;** Having planned procedure 'listed for laser' matching: - **C2.01 = code 10, 11, 12, 13 or 14 (Appendix 3), and;** Having date listed for procedure equalling specialist eye examination date, matching: - **C2.01 = C1.04**	
6.4.1 Laser treatment waiting times from screening for R3AM0/R3AM1	Number of patients within [6.4.] above, having received first laser treatment for R3 Proliferative retinopathy: a) within 4 weeks of screening or surveillance event b) within 6 weeks of screening or surveillance event	Considering only patients in report fields 6.4.a and 6.4.b: a) Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between S1.02 and S1.02 + 27d)** b) Patients having procedure date for laser treatment* matching:	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have

		- 1.28.1 = 01 and **- C1.04 = between S1.02 and S1.02 + 41d)**	included their own dataset item, it could be used here. NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.2 Laser treatment waiting times from screening for R2M0/R2M1	Number of patients within [6.4.] above, having received first laser treatment for R2 pre-proliferative retinopathy: a) within 15 weeks of screening or surveillance event b) within 18 weeks of screening or surveillance event	Considering only patients in report fields 6.4.c and 6.4.d: a) Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between S1.02 and S1.02 + 104d)** b) Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between S1.02 and S1.02 + 125d)**	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here. NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.3 Laser treatment waiting times from screening for R1M1	Number of patients within [6.4.] above, having received first laser treatment for R1M1 maculopathy: a) within 15 weeks of screening or surveillance event b) within 18 weeks of screening or surveillance event	Considering only patients in report fields 6.4.e: a) Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between S1.02 and S1.02 + 104d)** b) Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between S1.02 and S1.02 + 125d)**	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.

			NB – this will not exclude patients who do not receive planned laser treatment due to patient DNA, cancellation or being removed from the register.
6.4.4 Laser treatment waiting times from listing for R3AM0/R3AM1*	Number of patients within [6.4.] above, having received first laser treatment for R3 Proliferative retinopathy within 2 weeks of listing	Considering only patients in report fields 6.4.a and 6.4.b: Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between C2.03 and C2.03 + 13d)**	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.
6.4.5 Laser treatment waiting times from listing for R2M0/R2M1*	Number of patients within [6.4.] above, having received first laser treatment for R2 pre-proliferative retinopathy within 10 weeks of listing	Considering only patients in report fields 6.4.c and 6.4.d: Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between C2.03 and C2.03 + 69d)**	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.
6.4.6 Laser treatment waiting times from listing for R1M1*	Number of patients within [6.4.] above, having received first laser treatment for R1M1 Maculopathy within 10 weeks of listing	Considering only patients in report fields 6.4.e: Patients having procedure date for laser treatment* matching: **- 1.28.1 = 01 and** **- C1.04 = between C2.03 and C2.03 + 69d)**	*NB – there is currently no separate dataset item for 'procedure date' to indicate when laser treatment occurred, so this is inferred from a procedure type for DR (1.28.1) related to an observation date (C1.04). If software suppliers have included their own dataset item, it could be used here.

7. Quality assurance processes			
7.1 Evidence of external quality assurance	Date of participation in most recent a peer-review EQA visit programme	N/A	
7.2 Report submission date	Date of submission of current report.	N/A	
8. Reducing new blindness			
8.1 New certifications of severe sight impairment*	Number of new certifications of severe sight impairment within the reported time period amongst current patients, which are predominantly due to diabetic retinopathy	Consider firstly certification of visual impairment recorded at any episode between s and f matching: **- 1.16.1 = 01, 02 or 03 or** **- C1.04 = between s and f and** Secondly any previous certification of visual impairment recorded at any previous episode before s matching: **- 1.16.1 = 01, 02 or 03 or** **- C1.04 = < s** **and** Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01 or 02 and;** Having certification of visual impairment type between s and f matching: - **1.30.1 = 01 and** - **1.30.2 = between s and f and;** Certification of visual impairment reason matching; - **1.30.3 = 01 and** Not having any previous certification of visual impairment type matching: **- 1.30.1 = 01**	
8.2 New certifications of sight impairment*	Number of new certifications of sight impairment within the reported time period amongst current patients, which are predominantly due to diabetic retinopathy	Consider firstly certification of visual impairment recorded at any episode between s and f matching: **- 1.16.1 = 01, 02 or 03 or** **- C1.04 = between s and f and**	

		Secondly any previous certification of visual impairment recorded at any previous episode before s matching: **- 1.16.1 = 01, 02 or 03 or** **- C1.04 = < s** **and** Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01 or 02 and;** Having certification of visual impairment type between s and f matching: - **1.30.1 = 02 and** - **1.30.2 = between s and f and;** Certification of visual impairment reason matching; - **1.30.3 = 01 and** Not having any previous certification of visual impairment type matching: **- 1.30.1 = 01 or 02**	
8.3 Incident visual acuity: 6/60 or worse	Number of current patients with visual acuity of 6/60[76] or worse in the better seeing eye being recorded for the first time within the reporting period	Consider firstly the worst eye visual acuity recorded at any episode between s and f matching: **- 1.16.1 = 01, 02 or 03 and** Secondly the worst of all previous worst eye visual acuity recorded at any previous episode before s matching: **- 1.16.1 = 01, 02 or 03 and** Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01 or 02 and;** Having right and/or left eye visual acuity between s and f matching: - **S2.04 = 6/60 or worse or** - **S2.05 = 6/60 or worse and;**	

[76] log MAR equivalent: +1.0. This should be the most recent best corrected VA measurement.

		Not having any previous visual acuity recorded of 6/60 or worse	
8.4 Incident visual acuity: 6/18 or worse	Number of current patients with visual acuity of 6/18[33] or worse in the better seeing eye being recorded for the first time within the reporting period	Consider firstly the worst eye visual acuity recorded at any episode between s and f matching: **- 1.16.1 = 01, 02 or 03 and** Secondly the worst of all previous worst eye visual acuity recorded at any previous episode before s matching: **- 1.16.1 = 01, 02 or 03 and** Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 01 or 02 and;** Having right and/or left eye visual acuity between s and f matching: - **S2.04 = 6/18 or worse or** - **S2.05 = 6/18 or worse and;** Not having any previous visual acuity recorded of 6/18 or worse	
8.5 Number of patients with a concurrent visual acuity measurement recorded	Number of current patients attending a screening encounter in the reporting period with a concurrent visual acuity measurement recorded for at least one eye	Count of distinct patients having attendance type and date between s and f matching: - **1.16.1 = 01 and** - **S1.02 = between s and f and;** Having RDS category between s and f matching: - **1.14.20 = 01 and;** Having image capture type matching: - **1.19.1 = 01 and;** Having attended or DNA status matching: - **S1.03 = 05 or 06 and** - **S1.06 is null and;** Having right and/or left eye visual acuity measurement recorded on date of attendance specified, matching: - **S2.04 = has value is true and/or** - **S2.04 = has value is true**	

8.6 Incident visual acuity: 6/60 or worse predominantly due to diabetic retinopathy	Number of current patients referred with visual acuity of 6/60[337] or worse in the better seeing eye being recorded for the first time within the reporting period, which is predominantly due to diabetic retinopathy	Of all patients determined to have a VA of 6/60 or worse during a screening or surveillance event that took place during the report period and were referred to Ophthalmology, count the number of patients for whom a reason for this VA measurement was determined and assigned by an Ophthalmologist to be predominantly due to DR.	Please note the dataset does not currently support: 1) A VA measurement being recording during specialist eye examination (HES) without concurrent certification of visual impairment. 2) Diabetic retinopathy to be assigned as a reason for a VA or 6/60 or 6/18 or worse.
8.7 Incident visual acuity: 6/18 or worse predominantly due to diabetic retinopathy	Number of current patients referred with visual acuity of 6/18[33] or worse in the better seeing eye being recorded for the first time within the reporting period, which is predominantly due to diabetic retinopathy	Of all patients determined to have a VA of 6/18 or worse during a screening or surveillance event that took place during the report period and were referred to Ophthalmology, count the number of patients for whom a reason for this VA measurement was determined and assigned by an Ophthalmologist to be predominantly due to DR.	Please note the dataset does not currently support: 1) A VA measurement being recording during specialist eye examination (HES) without concurrent certification of visual impairment. 2) Diabetic retinopathy to be assigned as a reason for a VA or 6/60 or 6/18 or worse.
9. Outcomes from SLB Surveillance			
9.1.1 SLB surveillance patients	Total number of patients within the SLBS pathway on the final day of the reporting period	Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 02 and;** Patient suspended reason at f matching: - **1.14.22 = 03**	
9.1.2 SLB surveillance assessments	a) Number of SLBS assessments carried out during the reported time period	a) Count distinct instances of SLBS attendance type between s and f matching: - **1.16.1 = 03 and**	d) Requires 3 months to have elapsed after the final day of the report period.

	b) Number of patients who have attended a SLBS event during the reported time period c) Number invited for SLBS at least once during the report period and categorised as SLBS on the final day of the report period [3.1.6a] d) Excluding those in [9.1.2c], number invited for SLBS at least once in the 3 months after the report period and categorised as SLBS on the final day of the report period [3.1.6a] DES-PS-10 (9.1.2b)	- **S1.02 = between s and f** b) Count distinct patients having attendance type between s and f matching: - **1.16.1 = 03 and** - **S1.02 = between s and f** c) Count distinct patients with at least one instance of: having invitation pathway type matching: - **1.15.0 = 03** and; Offered DES date matching: - **A1.01 = between s and f** and; Having eligibility pathway status at f matching: - **1.14.18 = 02** Having patient suspended reason at f matching - **1.14.22 = 03** d) Count distinct patients with at least one instance of: having invitation pathway type matching: - **1.15.0 = 03** and; Offered DES date matching: - **A1.01 = between f +1 and f+91** and; - **A1.01 = between s and f is null** Having eligibility pathway status at f matching: - **1.14.18 = 02** Having patient suspended reason at f matching - **1.14.22 = 03**	
9.1.3 New SLB surveillance referrals	Number of patients referred into SLB surveillance within the reported time period[77]	Count distinct patients having outcome (RDS) between s and f matching: - **1.22.5 = 06 and**	

[77] Each referral counted separately; if a patient referred >1 in reporting period, this would count as >1 within this reporting measure. This should be measured from the data at which the patient status was changed on the screening programme register to 'suspended – SLBS'.

	DES-PS-13	- **1.22.4 = between s and f or;** Having outcome (DS) between s and f matching: - **1.22.6 = 06 and** - **1.22.4 = between s and f**	
9.1.4 New SLB surveillance referrals seen < 13 weeks	Number of patients referred into SLB surveillance within the reported time period [9.1.3], who attended a SLB surveillance event within 13 weeks of date of last routine digital screening or digital surveillance event. DES-PS-13	Of patients counted in report field 9.1.3 having attendance type within 91d of last attended screen (RDS or DS): - **1.16.1 = 03 and** - **S1.02 = between (S1.02 and (S1.02 + 91 d) where 1.16.1 = 01 or 02)**	
9.1.5 SLBS: patients offered annual assessment	a) Number of patients in SLBS on the final day of the reporting period [9.1.1] who have a 12 monthly assessment due date during the reporting period b) Within [9.1.5a] number of people offered an appointment that is due to occur up to 42 days before to 42 days after ~~a~~ their 12 monthly due date DES-PS-4 (9.1.5a and b)	a) Count distinct instances having patient eligible pathway and a patients suspended reason at f matching: - **1.14.18 = 02 and** - **1.14.22 = 03 at f** Having a recall due date between s and f - **1.15.4 = between s and f** b) As 9.1.5a and having an invitation pathway type of slit lamp biomicroscopy surveillance and a planned date between the recall due date -42 days and the recall due date +42 days - **1.14.18 = 02 and** - **1.14.22 = 03 at f and** - **1.15.4 = between s and f and** - **1.15.0 = 03** - **A1.03 = between 1.15.4 -42d and 1.15.4 +42d**	Note the planned invitation date (A1.03) can occur outside of the start and finish dates.
[9.2 SLBS assessment outcomes by grade:][78]	[The aggregate outcomes within each grading category should relate to slit lamp biomicroscopy surveillance (SLBS) events that take place within the reported time	Count distinct patients having attendance type and date between s and f matching; - **1.16.1 = 03 and** - **S1.02 = between s and f and;** Having grading finalised for imageset relating to specified attendance date matching:	

[78] Note that this section should be used to report biomicroscopy assessments which take place in the SLB Surveillance pathway.

	period.[79] The category should represent the final grading outcome for the eye for which action is most urgently required.[80]]	- **G3.01 = 01 and;**	
9.2.1 Grade: R0M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 00 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 00 and** - **G1.14 = 00, if this represents worst seeing eye**	
9.2.2 Grade: R1M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 01 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 01 and** - **G1.14 = 00, if this represents worst seeing eye**	
9.2.3 Grade: R1M1	Number of patients, according to [9.2] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 01 and**	

[79] Where a patient attends a slit lamp biomicroscopy screening encounter on more than one occasion during the reported time period, only the final grading outcome of the final screening encounter should be reported.

[80] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C.

		- **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 01 and** - **G1.14 = 01, if this represents worst seeing eye**	
9.2.4 Grade: R2M0	Number of patients, according to [9.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 02 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 02 and** - **G1.14 = 00, if this represents worst seeing eye**	
9.2.5 Grade: R2M1	Number of patients, according to [9.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 02 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 02 and** - **G1.14 = 01, if this represents worst seeing eye**	
9.2.6 Grade: R3SM0	Number of patients, according to [9.2] above, with a final grading outcome of 'R3S	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching:	

	- Stable Proliferative retinopathy, M0 No maculopathy'	- **G1.09 = 05 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 05 and** - **G1.14 = 00, if this represents worst seeing eye**	
9.2.7 Grade: R3SM1	Number of patients, according to [9.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 05 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 05 and** - **G1.14 = 01, if this represents worst seeing eye**	
9.2.8 Grade: R3AM0	Number of patients, according to [9.2] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 04 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 04 and** - **G1.14 = 00, if this represents worst seeing eye**	

9.2.9 Grade: R3AM1	Number of patients, according to [9.2] above, with a final grading outcome of 'R3A - Active Proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.09 = 04 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 9.2 matching: - **G1.10 = 04 and** - **G1.14 = 01, if this represents worst seeing eye**	
9.2.10 Grade: U	Number of patients, according to [9.2] above, deemed ungradable following biomicroscopy examination	Having right eye image status, relating to correct imageset specified in 9.2 matching: - **1.21.2 = 02, if this represents worst seeing eye, else:** Having left eye image status, relating to correct imageset specified in 9.2 matching: - **1.21.3 = 02, if this represents worst seeing eye**	
[9.3 SLBS Outcomes by Action]	[This section should relate to patients for which completed actionable outcomes were assigned during the reported time period. Therefore this section will relate to some SLBS events that occurred outside of the reported time period]	Count distinct patients having outcome type and date between s and f matching: - **1.22.1 = 03 and** - **1.22.4 = between s and f and;**	
9.3 SLBS Outcomes by Action	a) Number of patients retained in SLBS pathway, no referral to HES or DS required, patient not returned to RDS b) Number of patients retained in SLBS pathway for 6 month recall c) Number of patients retained in SLBS pathway for 12 month recall d) Number of patients returned to RDS annual recall within reported time period	a) Having outcome (SLBS) between s and f matching: - **1.22.7 = 02 or 03** b) Having outcome (SLBS) between s and f matching: - **1.22.7 = 02** c) Having outcome (SLBS) between s and f matching: - **1.22.7 = 03** d) Having outcome (SLBS) between s and f matching: - **1.22.7 = 01**	

	e) Number of patients referred to DS within reported time period f) Number of routine DR referrals made to HES within reported time period g) Number of urgent DR referrals made to HES within reported time period h) Number of routine referrals made for non-DR lesions within reported time period[81] i) Number of urgent referrals made for non-DR lesions within reported time period[82] j) Number of patients excluded whilst in SLBS pathway within reported time period	e) Having outcome (SLBS) between s and f matching: - **1.22.7 = 04** f) Having outcome (SLBS) between s and f matching: - **1.22.7 = 06** g) Having outcome (SLBS) between s and f matching: - **1.22.7 = 05** h) Having outcome (SLBS) between s and f matching: - **1.22.7 = 08** i) Having outcome (SLBS) between s and f matching: - **1.22.7 = 07** j) Having outcome (SLBS) between s and f matching: - **1.22.7 = 12**	
10. Outcomes from Digital Surveillance (DS)[83]			
10.1.1 Digital surveillance patients	Total number of patients within the DS pathway on the final day of the reported time period	Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 02 and;** Patient suspended reason at f matching: - **1.14.22 = 02**	
10.1.1.1 Digital surveillance patients by category	Total number of patients within the DS pathway on the final day of the reported time period [10.1.1] according to category: a) Pregnant b) Maculopathy (R1M1, R2M1, R3SM1) c) Pre-proliferative, no maculopathy (R2M0) d) Stable proliferative (R3SM0)	Count distinct patients having eligible pathway status at f matching: - **1.14.18 = 02 and;** Patient suspended reason at f matching: **- 1.14.22 = 03 and;** a) Having pregnancy status at f matching: - **1.9.11 = 02**	

[81] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[82] *ibid*
[83] Note that this section should be used to report Digital Surveillance assessments which form part of the DESP screening process.

	e) Other	b) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and** - **G1.14 = 01, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 01, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and** - **G1.13 = 01, if this represents worst seeing eye, else:**	

		Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and** - **G1.14 = 01, if this represents worst seeing eye** c) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 00, if this represents worst seeing eye** d) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and** - **G1.14 = 00, if this represents worst seeing eye**	

		e) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 00 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 00 and** - **G1.14 = 00, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and** - **G1.14 = 00, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 00, if this represents worst seeing eye, else:**	

		Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 04 and** - **G1.14 = 00, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 04 and** - **G1.14 = 01, if this represents worst seeing eye** Or Having right eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.2 = 02, if this represents worst seeing eye, else:** Having left eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.3 = 02, if this represents worst seeing eye**	
10.1.2 Digital surveillance assessments	a) Number of DS assessments carried out during the reported time period b) Number of patients who have attended a DS event during the reported time period c) Number invited for DS at least once during the report period and categorised as DS on the final day of the report period [3.1.6b]	a) Count distinct instances of DS attendance type between s and f matching: - **1.16.1 = 02 and** - **S1.02 = between s and f** b) Count distinct patients having attendance type between s and f matching: - **1.16.1 = 02 and** - **S1.02 = between s and f**	d) Requires 3 months to have elapsed after the final day of the report period.

	d) Excluding those in [10.1.2c], number invited for DS at least once in the 3 months after the report period and categorised as DS on the final day of the report period [3.1.6b] DES-PS-10 (10.1.2b)	c) Count distinct patients with at least one instance of: having invitation pathway type matching: - **1.15.0 = 02** and; Offered DES date matching: - **A1.01 = between s and f** and; Having eligibility pathway status at f matching: - **1.14.18 = 02** Having patient suspended reason at f matching - **1.14.22 = 02** d) Count distinct patients with at least one instance of: having invitation pathway type matching: - **1.15.0 = 02** and; Offered DES date matching: - **A1.01 = between f + 1 and f+91** and; - **A1.01 = between s and f is null** Having eligibility pathway status at f matching: - **1.14.18 = 02** Having patient suspended reason at f matching - **1.14.22 = 02**	
10.1.3 New DS referrals	Number of patients referred into DS within the reported time period[84]	Count distinct patients having outcome (RDS) between s and f matching: - **1.22.5 = 02, 03, 04, 05, 15, 16, 17, 18, 19 or 20 and** - **1.22.4 = between s and f or;** Outcome (SLBS) between s and f matching: - **1.22.7 = 04 and**	

[84] Each referral counted separately; if a patient referred >1 in reporting period, this would count as >1 within this reporting measure. This should be measured from the data at which the patient status was changed on the screening programme register to 'suspended – DS'.

		- **1.22.4 = between s and f**	
10.1.3.1 New DS referrals by category	Number of patients referred into DS within the reported time period [10.1.3] referred according to category: a) Pregnant b) Maculopathy (R1M1, R2M1, R3SM1) c) Pre-proliferative, no maculopathy (R2M0) d) Stable proliferative ~~R3~~ (R3SM0/~~R3SM1~~) e) Other	Of patients counted in report field 10.1.3 having: a) Having pregnancy status at f matching: - **1.9.11 = 02** b) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and** - **G1.14 = 01, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 01, if this represents worst seeing eye**	

		Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and** - **G1.14 = 01, if this represents worst seeing eye** c) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 00, if this represents worst seeing eye** d) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and**	

		- **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and** - **G1.14 = 00, if this represents worst seeing eye** e) Having grading finalised for last grading outcome between s and f matching: - **G3.01 = 01 and;** Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 00 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 00 and** - **G1.14 = 00, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and**	

		- **G1.14 = 00, if this represents worst seeing eye** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 04 and** - **G1.14 = 00** Or Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 04 and** - **G1.14 = 01, if this represents worst seeing eye** Or Having right eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.2 = 02, if this represents worst seeing eye, else:** Having left eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.3 = 02, if this represents worst seeing eye**	

10.1.3.2 Routine referrals to DS seen in 13 weeks	Number of patients referred into DS within the reported time period [10.1.3.3] with a) a final grading outcome of "R1M1/R2M1/R3SM1" receiving consultation in digital surveillance within 13 weeks of last attended screen b) a final grading outcome of "R2M0" receiving consultation in digital surveillance within 13 weeks of last attended screen DES-PS-12.2 (10.1.3.2a and b)	a) Of patients counted in report field 10.1.3.3a having an attendance type of digital surveillance: - **1.16.1 = 02 and** Having attended the DS appointment within 91 days of the last attended screen (RDS or SLBS) - **S1.03 = 01 and** - **S1.02 = between (S1.02 and S1.02 +91d where S1.02 = 01 or 03)** b) Of patients counted in report field 10.1.3.3b having an attendance type of digital surveillance: - **1.16.1 = 02 and** Having attended the DS appointment within 91 days of the last attended screen (RDS or SLBS) - **S1.03 = 01 and** - **S1.02 = between (S1.02 and S1.02 +91d where S1.02 = 01 or 03)**	
10.1.3.3 Routine referrals to DS	Number of patients referred into DS following a positive test (R1M1, R2M1, R3SM1, R2M0) relating to a screening event that took place within the reported time period by category: a) maculopathy (R1M1, R2M1, R3SM1) b) pre-proliferative, no maculopathy (R2M0) DES-PS-12.2 (10.1.3.3a and b)	In this section, **consider** the **final** attendance (based on S1.02) for each patient which matches: S1.02 between s and f and S1.03 = 01 and 1.16.1 = 01 or 03 and **include the patient only** if this final attendance matches: G3.01 = 01 and G4.02 Isnull (i.e. patient has not been referred to HES) And patients having outcome (RDS): - **1.22.5 = 02, 03, 04, 05, 15, 16, 17, 18, 19 or 20 Or** Outcome (SLBS) between s and f matching: - **1.22.7 = 04**	

		And a) As for report field 4.1.3 + 4.1.5 + 4.1.7 b) As for report field 4.1.4	
10.1.4 Pregnant women seen in DS within 6 weeks	Number of women attending a DS event within 6 weeks of notification to programme DES-PS-6	Count of distinct patients having a pregnancy status of pregnant - **1.9.11 = 02 and** Having a pregnancy notification date between s and f - **1.9.12 = between s and f and** Having not been screened in the three months prior to the notification of the pregnancy - **S1.02 > (1.9.12-89 days)** - **1.15.0 = 01 and** Having an attendance type of digital surveillance - **1.16.1 = 02 and** Having an attendance date between the pregnancy notification date and the pregnancy notification date +42d - **S1.02 = between 1.9.12 and 1.9.12 +42d**	Note – this excludes those screened in the 3 months prior to the notification of the pregnancy
10.1.5 DS recall assessments due	Number of appointments for DS recall due within the reporting period a) 3 monthly recall b) 4 monthly recall c) 5 monthly recall d) 6 monthly recall e) 7 monthly recall f) 8 monthly recall g) 9 monthly recall h) 10 monthly recall i) 11 monthly recall j) 12 monthly recall DES-PS-5 (10.1.5 a to j)	Count of recall due dates with patient eligible pathway status of suspended and patient suspended reason of digital surveillance at finish date and a DS recall due date between the start and finish date: - **1.14.18 = 02 and** - **1.14.22 = 02 at f, and** - **and;** a) Having DS outcome of 3 months - **1.22.6 = 02** With an associated due date 1.15.4 = between s and f b) Having DS outcome of 4 months - **1.22.6 = 14** With an associated due date 1.15.4 = between s and f c) Having DS outcome of 5 months - **1.22.6 = 15**	Note, this counts appointments not patients. If a patient has more than one recall date within the period, each one will be counted.

		With an associated due date 1.15.4 = between s and f d) Having DS outcome of 6 months - **1.22.6 = 03** With an associated due date 1.15.4 = between s and f e) Having DS outcome of 7 months - **1.22.6 = 16** With an associated due date 1.15.4 = between s and f f) Having DS outcome of 8 months - **1.22.6 = 17** With an associated due date 1.15.4 = between s and f g) Having DS outcome of 9 months - **1.22.6 = 04** With an associated due date 1.15.4 = between s and f h) Having DS outcome of 10 months - **1.22.6 = 18** With an associated due date 1.15.4 = between s and f i) Having DS outcome of 11 months - **1.22.6 = 19** With an associated due date 1.15.4 = between s and f j) Having DS outcome of 12 months - **1.22.6 = 05** With an associated due date 1.15.4 = between s and f	
10.1.6 DS recall assessments offered within timeframe	Number of appointments for DS recall offered an appointment that occurs a) up to 7 days before to 7 days after a 3 monthly due date b) up to 14 days before to 14 days after a 4 monthly due date c) up to 14 days before to 14 days after a 5 monthly due date d) up to 21 days before to 21 days after a 6 monthly due date	Count of recall due dates with patient eligible pathway status of suspended and patient suspended reason of digital surveillance at finish date and a DS recall due date between the start and finish date: - **1.14.18 = 02 and** - **1.14.22 = 02 at f and** - **1.15.4 = between s and f and;** Having invitation pathway type of digital surveillance: - **1.15.0 = 02**	Note, this counts appointments not patients. If a patient has more than one recall date within the period, each one will be counted.

	e) up to 21 days before to 21 days after a 7 monthly due date f) up to 28 days before to 28 days after an 8 monthly due date g) up to 28 days before to 28 days after a 9 monthly due date h) up to 35 days before to 35 days after a 10 monthly due date i) up to 35 days before to 35 days after an 11 monthly due date j) up to 42 days before to 42 days after a 12 monthly due date DES-PS-5 (10.1.6 a to j)	a) Of the patients on DS 3 monthly recall (10.1.5a) having a planned date between DS recall due date 3 months – 7d and DS recall due date 3 months +7d - **A1.03 = between 1.15.4 -7d and 1.15.4 +7d** b) Of the patients on DS 4 monthly recall (10.1.5b) having a planned date between DS recall due date 4 months – 14d and DS recall due date 4 months +14d - **A1.03 = between 1.15.4 -14d and 1.15.4 +14d** c) Of the patients on DS 5 monthly recall (10.1.5c) having a planned date between DS recall due date 5 months – 14d and DS recall due date 5 months +14d - **A1.03 = between 1.15.4 -14d and 1.15.4 +14d** d) Of the patients on DS 6 monthly recall (10.1.5d) having a planned date between DS recall due date 6 months – 21d and DS recall due date 6 months +21d - **A1.03 = between 1.15.4 -21d and 1.15.4 +21d** e) Of the patients on DS 7 monthly recall (10.1.5e) having a planned date between DS recall due date 7 months – 21d and DS recall due date 7 months +21d - **A1.03 = between 1.15.4 -21d and 1.15.4 +21d** f) Of the patients on DS 8 monthly recall (10.1.5f) having a planned date between DS recall due date 8 months – 28d and DS recall due date 8 months +28d - **A1.03 = between 1.15.4 -28d and 1.15.4 +28d**	

		g) Of the patients on DS 9 monthly recall (10.1.5g) having a planned date between DS recall due date 9 months – 28d and DS recall due date 9 months +28d - **A1.03 = between 1.15.4 -28d and 1.15.4 +28d** h) Of the patients on DS 10 monthly recall (10.1.5h) having a planned date between DS recall due date 10 months – 35d and DS recall due date 10 months +35d - **A1.03 = between 1.15.4 -35d and 1.15.4 +35d** i) Of the patients on DS 11 monthly recall (10.1.5i) having a planned date between DS recall due date 11 months – 35d and DS recall due date 11 months +35d - **A1.03 = between 1.15.4 -35d and 1.15.4 +35d** j) Of the patients on DS 12 monthly recall (10.1.5j) having a planned date between DS recall due date 12 months – 42d and DS recall due date 12 months +42d - **A1.03 = between 1.15.4 -42d and 1.15.4 +42d**	
10.2 Digital surveillance assessment by grade:]	[The aggregate outcomes within each grading category should relate to DS screening encounters that take place within the reported time period. The category should represent the final grading outcome for the eye for which action is most urgently required.[85]]	Count distinct patients having attendance type and date between s and f matching; - **1.16.1 = 02 and** - **S1.02 = between s and f and;** Having grading finalised for imageset relating to specified attendance date matching: - **G3.01 = 01 and;**	

[85] The agreed hierarchy for 'eye for which action is most urgently required' is given in Appendix C

10.2.1 Grade: R0M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R0 No retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 00 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 00 and** - **G1.14 = 00, if this represents worst seeing eye**	
10.2.2 Grade: R1M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R1 Background retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and** - **G1.14 = 00, if this represents worst seeing eye**	
10.2.3 Grade: R1M1	Number of patients, according to [10.2] above, with a final grading outcome of 'R1 Background retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 01 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 01 and** - **G1.14 = 01, if this represents worst seeing eye**	

10.2.4 Grade: R2M0	Number of patients, according to [10.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 00, if this represents worst seeing eye**	
10.2.5 Grade: R2M1	Number of patients, according to [10.2] above, with a final grading outcome of 'R2 Pre-proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 02 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 02 and** - **G1.14 = 01, if this represents worst seeing eye**	
10.2.6 Grade: R3SM0	Number of patients, according to [10.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and**	

		- **G1.14 = 00, if this represents worst seeing eye**	
10.2.7 Grade: R3SM1	Number of patients, according to [10.2] above, with a final grading outcome of 'R3S - Stable Proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 05 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 05 and** - **G1.14 = 01, if this represents worst seeing eye**	
10.2.8 Grade: R3AM0	Number of patients, according to [10.2] above, with a final grading outcome of 'R3A~~s~~ - Active Proliferative retinopathy, M0 No maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 00, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.10 = 04 and** - **G1.14 = 00, if this represents worst seeing eye**	
10.2.9 Grade: R3A~~s~~M1	Number of patients, according to [10.2] above, with a final grading outcome of 'R3A~~s~~ - Active Proliferative retinopathy, M1 Maculopathy'	Having right eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching: - **G1.09 = 04 and** - **G1.13 = 01, if this represents worst seeing eye, else:** Having left eye screening examination for retinopathy and maculopathy, relating to correct imageset specified in 10.2 matching:	

		- **G1.10 = 04 and** - **G1.14 = 01, if this represents worst seeing eye**	
10.2.10 Grade: U	Number of patients, according to [10.2] above, deemed ungradable following digital surveillance examination	Having right eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.2 = 02, if this represents worst seeing eye, else:** Having left eye image status, relating to correct imageset specified in 10.2 matching: - **1.21.3 = 02, if this represents worst seeing eye**	
[10.3 DS Outcomes by Action]	[This section should relate to patients for which completed actionable outcomes were assigned during the reported time period. Therefore this section will relate to some DS events that occurred outside of the reported time period]	Count distinct patients having outcome type and date between s and f matching: - **1.22.1 = 02 and** - **1.22.4 = between s and f and;**	
10.3 DS Outcomes by Action	a) Number of patients retained in DS pathway, no referral to HES or SLBS required, patient not returned to RDS b) Number of patients retained in DS pathway for 3 month recall c) Number of patients retained in DS pathway for 4 month recall d) Number of patients retained in DS pathway for 5 month recall e) Number of patients retained in DS pathway for 6 month recall f) Number of patients retained in DS pathway for 7 month recall g) Number of patients retained in DS pathway for 8 month recall h) Number of patients retained in DS pathway for 9 month recall i) Number of patients retained in DS pathway for 10 month recall	**a) Having outcome (DS) between s and f matching:** - 1.22.6 = 02, 03, 04 or 05 **b) Having outcome (DS) between s and f matching:** - 1.22.6 = 02 **c) Having outcome (DS) between s and f matching:** - 1.22.6 = 14 **d) Having outcome (DS) between s and f matching:** - 1.22.6 = 15 **e) Having outcome (DS) between s and f matching:** - 1.22.6 = 03 **f) Having outcome (DS) between s and f matching:** - 1.22.6 = 16 **g) Having outcome (DS) between s and f matching:** - 1.22.6 = 17	

	j) Number of patients retained in DS pathway for 11 month recall k) Number of patients retained in DS pathway for 12 month recall l) Number of patients returned to RDS annual recall within reported time period m) Number of patients referred to SLBS within reported time period n) Number of routine DR referrals made to HES within reported time period o) Number of urgent DR referrals made to HES within reported time period p) Number of routine referrals made for non-DR lesions within reported time period[86] q) Number of urgent referrals made for non-DR lesions within reported time period[87] r) Number of patients excluded from the DS pathway within reported time period	**h) Having outcome (DS) between s and f matching:** - 1.22.6 = 04 **i) Having outcome (DS) between s and f matching:** - 1.22.6 = 18 **j) Having outcome (DS) between s and f matching:** - 1.22.6 = 19 **k) Having outcome (DS) between s and f matching:** - 1.22.6 = 05 **l) Having outcome (DS) between s and f matching:** - 1.22.6 = 01 **m) Having outcome (DS) between s and f matching:** - 1.22.6 = 06 **n) Having outcome (DS) between s and f matching:** - 1.22.6 = 08 **o) Having outcome (DS) between s and f matching:** - 1.22.6 = 07 **p) Having outcome (DS) between s and f matching:** - 1.22.6 = 10 **q) Having outcome (DS) between s and f matching:** - 1.22.6 = 09 **r) Having outcome (DS) between s and f matching:** - 1.22.6 = 13	

[86] For further information on non-DR referrals please refer to the document 'Operational Guidance for Feature Based Grading Forms in NHS Diabetic Eye Screening Programme'.
[87] *ibid*

Definitions

Definition	Explanation
actionable outcome	see **actionable referral outcome grade**
actionable referral outcome grade	the referral outcome (as opposed to the grading outcome) that determines the next step in the screening and treatment pathway for the patient once their imagesets have been graded
certifications of severe/sight impairment	evidenced by data from CVI certificate (or equivalent) from hospital ophthalmology department for better seeing eye
communication	an interchange that the patient is capable of understanding and acting upon. This may be in a variety of formats including verbal and/or written.
consultation	attendance at a hospital eye service for assessment of retinopathy and/or maculopathy
current patients	those **eligible** but not **excluded** for screening by this programme
digital surveillance	the pathway under which patients are managed between **RDS** and referral to **HES**, where more frequent or specialised supervision is required, but referral to **HES** is not yet indicated
digital surveillance event	patient attendance for a **digital surveillance appointment**
DNA	did not attend (applies to appointments where a fixed date was assigned
DNR	did not respond. Applies to open or partial invitations where the patient is required to contact the screening provider to arrange a fixed appointment date
DS	see **digital surveillance**
eligible	on the programme **register** and under **routine digital screening (including HES for non-DR), excluded** or suspended
exception	when a digital image cannot be taken due to eg. technical failure, operator error or administration discrepancies
excluded	patients who are on the **register** and **eligible** for screening but not **invited** due to having opted-out of screening or being classed as medically unfit
final grading outcome	following internal quality assurance procedures, the assessment of a level of diabetic retinopathy from the evidence as presented
first invitation	when the patient has not been previously invited since being added to the screening programme register

first laser treatment	the date at which laser treatment for diabetic retinopathy was first carried out following **listing**
first RDS event	when the patient has not previously attended a **RDS event**, since being added to the screening programme **register**
first screening	see first **RDS event**
first visit	an appointment with a specialist directly resulting from a referral from a screening service
full grading	a determination by a grader of the level of diabetic retinopathy
HES	hospital eye service
imageset	the set of images which are captured for a single patient during screening. Usually, a patient imageset consists of four images – one macular and one nasal for each eye.
ineligible	patients who are on the **register** but are not **eligible** for screening due to having no perception of light in both eyes
invitation	see **invited.** Must be a realisable appointment within 3 months of invitation being sent
invited	formal **communication** made by the screening service for a **routine digital screening event** to take place within the reported time period
listed	the date at which a decision to treat by laser was recorded by the specialist
off-register	patients who are not on the screening programme **register** due to being categorised as either; deceased, moved out of area, not diabetic, under 12, seen in another programme or refused demographic transfer
participation	any GP practice with which **eligible** patients of this programme are registered
positive test	any disease outcome relating to diabetic retinopathy (the presence of retinopathy and/or maculopathy, or ungradeable)
predominantly	the ‘major cause’, as determined by the ophthalmologist
RDS	see **routine digital screening**
refer	the process of securing further diagnosis/specialist assessment following a **screen positive test** The date of referral is when the request for further assessment is made to the appropriate specialist.
referred	an appropriate referral request was made
register	collated list of patients under this screening programme who are either **eligible** or **ineligible** for screening

result letter notifications	an appropriate indication to an entitled party (minimum of patient and patient's GP), being issued/printed of: a. the date at which the patient was screened b. the final outcome of grading the patient imagesets c. the action recommended
routine digital screening (RDS)	the first stage of the patient screening pathway where digital images are obtained, graded and a referral outcome is decided
routine digital screening encounter	patient attendance for **RDS** where images were obtained
routine digital screening event	see **routine digital screening encounter**
SLBS	see **slit lamp biomicroscopy surveillance**
slit lamp biomicroscopy surveillance	the pathway under which patients are managed following **RDS**, where patients for whom adequate retinal examination cannot be obtained by retinal photography, are examined by **SLB**
slit lamp biomicroscopy surveillance event	patient attendance for a **SLBS** appointment
surveillance	see **digital surveillance** and **slit lamp biomicroscopy surveillance**
suspended	patients who are on the **register,** eligible but not **invited** for **RDS** due to receiving screening in either **HES**, **DS** or **SLBS**

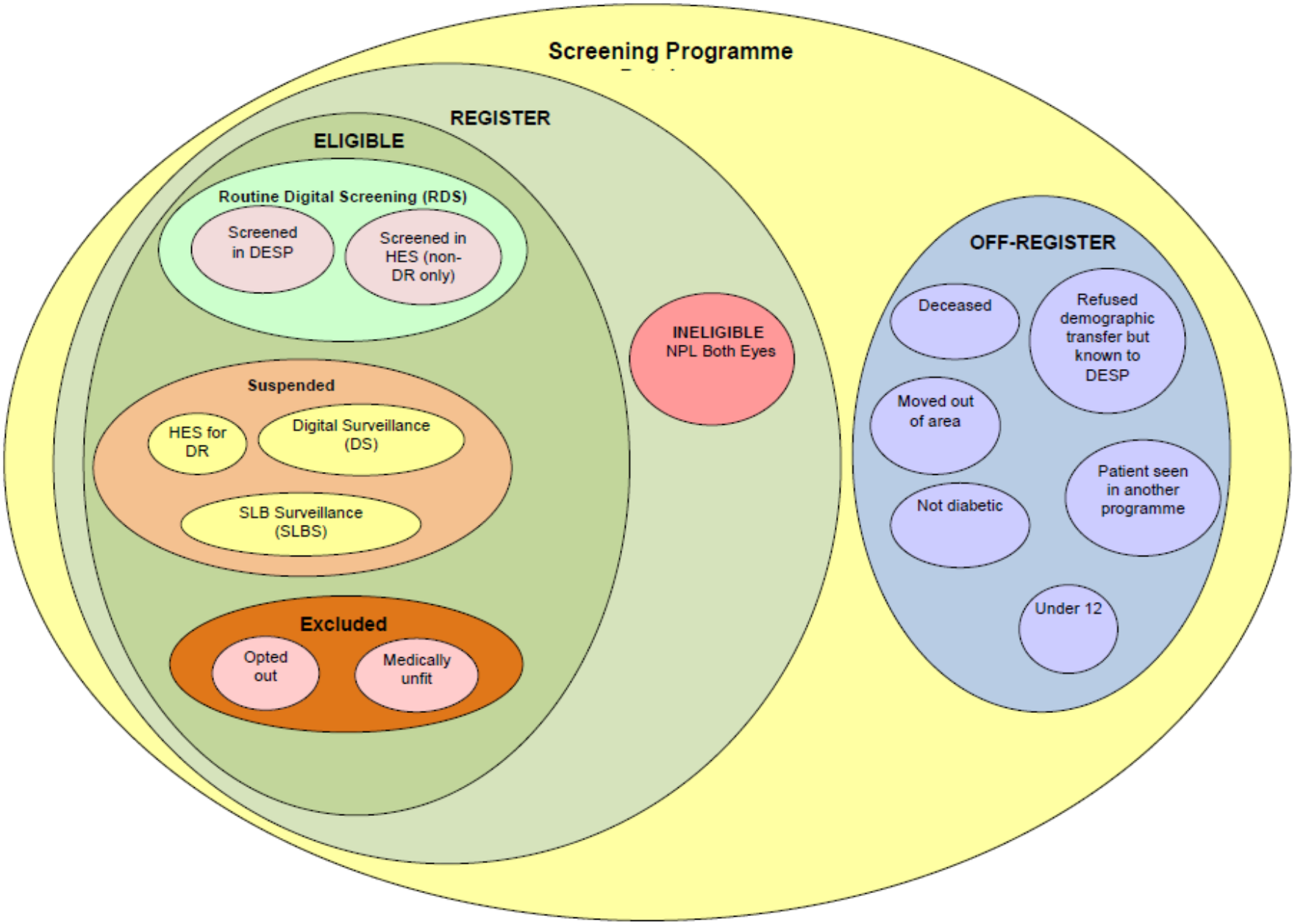
Appendices

Appendix A – patient register

Diagram below from ‘Diabetic Eye Screening Programme Cohort Management Overview’ document, version 2.0 31 October 2012 Software Supplier Guidance.

Relating diagram to PPR fields:

Diagram label	PPR field
Off-register, Deceased, Moved out of area, Not diabetic, Under 12, Refused demographic transfer but known to DESP	Not represented in the PPR
Off-register, patient seen in another programme	3.1.0a
Register	3.1
Eligible	3.1.1
Routine Digital Screening (RDS)	3.1.7 and 3.1.8a
Routine Digital Screening - Screened in HES (non-DR)	3.1.8b
Suspended	3.1.5
Suspended – SLB Surveillance (SLBS)	3.1.6a
Suspended – Digital Surveillance (DS)	3.1.6b
Suspended – HES for DR	3.1.6c
Excluded	3.1.3
Excluded – Opted out	3.1.4a
Excluded – Medically unfit	3.1.4b
Ineligible – NPL both eyes	3.1.2


Screening Programme
REGISTER
ELIGIBLE
Routine Digital Screening (RDS)
Screened in DESP
Screened in HES (non-DR only)
Suspended
HES for DR
Digital Surveillance (DS)
SLB Surveillance (SLBS)
Excluded
Opted out
Medically unfit
INELIGIBLE
NPL Both Eyes
OFF-REGISTER
Deceased
Refused demographic transfer but known to DESP
Moved out of area
Patient seen in another programme
Not diabetic
Under 12

Appendix B – calculating ‘appointments due to take place within reported time period’ [3.2.b] when using open invitations

As each open invitation is generated, this will count as being due to take place 3 months (89 calendar days*) from the date generated, until one of the following occurs:

a) the patient contacts programme centre to make appointment in which case the appointment is now counted as due on the new appointment date
b) the patient DNR by 89 calendar days in which case the appointment continues to be counted as due to take place 89 calendar days from the date generated

*365 days per year, minus 8 public holidays equals 29.8 days per month, which approximates to 89 days in 3 months.

Appendix C – hierarchy of grades with their inferred outcomes

Table C: hierarchy of grades with their inferred outcomes

Grade	Inferred Outcome
R3AM1	Urgent Refer - Treatable
R3AM0	
R3SM1	Refer - Treatable
R2M1	
R1M1	
R2M0	Refer – Not Treatable
U	Refer – Further Investigation
R3SM0	Not Referable
R1M0	
R0M0	

The agreed hierarchy for ‘eye for which action is most urgently required’ is R3AM1 > R3AM0 > R3SM1 > R2M1 > R1M1 > R2M0 > U > R3SM0 > R1M0 > R0M0

Appendix D – referral outcome grader performance monitoring report

All grade stages should have a calculated “inferred” outcome based on the table in Appendix A above. For example, if the primary grade is R3M0, the inferred outcome is “Urgent Referral”. This will allow comparison based on outcomes for each patient as well as grade comparisons. This report should be generated for the annual report submission, but also be available to be run at any time covering a programme specified time period, for the purpose of resource planning.

The following tables should be generated, for all ROG grades within the reported time period, for:

1. each individual ROG grader
2. aggregated activity for all ROG graders in a single table

Table D.1: total and percentage inferred outcomes of ROG

Inferred Outcomes	Total	Percentage of Total
Not Referable	A	
Ungradable	B	
Referable not Treatable	C	
Total Referable not Treatable	B+C	
Referable Treatable	D	
Urgent Referable	E	
Total Referable	D+E	

Table D.2: total and percentage actual outcomes of ROG

ROG Actual Outcomes	Total	Percentage of Total
Not Referred	A	
Ungradable Referred SLB	B	
Referred to Digital Surveillance	C	
Total Referred Surveillance	B+C	
Referred	D	

Urgent Referred	E	
Total Referred	D+E	
Referred Other Non DR lesions		
Urgent Referral for Non DR		
No of Patients Excluded		

Appendix E – revised content in grader activity report and arbitration reports

The following table should be generated relating to all full grading carried out within the reported time period showing activity for all graders, in the following formats:

1. showing grader identification for internal programme use
2. pseudonymised for DESP quality assurance use

Table E: grader activity and arbitration table

A	B	C	D	E	F	G	H	J	I
Grader ID	**Grader status**	**No. of sessions**	**Imagesets graded**	**Ave No. per session**	**Max No. per session**	**Ave time mins per Imageset**	**%U**	**%Ref**	**%Agree with final**
X53	Primary		2567	137		4.2			
X53	Secondary								
X217	ROG		459			5.3			

D = number of imagesets full graded by each grader during the reported time period
E = average number of imagesets graded per grading session
F = maximum number of imagesets graded per grading session
G = average time taken to grade an imageset in minutes

Arbitration report

This is already available in a number of softwares and is a table of agreement /disagreement between the grader and the arbitration grade stage and which is presented as a truth table with hyperlinked drill down so that cases of disagreement can be inspected to allow a detailed feedback to the grader of the actual cases involved. The report should be selectable to run from date to date and for an individual grader and grade stage.

Appendix F – updated inter grader agreement specifications

For general report sections 5.2, 5.3

Please note the tables for sections 1.a, 2.a and 3.a have been replaced with a more comprehensive 3-section table, the requirement for the bar charts in sections 1.e, 1.f, 2.c, 2.d, 3.b and 3.c has been removed, and where relevant all tables have been updated to reflect the new R3A/R3S grade.

National grading protocols advise that most imagesets (all those with any disease and at least 10% of those with no disease) should be examined by at least two independent graders, neither having knowledge of the grade suggested by the other. Where programmes are of sufficient size (over 12,000 people with diabetes), it is therefore possible to gain some understanding of grader performance by comparing full grading outcomes across graders who have examined the same images. A high level of agreement will indicate that graders are working consistently, whereas large numbers of discrepancies could indicate a problem with the performance or training of a particular grader.

In time, providing programmes are using software that records comparable data based on the diabetic eye screening dataset (supplemented by the pathway standards and the related definitions and explanatory notes), it will be possible to compare local inter-grader performance with national trends.

It is important to recognise that inter-grader agreement is a measure of consistency of grading but not necessarily of objective high standard. In order to ensure a consistently high standard of grading, it is necessary to supplement this method with standardised accreditation (for all of the workforce in every programme) and external quality assurance using gold-standard test imagesets and expert assessment.

Explanation

Inter-grader agreement is measured on patient imagesets which have been seen by the grader being evaluated and at least one other grader. Imagesets graded anything other than R0 should be examined by at least two graders, as should at least 10% of imagesets graded R0.

The tables below show only imagesets for which a final grading outcome has been determined and relates to screening episodes (as opposed to grading completion) which occurred during the reporting period. A grading outcome may relate to a first full grade or second full grade by the grader in question.

Report format

For ease of analysis, it is required that the inter-grader agreement report be exportable to Microsoft Excel in the format specified below. An option should be provided to identify each grader for internal quality assurance and where possible each grader listed in section 5.1 should be included, with the same grader ID.

The row and column content/formats in the configuration specified above must be used. One worksheet (Excel) should be used per grading type (in the order: primary, secondary and arbitration). Where Excel is used directly (for programmes using any other type of software) the tables above must be produced twice – once including the percentage rows and once excluding them, as per the attachment below.

A) Report summary

The required grading accuracy and inter-grader agreement outputs for sections 5.2 and 5.3 of the annual reports are summarised below, and are best produced as either a pdf or Word document.

1. For graders performing primary grading, relating only to those imagesets they have primary graded:
    a. One table (that is exportable to Excel, with the row and column content/formats in the configuration specified in B.1. below) per pseudo-anonymised grader showing a breakdown of primary grades (in RxMx format), with percentage of each grade and totals of both numbers and percentages.
    b. One agreement table per pseudo-anonymised grader showing the level of agreement between the primary grader and the final grade, including total agreements, proportion agreements and Cohen's Kappa.
    c. One two-way table per pseudo-anonymised grader displaying, for the worst eye, agreement between their primary retinopathy grade and the final retinopathy grade, total number of agreements and Cohen's Kappa.
    d. One two-way table per pseudo-anonymised grader displaying, for the worst eye, agreement between their primary maculopathy grade and the final maculopathy grade, total number of agreements and Cohen's Kappa.

2. For graders performing secondary grading, relating only to those imagesets they have secondary graded:

a. One table (that is exportable to Excel, with the row and column content/formats in the configuration specified in B.1. below) per pseudo-anonymised grader showing a breakdown of secondary grades (in RxMx format), with percentage of each grade and totals of both numbers and percentages.
b. One agreement table per pseudo-anonymised grader showing the level of agreement between the secondary grader and the final grade, including total agreements, proportion agreements and Cohen's Kappa.

3. For graders performing arbitration grading, relating only to those imagesets they have arbitrated:
    a. One table (that is exportable to Excel, with the row and column content/formats in the configuration specified in B.1. below) per pseudo-anonymised grader showing a breakdown of arbitration grades (in RxMx format), with percentage of each grade and totals of both numbers and percentages.

4. An additional table should be provided in the annual report of worst R value and worst M value per eye. Plus % i.e. Retinopathy per eye at final grade

Table F.1

	R0	R1	R3S	R2	R3A	M0	M1	U	Total
N									
%									

B) Report description and examples:

Required formats and examples of data for each output described are:
Table A

Summary of grader results

Summary table of all graders (Section 1)

ID	Level	Sets Graded	U	R0	R1M0	R3SM0	R1M1	R3SM1	R2M0	R2M1	R3AM0	R3AM1
12	Primary	K1	A	B	C	D	E	F	G	H	I	J
	%		A / K1%	B / X%	C / X%	D / X%	E / X%	F / X%	G / X%	H / X%	I / X%	J / X%
13	Primary	K2										
	%											
26	Primary	K3										
	%											
13	Secondary	K4										
	%											
26	Secondary											
	%											
26	Arbitration											
	%											
205	Arbitration											
	%											
And so on												

Kn = SUM (An:Jn)
X = All Assessable SUM(B:J)

Summary table of all graders (Section 2)

ID	Level	Unassessable	Any DR	Referable	Referable	Fast Track R3A	Fast Track R3A	Maculopathy
		of all sets graded	of assessable image sets	of assessable image sets	of assessable image sets with DR	of assessable image sets	of assessable image sets with DR	of assessable image sets with DR
12	Primary	L	M	N	O	P	Q	R
13	Primary							
26	Primary							
13	Secondary							
26	Secondary							
26	Arbitration							
205	Arbitration							

Cell Calculations
Ln = An / SUM (An:Jn)
Mn = SUM(Cn:Jn) / SUM(Bn:Jn)
Nn = Mn = SUM(En:Jn) / SUM(Bn:Jn)
On = SUM(En:Jn) / SUM(Cn:Jn)
Pn = (In+Jn) / SUM(Bn:Jn)
Qn = (In+Jn) / SUM(Cn:Jn)
Rn = (E+F+H+J) / SUM(Cn:Jn)

Summary table of all graders (Section 3)

Grader identifier	Level of grading	Cohen's Kappa statistic vs final grade over 8 grading outcomes	Cohen's Kappa statistic vs final grade over R grades	Cohen's Kappa statistic vs final grades over M grades
12	Primary	From 2 way tables all grades	From 2 way table retinopathy	From 2 way table maculopathy
34	Primary	**S**	**T**	**U**
56	Primary			
12	Secondary			
56	Secondary			
36	Arbitration			
56	Arbitration			

Calculating proportion graded imagesets with any DR:

This calculation is modified in this release by the addition of new R3A/S Grade
Any Retinopathy = (R1M0+R3SM0 + R1M1 +R3SM1+ R2M0 + R2M1 + R3AM0 + R3AM1)
Proportion with any DR = (Any Retinopathy / R0 + Any Retinopathy)*100

Table B

Total agreement: **656/857**
Proportion agreement: **76.50%**

Cohen's Kappa: **0.603**
Confidence interval: **0.47 to** **0.71**

Primary	Arbitration grader >> R0M0	R1M0	R3SM0	R1M1	R3SM1	R2M0	R2M1	R3AM0	R3AM1	U	Total
R0M0	254	87	0	2	0	0	1	6	0	0	350
R1M0	24	369	1	4	0	2	0	0	0	0	400
R3SM0	0	0	0	0	0	0	0	0	0	0	0
R1M1	0	16	0	8	0	1	0	1	0	0	26
R3SM1	1	2	2	0	0	3	1	0	0	0	9
R2M0	1	16	0	1	0	4	0	0	0	0	22
R2M1	0	0	0	0	0	0	0	0	0	0	0
R3AM0	1	14	0	0	0	0	1	21	0	0	37
R3AM1	1	3	0	0	0	0	0	0	0	0	4
U	9	0	0	0	0	0	0	0	0	0	9
Total	291	507	3	15	0	10	3	28	0	0	857

As before the table is accompanied by cells reporting the Kappa values and confidence intervals

This report shows the level of agreement between a grader (could be primary or secondary or arbitration), and the final grade. The ‘final’ grade can be at either secondary, arbitration or ROG grading, as appropriate. Where the ROG grader doubles as the arbitration grader the system should not take account of that grade stage in these tables.

The grading recorded by the primary grader is shown along the top (the horizontal X axis) and the final grade is shown on the left (the vertical Y axis). The name of the primary grader is not shown, and a pseudo-anonymised grader number (eg. Grader1) is shown instead.

Where the numbers appear, this shows the intersection between the primary grader, and the final grade. In the example above the primary grader allocated R0 to 291 imagesets, 254 of which had a final grade of R0, hence agreed. Of those allocated to R0 by the primary grader which did not get a final grade of R0, 24 were allocated R1M0, 1 to R2M0, 1 to R3SM1,1 to R3AM0, 1 to R3AM1 , and 9 were unassessable

The areas highlighted in blue are where the primary grader final has recorded a more serious level of pathology than the final grade;
The areas highlighted in red are where the primary grader final has recorded a level of pathology lower than the final grade;
The areas highlighted in green are where the primary grader and the final grade agree.

If there was perfect agreement between the primary grader and the final grade, then all the numbers would be on the diagonal (green background).

A summary count of the total ratio of agreement (Total agreement) is given, and this expressed as a percentage (Proportion agreement). Row and column counts and totals are also included in the grid.

Also included in the report above is a value for Cohen’s Kappa. This is a weighted value for the agreement between the grader and the final grade, and is primarily useful in aiding statistical analysis at a national level. A value of 0 (zero) would imply that the data agreed no better than if the grader allocated grades at random, and a value of 1 implies that there is perfect agreement. Higher values imply better agreement, values above 0.8 may be considered to be excellent, but the value cannot be considered in isolation, and a value of 0.8 would not indicate good performance if all the disagreements are where the grader allocates a non referable level and the final grader is R3).

Table C

	for those photosets where primary grading is regraded						
	Grader A→						
Final Grade ↓	**R0**	**R1**	**R3S**	**R2**	**U**	**other**	**Total**
R0	84	10	6	8	5	0	113
R1	8	594	0	5	16	5	628
R3S	0	18	6	3	21	3	51
R2	2	31	17	48	20	0	118
U	0	9	0	0	16	1	26
other	4	0	0	7	0	0	11

Cohen's Kappa	0.xxx	weighted kappa	0.tt
95% CI	(0.zzz to 0.yyy)	95% CI	(0.zzz to 0.yyy)

The intersecting cells are colour formatted as above:-

- where a non referable is overgraded to referable the intersect colour is blue
- Where a referable is undergraded the intersect colour is pink.

As before the table is accompanied by cells reporting the Kappa values and confidence intervals

Table D

	Grader A→			
Final Grade ↓	**M0**	**M1**	**U**	**Total**
M0	613	73	45	731
M1	55	99	17	171
U	2	7	16	25
other	11	0	0	11
Total	681	179	78	938

Cohen's Kappa	0.xxx	weighted kappa	0.tt
95% CI	(0.zzz to 0.yyy)	95% CI	(0.zzz to 0.yyy)

C) Report calculations:

This section illustrates the Kappa calculation for Modified Table B.

The first part of the table here shows the cell references (blue) and the second part has some example actual values (green) – these are used in the illustrative calculation (grey) below to show how the Kappa value is derived.

The same calculation method is used for tables C and D.

The three tables in this appendix should be available to be run between given dates for the programme. In providing the annual report the summary table in appendix F should be used to show the three Kappa values from this section.

		Grader grade®										
Grader 34	**CALC S for summary table**	Unassessable	R0	R1M0	R1M1	R2M0	R2M1	R3SM0	R3SM1	R3AM0	R3AM1	
Final grade–	Unassessable	n11	n12	n13	n14	n15	n16	n17	n18	n19	n20	T1
	R0	n21	n22	n23	n24	n25	n26	n27	n28	n29	n30	T2
	R1M0	n31	n32	n33	n34	n35	n36	n37	n38	n39	n40	T3
	R1M1	n41	n42	n43	n44	n45	n46	n47	n48	n49	n50	T4
	R2M0	n51	n52	n53	n54	n55	n56	n57	n58	n59	n60	T5
	R2M1	n61	n62	n63	n64	n65	n66	n67	n68	n69	n70	T6
	R3SM0	n71	n72	n73	n74	n75	n76	n77	n78	n79	n80	T7
	R3SM1	n81	n82	n83	n84	n85	n86	n87	n88	n89	n90	T8
	R3AM0	n91	n92	n93	n94	n95	n96	n97	n98	n99	n100	T9
	R3AM1	n101	n102	n103	n104	n105	n106	n107	n108	n109	n110	T10
		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	Total

		Grader grade®										
Grader 34 example values	**Calc Cell S Value**	Unassessable	R0	R1M0	R1M1	R2M0	R2M1	R3SM0	R3SM1	R3AM0	R3AM1	
Final grade¯	Unassessable	30	0	0	0	0	0	0	0	0	0	30
	R0	0	10	0	0	0	0	0	0	0	0	10
	R1M0	0	0	52	0	0	0	0	0	0	0	52
	R1M1	0	0	0	520	0	0	0	0	0	0	520
	R2M0	0	0	0	0	98	0	0	0	0	0	98
	R2M1	0	0	0	0	0	1	0	0	0	0	1
	R3SM0	0	0	0	0	0	0	1	0	0	0	1
	R3SM1	0	0	0	0	0	0	0	8	0	0	8
	R3AM0	0	0	0	0	0	0	0	0	3	0	3
	R3AM1	0	0	0	0	0	0	0	0	0	5	5
		30	10	52	520	98	1	1	8	3	5	728

to calculate Cohen's Kappa need proportion of agreements	number of image sets that agree	n11+n22+n33+n44+n55+n66+n77+n88+n99+n110	
	Proportion that agree	(n11+n22+n33+n44+n55+n66+n77+n88+n99+n110)/Total	
Expected agreements	T1*V1/(total*total)+		0.001698164
	T2*V2/(total*total)+		0.000188685
	T3*V3/(total*total)+		0.005102041
	T4*V4/(total*total)+		0.510204082
	T5*V5/(total*total)+		0.018121302
	T6*V6/(total*total)+		1.88685E-06
	T7*V7/(total*total)+		1.88685E-06
	T8*V8/(total*total)+		0.000120758
	T9*V9/(total*total)+		1.69816E-05
	T10*V10/(total*total)		4.71712E-05
Expected total proportion agreements	sum of above		0.535502959
Proportion agreements (sum diagonals/total)	SUM(B19,C20,D21,E22,F23,G24,H25,I26,J27,K28)/L29		1
(proportion that agree-expected agreements)/	0.464497041		

(1-expected agreements)	0.464497041	
Kappa = propn that agree-expected/1-expected = 0.464/0.464		**1**

Kappa values from the table All retinopathy = Value S
Kappa values from the table R Values = Value T
Kappa values from the table M Values = Value U
These values are transferred to the summary report of grader performance in appendix F

Appendix G – grading queue ageing report

This report is intended to be used by programmes to help them manage their grading queues, and will not be required as part of the annual report submission.

The report should present number of image sets within each grading queue, categorised by the length of time the imagesets have been awaiting grading at each level from the date of screening event. Each number should have hyperlinked drill-down to see the details of each patient represented within the report.

This report should be produced separately for both routine digital screen image sets and digital surveillance image sets.

An example table is shown below:

Table G
Name of DESP:
Date of report: Monday, 23rd April

Grading Queue	0-2 days*	3-5 days*	6-10 days*	11-14 days*	16 - 21 days*	22-28 days*	29 + days*	Totals
Primary	35	19	11	7	5	0	1	78
Secondary	3	15	22	9	3	7	0	59
Arbitration	0	8	15	7	3	1	0	34
ROG	6	2	1	0	0	0	0	9
Totals	44	44	49	23	11	8	1	180

*Days indicate days since date of photography - show total time within grading process.

Additional functionality would allow drill down within any box to show patients who are within each queue and timeframe.

Appendix H – digital surveillance appointment ageing report

This report is intended to be used by programmes to help them manage their surveillance pathway queues, and will not be required as part of the annual report submission.

The report should present, in percentage format, the days past which attendance at SLBS or DS was scheduled to take place. This will apply to patients who are already under the SLBS or DS pathway and therefore have attended at least one DS or SLBS encounter and been assigned an outcome from that assessment (eg DS review in 3 months). This report should not include patients who have been assigned an outcome of 'refer back to routine digital screening' as these patients will no longer form part of the surveillance pathways.

In all cases the start point (scheduled recall date) will be outcome assigned from DS or SLBS, and the end point will be patient attendance at assigned outcome.

Numerator = at the date the report is run, the total number of days past the scheduled recall date
Denominator = days between previous surveillance event and scheduled recall date

Each number should have hyperlinked drill-down to see the details of each patient represented within the report.

An example table is shown below:

Table H
Name of DESP - Surveillance Ageing Report
Date of report: Monday, 23rd April

Surveilliance pathway	0-75%	76-100%	101-125%	126-150%	151-200%	200+%	Totals
SLB	20	10	10	5	0	5	50
OPDR	15	20	10	5	5	0	55
Totals	35	30	20	10	5	5	105