



Scottish
Diabetic Retinopathy
Screening Collaborative



ANNUAL REPORT
2017

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Host NHS Board: NHS Highland

Service: National Diabetic Retinopathy Screening Service

Report: Annual report 2017

SECTION A: GENERAL DESCRIPTION OF SERVICE/PROGRAMME

1 Overview/Aim of Programme

- a) People with diabetes can develop a condition affecting the eyes called retinopathy, which although initially asymptomatic can lead to partial loss of vision and eventual blindness. Research has shown that early detection of sight threatening diabetic retinopathy through screening, and subsequent treatment of those affected by laser photocoagulation, can substantially reduce the risk of visual loss.
- b) In July 2003 the Scottish Executive Health Department issued guidance (HDL (2003)33) to Health Boards to the effect that each Board should take steps to provide diabetic retinopathy screening for all people with diabetes over the age of 12 to the standards recommended by the Health Technology Board for Scotland in its report published in April 2002 and according to subsequent guidance on its implementation, as part of a Scottish National Diabetic Retinopathy Screening Programme.
- c) The national Diabetic Retinopathy Screening Programme (DRSP) is an integral part of patients' diabetes care and involves a regular (usually annual) eye check using a digital photograph of the retina or slit lamp examination if photography is not possible. The primary objective of the programme is to detect referable (potentially sight-threatening) retinopathy so that it can be treated at a stage where the probability of preservation of vision is high.
- d) The DRS Collaborative has been established to bring together individuals from all NHS Boards in Scotland involved in the delivery of the retinopathy screening programme, including representatives of the various professions involved as well as patient representatives and other stakeholders. The aim of the DRS Collaborative is to facilitate the delivery of the national diabetic retinopathy screening service in Scotland through the development and maintenance of effective service interfaces across Scotland, and the provision of support for good practice.

What is Diabetic Retinopathy?

People with diabetes have a higher chance of developing certain serious health problems, including damage to the eyes. A well-recognised and common complication of diabetes is damage to the blood vessels in the retina, the nerve fibre layer at the back of the eye. This is known as retinopathy and is the largest single cause of blindness amongst adults of a working age in the UK (*Scottish Diabetes Framework*, April 2002). In its early stages, diabetic retinopathy is symptom-free and progression of disease can be prevented by laser treatment or by improved metabolic and/or blood pressure control.

2 Description of Screening Pathway

- a) All patients with diabetes in Scotland over the age of 12 are to be offered diabetic retinopathy screening using digital photography within an organised NHS Board programme that meets the recommendations of the Health Technology Assessment published in 2002.

b) An invitation to patients will be automatically sent on an annual basis to invite them to screening or more frequently if the screening programme requires it to all those aged 12 and over. Patients will be automatically sent reminder letters if they fail to attend and they may only be permanently suspended from the programme by or on the advice of their GP. Patients will be sent their result letters within 20 working days of the appointment. The patients GP or care provider will also be sent a result letter. The patient result letter will inform patients of the follow outcomes –

- No retinopathy
- Mild retinopathy
- Observable maculopathy/ observable background retinopathy
- Referable maculopathy / referable background retinopathy/ proliferative retinopathy

SECTION B: QUALITY DOMAINS

1 Efficient

- a) See **Annex A** for details of numbers invited and number screened/uptake by NHS Board of residence and for details of performance over the period 1st April 2017 to 1st April 2018.
- b) See **Annex E** for details of resources and staffing used across the Health Boards including workforce information, See Annex D for a report on Staff training and accreditation for 2017.
- c) See **Annex C** for details of the financial report for the DRS Collaborative for 2017.
- d) See **Annex A** for details of KPI reports of population, uptake and invitation rates for 2017.

2 Effective

- a) Audit activity -
 - Health Board areas and DRS teams were visited as part of the annual objectives of the DRS collaborative. These visits are undertaken to provide a general review of the area performance and compliance with national policies and procedures. Discussions on staffing and resource shortfalls due to sickness or other long term leave along with local IT issues took place. Further visits to all Health boards in Scotland are planned on a rolling basis.
- b) Clinical Outcomes/Performance against national standards –
 - Performance of the DRSP currently meets the essential requirements NHS the revised HIS standards issued in May 2016. In developing these revised standards the current standards were reviewed and amended. Standards are maintained by the use of the Vector system and nationally agreed policies/procedures.

A summary of the overall revised HIS standards are below -

Standard 1: Scotland has an effective national diabetic retinopathy screening Service.

Standard 2: All eligible people are invited for diabetic retinopathy screening.

Standard 3: The number of people attending diabetic retinopathy screening is maximised within the principles of informed choice.

Standard 4: The diabetic retinopathy screening process is safe, effective and person-centred.

Standard 5: People who require referral and have been screened are referred to Ophthalmology services for assessment in line with DRS Collaborative referral protocols.

Standard 6: People requiring treatment can access nationally approved treatments in a timely manner.

The QIS and additional or revised HIS requirements are -

QIS 2(a) 1 - all eligible people have a written prompt to attend for screening at least once every year, unless a current screening result is already on the call-recall module. (See **Annex A** for KPI 1 performance results)

(NEW) HIS standard 2.3 - The invitation to attend diabetic retinopathy screening is offered to all newly diagnosed patients within 30 calendar days of the DRS Collaborative receiving notification.

(NEW) HIS standard 2.4 - The date of the appointment offered to all newly diagnosed patients is within 90 calendar days of the DRS Collaborative receiving notification.

(HIS revised and amended) definitions for 'Attendance' and 'Uptake' have now been defined as:

Attendance - the invited person attends their screening appointment, and -
Uptake - the invited person completes the screening process, including slit lamp examination, when images are un-gradable

2(a) 2 - Arrangements are in place to reach people not on the diabetes register or accessible via their GP (e.g. long-stay institutions).

2(a) 3 - a minimum of 80% of eligible people with diabetes attend a screening appointment within the last year. (See **Annex A** for KPI 2 performance results)

2(a) 4 - Screening uptake is monitored at NHS Board level and action taken where targets are not achieved. (See **Annex A** for KPI 2 performance results)

2(a) 5 - The NSD protocol is followed for the management of non-attendees, both those who fail to attend appointments and those who actively opt out of the screening programme, taking into account patient choice and responsibility for their care.

2(a) 6 - all staff involved in call-recall receive training in using the call-recall IT system before undertaking unsupervised work.

2(b) 1 - A national protocol defining failsafe procedures for follow-up of eligible people with diabetes with referable grades of retinopathy are in use. See <http://www.ndrs-wp.scot.nhs.uk/Manual/Docs/Follow-up%20protocol%20v1.2.pdf> for full details. This has recently been reviewed and agreement was reached by the DRS collaborative to amend it to failsafe patients for re-screening if they did not attend a subsequent Ophthalmology referral. Prior to this review patients who DNA Ophthalmology were re-referred. See item 4.b of this report for more details.

3(a) 1 - Photographs are taken using equipment and techniques in accordance with national guidelines.

(NEW) HIS standard 4.3 - DRS Collaborative protocols are used to internally and externally quality assure the work of graders. A maximum rate of ungradable images is 2.5% for digital imaging and 2% for slit lamp examinations.

3(b) 1 - All staff receive full training in retinal screening before working unsupervised, and all staff receive training in new techniques.

3(b) 2 - Staff undertake continuing professional development (CPD) as per professional and/or national guidelines.

(Revised and amended) HIS standard 4.3 A minimum of 95% of people screened are sent the result in writing within 4 weeks (20 working days) of the photograph being taken. (See **Annex A** of this report for KPI 9 performance results).

4(a) 1 - Only staff trained and accredited according to national guidelines sign-off reports.

4(b) 1 - The images from a minimum of 500 randomly selected patients (or all images graded if less than 500 patients) per grader per annum, not otherwise referred to a third level grader, are reviewed by a third level grader.

4(b) 2 - If clinically important grading errors are found, further investigation and/or additional training of the grader is carried out.

4(c) 1 - Screening histories of eligible people with diabetes developing referable retinopathy are reviewed, and any areas in the programme which require improvement are identified and addressed.

4(c) 2 - All services must submit national minimum dataset returns. (See **Annex A** for an overview of these data returns)

4(d) 1 - All grading staff in the screening programme participate in NSD proficiency testing as part of revalidation training. IQA and EQA programmes are in place. (See **Annex B** for an overview of EQA results)

5(a) 1 - There is a referral process to a consultant ophthalmologist-led service for people with diabetes, with identified signs of developing diabetes-related retinopathy, in accordance with national grading recommendations.

(NEW) HIS standard 5.1 - People graded as having previously untreated active proliferative retinopathy (active new vessels at the disc, or active new vessels elsewhere) are referred to ophthalmology services within 5 working days of first grading.

(NEW) HIS standard 5.2 - People with symptomatic optical coherence tomography positive diabetic macular oedema are referred to ophthalmology services within 10 working days of first grading.

5(a) 2 - The diabetes care provider should be notified of all people whose eye examination has revealed retinopathy.

(NEW) HIS standard 6.1 - People identified as having active, untreated, **high risk** proliferative retinopathy (active new vessels at the disc, or active new vessels elsewhere with vitreous haemorrhage) can access nationally approved treatments within 5 working days of receipt of referral.

(NEW) HIS standard 6.2- People identified as having active, untreated, **early** proliferative retinopathy (active new vessels elsewhere in the absence of vitreous haemorrhage), can access nationally approved treatments within 20 working days of receipt of referral.

(NEW) HIS standard 6.3 - People identified as having symptomatic optical coherence tomography positive diabetic macular oedema can access nationally approved treatments⁶, 16-17 within 20 working days of receipt of referral.

c) Service Improvement –

- See **Annex D** for a report on staff training and accreditation undertaken over the reporting year. The training and accreditation coordinator has also highlighted that there are continuing issues regarding the following points –
 - The number of staff attaining the slit lamp examiner's award is as follows: 2 probationer, 20 people having attained accreditation and a further 5 having gone through re-registration.
 - A Training Competency framework has been ratified by the DRS Executive Group and this along with some additional competencies is to be compiled into one document and should be available on the new DRS website.
 - The City & Guild qualification closed for new applications in December 2016. Candidates already registered will be given until 2019 to complete the award.
 - As a replacement for the City & Guild qualification, Health Education England are working with Skills for Health and other clinical stakeholders to develop a national qualification for Screeners: staff who undertake screening for either Abdominal Aortic Aneurysm Screeners (AAA) or Diabetic Retinopathy Screening (DRS). The plan is to develop a single generic L3 Diploma 'Screener' qualification. It is envisaged this qualification will replace existing training programmes for AAA and DRS screeners in 2018 and will remain a national requirement as stipulated in service specifications. NHS Scotland has been consulted as to whether they wish to participate in the new qualification.
- See **Annex I** for a report of the DRS system training carried out in preparation for the roll out of Vector.
- **DRS standards** were completely reviewed and re-drafted by HealthCare Improvement Standards (HIS) in 2016. The reviewed standards came into force in June 2016.
 - The project group was chaired by Dr John Olson, Consultant Ophthalmic Physician and Clinical Director of Retinal Screening, NHS Grampian. The group convened in August 2015, considered evidence and identified key themes for the reviewed standards development.
 - For consultation the group engaged with service users and the general public, 3rd sector organisations, NHS boards and staff, professional bodies (including Royal Colleges) and private sector organisations using a variety of approaches, including:
 - focus groups (with service users, members of the public and NHS staff)
 - an online survey and a feedback form.

- A full consultation report and information on the members of the review group is available on the Healthcare Improvement Scotland website - www.healthcareimprovementscotland.org
- Clinical members of the project group were responsible for advising on the professional and clinical aspects of the project group's work. The chair was assigned lead responsibility for providing formal clinical assurance and sign-off on the technical and professional validity and acceptability of any reports or recommendations from the group.

d) Research activities-

There were two external research projects supported. The DRS Collaborative were approached early in 2016 by the Diabetes Medical Informatics and Epidemiology Programme, Institute of Genetics and Molecular Medicine, University of Edinburgh seeking a DRS data extraction to support their SDRNT1BIO dataset. We also continue to work with University of Glasgow and Oxford University on the proposed LENS (**L**owering **E**vents in **N**on-Proliferative Retinopathy in **S**cotland. This is a trial of drug called Fenofibrate that is already routinely prescribed for other conditions. The 'side effect' of the drug seems to significantly reduce the chances of retinopathy occurring. The LENS research project is still ongoing. We will always endeavour to support research projects by providing appropriate data as long as the research is regarding the treatment of retinopathy, diabetes or outcomes for patients. These research activities were approved by the appropriate Caldicott guardians and activities will start in 2018.

3 Safe

a) Risk Register and Adverse Events-

- A risk register is maintained by the DRS Collaborative Co-ordinator, the outstanding risks for the DRSP as of May 2017 are outlined in **Annex J** to this report.

b) Quality Assurance-

- Internal (IQA) and External Quality Assurance (EQA) activities were undertaken by all graders in 2017. IQA is undertaken by all graders as a mandatory function of the Vector system. This system passes a percentage of graded images up to the next level grader for assessment. Level 1 images are assessed by a Level 2 grader and Level 2 images are assessed by Level 3 grader. Level 3 graders are then assessed by the External Quality Assurance (EQA) system as provided and hosted by Aberdeen University. All graders participate in at least 3 out of 4 rounds of the EQA scheme; however its main purpose is to show that an equitable and high quality grading standard is maintained across all 9 grading centres in Scotland. See **Annex B** for an overview of national EQA performance for the 2 rounds undertaken in 2017.

A DRS Recovery Action Plan (RAP) was developed and included in the EQA policy for DRS to assist boards with the steps they may need to consider should graders perform below standards in EQA. The RAP has been agreed and accepted by all boards and adopted as policy for DRS EQA. The RAP was not required in the reporting period 2017.

c) Clinical Governance -

- DRS Service across Scotland varies slightly where it sits within local NHS Board structures, some within CHP and some within Operational Divisions. They are required to participate in local configuration for clinical governance. For example as in NHS Lothian, the DRS service Lead Clinician sits on the local Ophthalmology Quality Improvements team as well as in the NHS Lothian DRS Steering Group both of which report to the Diabetes MCN. Both Diabetes MCN and Ophthalmology teams

report to NHS Lothian's Clinical Governance & Risk Management board. Appointed DRS lead clinicians within NHS Boards report to their own Clinical or Medical Directors. All DRS Programs are expected to take part in local clinical and service audits.

- d) Healthcare Acquired Infection (HAI) & Scottish Patient Safety Programme (SPSP) -
 - DRS services across Scotland sit within local NHS Board structures. They are required to participate in the local healthcare acquired Infection (HAI) and Scottish Patient Safety Programmes (SPSP) of their hosting Health Boards. DRS Service managers, Lead Clinicians and DRS Public Health Consultants (Board Coordinators) within NHS Boards report on these matters to their own Clinical or Medical Directors.
- e) Complaints & Compliments - NHS Boards deal with local complaints and compliments using their own local procedures. The DRS Collaborative Coordinator has not received any serious complaints or compliments for resolution or response in the reporting period.
 - There have been some general comments discussed at service meeting from patients who regarding patient letters as 'unfriendly'. Particularly for people who have DNA'd. The coordinator was not requested to respond to these but action has now been taken to amend DNA letters to reword them. The IT users group and DRS Executive have authorised this new wording and it will be incorporated into the letters at the earliest opportunity via the system specialist.
 - There were also comments passed on regarding the letters to boards about the opting out policy and the requirement to have a GP actually undertake this on the SCI-Diabetes system. SCI-Diabetes is the only place this can be actioned. Some boards have taken an approach where they seek the 'authority' of the GP in writing and will then suspend the patient where appropriate on their behalf. This approach has been authorised and indeed encouraged by the local Board coordinator. Boards have been advised to ensure they have the GP authority in writing before carrying out suspensions.
 - Several patients have complimented the DRS Service for the new patient information videos which were produced by NHS Tayside and distributed to service managers. These information films are available on the NHS Inform website and provide information to patients on what happens during their screening appointments in Polish, Chinese, Urdu, Russian, Arabic and Punjab. Some of these videos also include sign language or subtitling.

4 Timely

- a) See **Annex A** of this report for Key Performance Indicators (KPI) statistics for the FY 2017. Headline summary of performance is listed below-
 - **94.7% % (250,727)** of the total number of the currently eligible population were invited to screening in 2017 (KPI 1).
 - **73.3% (201,220)** of the total number of the currently eligible population attended at least once in the FY 2017 (KPI 2).
 - **71.7 % (196918)** of the total number of the currently eligible population was successfully screened in FY 2017 (KPI 4)
 - **69.4% (151,656)** of written reports were produced within 20 working days (KPI 9)
 - **4.0% (8422)** of the total number of the current eligible population were referred to Ophthalmology (KPI 13)
- b) Review of Screening Pathway -
 - Health Improvement Scotland undertook a review of QIS Standards (2004) in 2016. See Para C above (service Improvement) **Annex M** describes the latest 'Advice for Screeners' v1.2 issued post review of EQA Autumn 2015.

5 Person Centred

a) General

New patient information leaflets were designed and distributed to all boards in 2014, these leaflets were reviewed in late 2017 and have essentially remained as before with some minor changes to contact information. These leaflets were designed in collaboration with NHS Health Scotland and are reviewed on a regular basis. These leaflets were also published in several alternative languages and in easy read format and can be viewed and downloaded at-

<http://www.healthscotland.com/uploads/documents/6257-YourGuideToDiabeticRetinopathyScreening.pdf>

<http://www.healthscotland.com/documents/6257.aspx>

<http://www.nhsinform.co.uk/Screening/diabeticretinopathy>

Several patients have complimented the DRS Service for the new patient information videos which were produced by NHS Tayside and distributed to service managers. These information films are available on the NHS Inform website and provide information to patients on what happens during their screening appointments in Polish, Chinese, Urdu, Russian, Arabic and Punjab. Some of these videos also include sign language or subtitling.

6 Equitable

a) Fair for All: Equality & Diversity-

- The DRS Service continues to support ethnic minority projects in both NHS Lothian and RNIB projects in NHS Greater Glasgow and Clyde. NHS Lothian's Minority Ethnic Health Inclusion Service (MEHIS) Link workers target high risk patients from minority ethnic or deprived backgrounds. These patients are in high risk groups for clinical reasons and also because they tend to have a higher DNA rate. See report attached as **Annex G** for details.
- The DRS Service as a national programme has not undertaken an Equality and Diversity Impact Assessment in last 4 years although individual Health boards may have completed this for their own local programmes. Patients are automatically referred via their GP or secondary care system into the programme based only on their diabetes diagnosis and clinical eligibility. Patients can also be screened if they are diagnosed with diabetes and present themselves at a screening clinic; there is therefore an equitable service provision across Scotland for all patients regardless of ethnicity, gender, age or demographics. Ongoing reporting is provided to the boards to allow for review of the local service provision.

b) Geographical Access

- Mobile DRS screening services are used and provided by some Health Board areas. Boards may also provide fixed or GP based screening clinics in remote or rural areas. NHS Highland, NHS Borders, NHS Western Isles use some localised Optometry based services for image capture. NHS Ayrshire and Arran use optometrists exclusively for image capture. These are all listed and described in the programme delivery report in Annex E for each Health Board.

SECTION C: LOOKING AHEAD / DEVELOPMENTS

1. See **Annex L** of this report for the potential planned developments and timescales that the programme expects to undertake in the coming years. These are summarised here -

- a. iGrading platform (Autograder) commercial software wrapper to be upgraded to supported versions.
- b. OCT surveillance pathway within DRS.
- c. Risk based variable Screening Intervals – see Annex H of this report for details.
- d. My Diabetes – My Way, use of the secure portal to enhance communications with patients.
- e. Single Virtual national mail provider.
- f. Connectivity to SCI-Store for e-referral.

SECTION D: SUMMARY OF HIGHLIGHTS

Statement from the DRS Lead Clinician

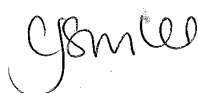
In the DRS Collaborative annual report for 2017-8 we present our aims and achievements against the quality framework of NHS Scotland as a safe, effective and person centred service.

Much of the year was spent focussing on introducing the new IT system Vector. The collaborative embraced the challenge of this as well as continuing to run an ever increasing service. It is a credit to the DRS staff and in particular the system specialist and collaborative coordinator that this implementation went so well. The meticulous planning of the changeover was vital to ensure the minimum of downtime, and then timely training meant boards could be up and running as soon as possible to reduce disruption. This project has involved users, patients, patient groups such as RNIB and Diabetes UK, as well as NSD, NSS, Scottish Government and the central legal office and many others. This collaborative involvement of many specialists ensures we have the best system for DRS Scotland.

The service continues to grow at over 5% per year. With this challenge and the introduction of vector we did not achieve our target of 80% screened within 12 months in 2017-18. The increasing number of people being diagnosed in Scotland remains a red risk on our risk register. Although we do not have the ability within our service to directly alter this risk, it is having an effect on our ability to deliver our service year on year.

The UK National screening committee recommended in 2016 that some people with no retinopathy for 2 consecutive yearly examinations can be screened less often. The Scottish screening committee has asked for a business case to implement this change. Our aim is to comply with this recommendation, which will reduce unnecessary appointments for people with diabetes, and also to improve our specificity of referrals to ophthalmology to reduce the anxiety of attendance at an eye clinic when there is very little risk of sight loss.

The future is looking exciting with continuing improvements to the vector system, the introduction of variable screening intervals and opportunities for our staff to develop using new technologies. This year I was invited to speak about DRS Scotland to an international conference as well as present to a team from Singapore including their health minister. I am proud to present our achievements and share these with colleagues from to showcase our world class service.



Dr Caroline Styles
National Clinical Lead, DRS Collaborative, NSS
July 2018

Objectives are set as part of the annual report for the DRS Collaborative. The objectives for 2017 are summarised here.

As part of the NSD annual reporting format for National Specialist Services and National Screening Programmes there is a framework of quality domains that we report against and these are:

- Efficient, Effective, Safe, Timely, Person Centred, Equitable.

Over and above these the DRS Collaborative have also set some key objectives for it to achieve in the year ahead. These were originally based on some of the strategic key challenges for the programme as distilled from the management group conference and these have now been expanded and extended to include the revisions of the programme and the replacement Vector system implemented in 2017 -

1. To have robust and secure IT systems to support the requirements of the diabetic retinopathy screening programme. We will replace the current national IT system with Vector in 2017.
2. To ensure that Key Performance Indicators (KPIs) are available to boards and support quality improvement. These will be a vital aspect of the Vector system and these have been included as a significant component of the replacement system specification.
3. To develop the reporting capabilities both from Vector to support daily management activities and provide bespoke reporting and research capabilities from all of the data available to the DRS Collaborative.
4. To maintain and develop the national EQA programme with a bi-annual cycle to be undertaken by all graders and grading centres in Scotland for quality assurance and educational purposes.
5. To ensure that the screening programme meets the requirements of NHS HIS standards for Training and Accreditation of Staff by facilitating staff certification in Scotland and offering Slit Lamp Examiner training and accreditation. We will select a replacement accreditation organisation to replace City & Guilds in 2017 and have this available for staff in early 2018.
6. To maintain communication within the DRS Collaborative by providing a DRS website, organising DRS management group meetings on a quarterly basis, an In-Service training day or a combined management groups meeting for all staff. We will continue to minimise cost, travel and make the most efficient use of staff time by webinar, website, teleconference and videoconferencing technologies.
7. To develop the national screening programme by providing a national automated grading system through computerised image analysis. This system is incorporated as a vital component of Vector and will continue to process as much as possible of the Level 1 work list.
8. To enhance communication with patients by reviewing and developing patient leaflets, investigating electronic communications with patients and care providers, and working with ethnic minority support teams.
9. To undertake short, medium and long term planning to take into account the changing landscape of DRS screening activities i.e. OCT, risk based screening intervals and national eHealth policies. We will also work in partnership with other diabetic retinopathy screening programmes in the 4 UK Nations and the Republic of Ireland group to exchange ideas and information in order to develop best practice and share innovations.
10. The lead clinician, collaborative coordinator and system specialist will visit health board areas and meet with DRSP teams in order to provide support on specific local issues related to the provision of the DRS Service to agreed national standards.

Mike Black
DRS Collaborative Coordinator
NHS Highland

Progress against objectives for 2017 - The following table summarises the progress against the 2017 objectives over the 12 month period to April 2018.

Objective	Current Status																				
<p>1. To have robust and secure IT systems to support the requirements of the diabetic retinopathy screening programme. We will analyse possible options and begin and select a national system replacement. The Soarian system will be fully replaced in early 2017 with Vector.</p>	<p>Vector implementation and recovery to Business as Usual (BAU) was the main activity for 2017. The implementation phase took place across 2016 with a go-live date for Vector of 3rd March 2017. The collaborative worked in close conjunction with NSD, NSS and NPS colleagues to plan, progress and implement the Vector system. The NHS and NPS project teams and project managers were in place by early 2016 and remained in place until the last project board meeting in Sept 2017. Soarian was effectively, efficiently and safely replaced with Vector by early 2017. There were no adverse events or significant unplanned delays in screening for any patients during the implementation phase.</p> <p>The project to replace the IT system is documented in detail on the NSS Share-Point system, all documents, project and board meeting minutes, spreadsheets, planning and business related documentation, information etc can be found here - http://www.solutionstewardship.scot.nhs.uk/screening/DRS%20NG/Shared%20Documents/Forms/AllItems.aspx</p> <p>There were a number of early Vector performance issues across the first 2 quarters of 2017. These issues were linked to the performance of the system in relation to the numbers of grading episodes awaiting completion on the Level 1 work-list. Performance issues were linked to the total numbers of episodes awaiting work and this was exacerbated by the delay in having the automated grader available to clear the backlog. The suppliers of Vector changed the system to improve the performance and the automated grader was available after Aug 2017. The backlog of work reduced significantly thereafter to normal levels.</p> <p>A significant element of implementing Vector was the migration of the patient data and the most recent 2 years of retinal images. The scope and scale of this work is detailed in various migration reports listed on NSS Share-Point but a brief summary of the data elements actually migrated to Vector is listed below.</p> <table border="1" data-bbox="577 810 1108 1136"> <thead> <tr> <th>Extract</th><th>Extracted Rows</th></tr> </thead> <tbody> <tr> <td>Demographics</td><td>475,819</td></tr> <tr> <td>Patient Episodes</td><td>2,718,862</td></tr> <tr> <td>Images text</td><td>4,172,157</td></tr> <tr> <td>Admin data</td><td>54,410,495</td></tr> <tr> <td>Future Appointments</td><td>18,373</td></tr> <tr> <td>Locations</td><td>1,116</td></tr> <tr> <td>Preferred Locations</td><td>352</td></tr> <tr> <td>HCP Data</td><td>1,867</td></tr> <tr> <td>Images < 2years old</td><td>994,610</td></tr> </tbody> </table> <p>The movement of data from the Soarian DRS IT System to the Vector DRS IT System required a large number of data extraction scripts to be written by the system specialist to transform the data into a format acceptable to the NPS Vector Team. The Soarian data was supported on an Oracle 11g database and to extract this data, a number PL/SQL (Procedural Language/Structured Query Language) scripts were created. These allowed a greater manipulation of data for transfer purposes and to allow for the data to fit appropriately into the Vector database structure. To minimise the impact on the live Soarian system a copy of the live database was taken and this was used for the majority of the extraction. Additional data was extracted from Live Soarian after operational hours and over weekends.</p>	Extract	Extracted Rows	Demographics	475,819	Patient Episodes	2,718,862	Images text	4,172,157	Admin data	54,410,495	Future Appointments	18,373	Locations	1,116	Preferred Locations	352	HCP Data	1,867	Images < 2years old	994,610
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Images < 2years old	994,610																				

Objective	Current Status																																													
	<p>Retinal images were also extracted, data volumes totalled 5.4 TB as listed below. These are all of the images that have been taken and stored on Soarian. Not all of these images will be migrated to Vector, only the last 2 years of patients' images will be transferred. Older images will be retained in an archive which will be accessible by boards as required.</p> <table><tr><th>Year</th><th>Image Count</th><th>Total Image Size GB</th></tr><tr><td>2005</td><td>4058</td><td>4.1</td></tr><tr><td>2006</td><td>101986</td><td>97.79</td></tr><tr><td>2007</td><td>292318</td><td>341.98</td></tr><tr><td>2008</td><td>328637</td><td>431.93</td></tr><tr><td>2009</td><td>352359</td><td>450.94</td></tr><tr><td>2010</td><td>374792</td><td>467.43</td></tr><tr><td>2011</td><td>396546</td><td>481.25</td></tr><tr><td>2012</td><td>423461</td><td>525.71</td></tr><tr><td>2013</td><td>442565</td><td>599.32</td></tr><tr><td>2014</td><td>460828</td><td>637.44</td></tr><tr><td>2015</td><td>459803</td><td>609.08</td></tr><tr><td>2016</td><td>487436</td><td>688.16</td></tr><tr><td>2017</td><td>47367</td><td>69.68</td></tr><tr><td></td><td>4172156</td><td>5404.81</td></tr></table> <p>The passing of data files and images extracted from Soarian and transferred to NPS was an extremely complicated process that required very high skills, organisation and a significant amount of dedication and drive. The system specialist was solely responsible for this process. Given that Scotland has a world class programme that includes the largest single unitary population for diabetes, the data migration is almost certainly the largest of its kind for a DRS programme anywhere in the world. NPS were particularly complimentary of the quality of the data they received. The system specialist should be highly commended for the dedicated and determined work carried out in successfully migrating patients' data and images to Vector.</p> <p>The use of OCT within the DRS programme is a topic frequently debated by the DRS lead clinicians in Scotland. NHS Grampian and NHS Tayside previously used Soarian to manage patients held in surveillance within OCT clinics. Vector will have no capability to continue supporting this practice. A draft pathway was developed by the system specialist. The collaborative continues to maintain a watching brief on developments and research across the UK. The collaborative await further advice from the UK National Screening Committee and Scottish Government on the possible introduction of OCT as a new image modality for use in surveillance of patients within DRS. The revised HIS standards indicate that patients where appropriate should pass through an OCT pathway as part of the pre-referral from DRS. Patients currently only attend OCT clinics within the responsibility of an Ophthalmology referral.</p>	Year	Image Count	Total Image Size GB	2005	4058	4.1	2006	101986	97.79	2007	292318	341.98	2008	328637	431.93	2009	352359	450.94	2010	374792	467.43	2011	396546	481.25	2012	423461	525.71	2013	442565	599.32	2014	460828	637.44	2015	459803	609.08	2016	487436	688.16	2017	47367	69.68		4172156	5404.81
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Objective	Current Status
	<p>The proposal from the Four Nations screening interval research regarding varying the screening interval for low risk patients was approved by the UK National Screening Committee. At the time of writing this report the decision was also to be considered by the new Scottish Screening Committee (SSC) and Scottish Government (SGHD) prior to any changes being made. In the interim the DRS collaborative considered the proposal and began a high level assessment of the risks and planning required. This high level assessment is added as Annex H to this report. In order to minimise the risk this significant change to the screening process will only be undertaken after the successful implementation of the replacement IT system -Vector.</p>
<p>2. To ensure that Key Performance Indicators (KPIs) are available to boards and support quality improvement.</p>	<p>The Vector KPI reporting system is the main reporting tool for the DRS Collaborative. The national performance reports for 2017 are included as Annex A to this report.</p> <p>The KPI system has proved in general to be an accurate tool for reporting of activity. However these KPIs are based on Vector data and will only be fully verified over use with time. The output of KPI reports is being developed to have the output reported on Excel spreadsheets, this allows for graphing and flexibility of presentation of data. Funnel charts of performance for Boards have now been developed and these can be produced as required.</p> <p>Monthly performance profiles can also be sent to Service managers to enable a dash-board view of performance compared to other boards. An example of this is added as Annex F to this report. Ongoing development of reports is taking place. Other reporting capabilities will be provided from Vector and used for management of performance as required in particular for age, gender, deprivation quintile, and ethnicity. This type of reporting will continue to be developed and provided from the Vector system.</p>
<p>3. To develop the reporting capabilities of the IT system to support daily management activities and provide bespoke reporting and research capabilities from the data held by the DRS Collaborative.</p>	<p>The system specialist has developed bespoke reporting capabilities and this key requirement will continue in Vector going forwards. This allows the programme to support research projects and has been crucial in reducing the dependence on support from software suppliers and also in confirming and then correcting data recording errors. Also, bespoke reporting allows us to confirm and check suppliers software updates are working to specification. We are also able to confirm that our data is correct and maintained to a high degree of confidence.</p> <p>There have been several authorised clinical research projects undertaken on diabetes in Scotland and we have significantly contributed to these important activities. The data contained within the DRS national screening programme is a valuable and rich resource for researchers to interpret. We have been able to participate in a number of these research projects both within Scotland and also as part of the UK Four Nations review of risk based variable screening intervals. These projects require large bespoke anonymised data extracts to specific requirements and have shown the high value of the data within the Vector system.</p> <p>Reporting is also being provided on activities by the auto-grading system. Further reporting continues to be developed to allow the DRS collaborative to analyse the effectiveness and efficiency of the auto-grader.</p>
<p>4. To maintain and develop the national EQA programme with a bi-annual cycle to be undertaken by all graders in Scotland for quality assurance and educational purposes. Revised 'Guidance for Graders' is issued post EQA round.</p>	<p>The Collaborative continues to work in partnership with Aberdeen University who have developed comprehensive advanced software that captures performance data for the External Quality Assurance (EQA) programme. We carried out 2 successful rounds in Spring and Autumn of 2017. The summary results of which are included as Annex B to this report. The spring 2017 EQA round was carried out within FY 2016 during the programme 'pause' between the change-over period from Soarian to Vector. This Spring round will be reported in the 2017 report.</p> <p>The overall result from 2017 was that all 9 grading centres across Scotland continue to perform to a high and equitable standard. The policy for EQA continues to be developed and the previously developed 'Recovery Action Plan' (RAP) has now been</p>

Objective	Current Status
	<p>adopted as part of the DRS EQA policy. The DRS lead clinicians review each EQA round and discuss non-consensus images using web conference technology (WEBEX) and this has saved significant travel time away from base. Lessons learned from each round are promulgated as a policy document 'Grading Advice' to all graders. The latest 'Grading Advice' document is added as Annex M to this report. These ongoing reviews and subsequent rounds form an important part of the educational and quality improvement aspect of EQA. The EQA programme is a high priority for the DRS collaborative and will need to be financially supported.</p> <p>A paper published by Dr K Goatman (Aberdeen University) on the "EQA for image grading in the Scottish Diabetic Retinopathy Screening Programme" was published in the Diabetic Medicine Journal, see DME-2011-00339.</p> <p>A demonstration of the Scottish DRSP EQA system can be seen at http://www.abdn.ac.uk/eqa (username: demo password: test)</p>
<p>5. To ensure that the screening programme meets the requirements of NHS QIS for Training and Accreditation of Staff by facilitating the City & Guilds certification in Scotland and offering Slit Lamp Examiner training and accreditation. We will select a replacement accreditation organisation to replace City & Guilds in 2017.</p>	<p>We continue to facilitate the accreditation of staff through the City & Guild level 3 Certificates and the Diploma in Diabetic Retinopathy Screening. There continues to be challenges in having a fully accredited workforce and the DRS collaborative continue to strongly encourage staff to complete the academic requirements. This qualification has now closed and the Pearsons L3 Diploma in Screening will be replacing it in early 2018.</p> <p>The DRS Collaborative have developed and approved a national standard for the training and accreditation of slit lamp examiners (SLE). Significant challenges remain in accreditation of SLE in remote and rural areas especially where there is no grading centre present. Discussion and debate continues about the high standards that have been set and how they can be achieved for all SLE across Scotland. In recognition of the commitment of staff members in achieving Slit Lamp Examiner status the DRS collaborative now issue accreditation certificates. A full report on the current accreditation status of staff can be seen in Annex D of this report.</p>
<p>6. To maintain communication within the DRS Collaborative by providing the DRS website, organising DRS management group meetings on a quarterly basis and an In-Service training day for all staff. We will continue to minimise cost, travel and make the most efficient use of staff time by webinar, website, teleconference and videoconferencing technologies.</p>	<p>The Collaborative use the national WEBEX, BT Meet Me and Jabber desktop video tools to facilitate desktop conferencing and teleconference meetings where possible. These have been successfully used this year in place of face to face meetings for the IT Users Group and to allow the Lead clinicians to review the outcome report for each of the EQA rounds. These tools make best use of time and reduce travel as well as cost. The Collaborative will also make best use of traditional VC and teleconference facilities where available.</p> <p>Ongoing communication is maintained through the regular meetings of the 5 management sub-groups and the DRS Executive as well as regional meetings where appropriate. There is regular communication with all health boards and the IT systems suppliers on the IT Issues and this is mostly conducted via e-mail and teleconference.</p> <p>The Lead Clinician and DRS Coordinator attend the UK Diabetic Eye Screening (DES) meetings usually held in London as observers. DRS members also attend the 'Four Nations' screening meetings which take part twice per year. The Republic of Ireland has also recently joined these meetings and the aim is to foster close working links, exchange good working practice and innovation.</p> <p>The collaborative also maintains an updated website www.ndrs-wp.scot.nhs.uk.</p>

Objective	Current Status
<p>7. To develop the national screening programme by implementing a national automated grading system through computerised image analysis. The throughput of the system is to be extended to cover as much as possible of the Level 1 work-list.</p>	<p>The automated grader was reliably processing between 500-600 patient cases per day over 7 days per week whilst in operation with Soarian prior to 2017. This gave a capacity to process between 180,000 – 216,000 patient episodes per annum or the entire Level 1 grading queue for Scotland. The iGrading system was integrated into the Vector system but only after some delay and it was not fully operational until August 2017. The automated system is now fully operational and operating at the same capacity levels as before processing the entire Level 1 grading queue.</p> <p>The automated grader was supported by Medalytix until mid 2016 when this company dissolved. In conjunction with SHIL (Scottish Health Innovations Ltd) the iGrading system was resumed to NHS ownership in 2017. The Autograder is now wholly owned and controlled by the NHS in Scotland.</p> <p>The Auto-Grader has been shown to finalise circa 44% of examinations as R0/M0 so it can reduce the grading workload by that amount prior to Level 1 manual grading. The EQA rounds results from 2017 which show the results of all graders including the auto-grader are attached as Annex B to this report.</p> <p>Dust maps (artefact recognition) which the auto-grader uses to exclude artefacts from the captured images are refreshed twice daily prior to each analysis cycle. On-going development work is undertaken to improve the performance and increase the robustness of the system. The automated grader is current supported by older Microsoft SQL and Server software products. These need to be updated on an ongoing basis in order to maintain a secure and reliable system. The DRS System Specialist will be undertaking a project in conjunction with SHIL and the University of Aberdeen to update this older system support software in early 2018.</p>
<p>8. To enhance communication with patients by developing a new patient leaflet, investigating electronic communications with patients and care providers, and working with ethnic minority support teams.</p>	<p>A new patient leaflet was developed and sent out to all patients in conjunction with NHS Health Scotland. The leaflet will be regularly reviewed and is also available in several languages or in easy read versions. A copy of the leaflet is attached as Annex K to this report.</p> <p>A new patient's information video was developed by NHS Tayside for all NHS boards to use. The short video is available in several languages, including subtitled and sign language versions. The video is available to see at – http://www.nhsinform.co.uk/Screening/diabeticretinopathy/takingthetest</p> <p>We are also working with the 'My Diabetes-My Way' patient portal team from SCI-Diabetes to merge our results with other diabetes data. The system has so far shown great promise and the limited number of patients who are currently piloting this system can access all of their DRS results and letters on-line via this secure portal. We believe this will become an important and vital part of any future development of the DRS system. Ongoing development is required and being undertaken prior to developing a detailed business case.</p> <p>Several meetings have taken place with the Royal Mail with a view to providing a single 'virtual' mail provider for the DRS programme. The current format of letters produced from Vector will meet the requirements of the Royal Mail interface and it was therefore decided that this should be pursued after implementation of the Vector system in 2018.</p> <p>The DRS Collaborative already work closely with the Minority Ethnic Health Inclusion Service (MEHIS) in NHS Lothian and RNIB in Greater Glasgow to analyse DRS screening data to report on high risk patient groups who do not attend screening.</p>
<p>9. To undertake short, medium and long</p>	<p>A DRS programme progression and planning roadmap for 2017 and beyond was re-drafted. This document outlines the</p>

Objective	Current Status
<p>term planning to take into account the changing landscape of DRS screening activities i.e. OCT, screening interval, risk based patient recall and national eHealth policies. We will work in partnership with other diabetic retinopathy screening programmes in the 5 nations.</p>	<p>proposed planned (and possible) significant events for the DRS collaborative in the years ahead. There are also some events with unknown timescales but these can be anticipated to impact the DRS programme. The key early events that have already occurred by end of 2017 are – Vector system, resumption of the iGrading system, L2 to L3 grader. See Annex L of this annual DRS report for planning roadmap for 2017/18.</p> <p>The Scottish Screening Committee (SCC) has yet to make a decision on risk based variable screening intervals. A business case paper for the SSC is being drafted for early 2018 and to be tabled for the SSC in Autumn 2018. OCT will be included as part of the request to change the pathway for patients.</p>
<p>10. The Lead Clinician, Coordinator and System Specialist are to visit health board areas and meet with DRSP teams in order to provide support on specific local issues related to the provision of the DRS Service to agreed national standards.</p>	<p>Visits were carried out to- NHS Grampian, NHS Tayside, NHS Lothian, NHS Highland and NHS Greater Glasgow. Ongoing visits to Health Board areas are planned for the remainder of this year and will be undertaken on an opportunistic rolling basis. Health Boards won't all be visited prior to the end of the financial year and visits will therefore be on-going.</p>

Annex A to DRS Annual Report 2017

Summary Key Performance Statistics for comparison 2012 -2017 (for detailed information see Q4 KPI statistics reports for FY 2017)

DRSP Key performance report for FY 2017 as at 01 April 2018. (All numbers are taken from Vector KPIs)		
Start date	01 Apr-17	
Reference date	01-Apr-18	
Total Diabetic Population aged 12 and over on Vector (KPI 0)	319,308	
Total number of people who are permanently suspended (KPI 0)	25,646	
Total number of people who are temporarily suspended (KPI 0)	22,617	
Eligible population as at 01 April 2018 (KPI 0)	274,607	
Number of individuals attending at least once (KPI 2) – HIS Target is 80%	201,220	73.3%
Total number of the current eligible population successfully screened (KPI 4) – HIS Target is 80%	196,963	71.7%
Remaining population not suspended or successfully screened.	77,644	28.3%
Number of referrals to Ophthalmology on account of Retinopathy (KPI 13) - No Target	8,422	4.0%
Episodes for which written report is less than or equal to 20 working days. (KPI 9) - HIS Target is 95%	151,656	69.4%

DRSP performance 2016 as at 01 April 2017 (Soarian ceased on 6 th Feb 2017)	DRSP performance 2015 as at 01 April 2016	DRSP performance 2014 as at 01 April 2015	DRSP performance 2013 as at 01 April 2014.	DRSP performance 2012 as at 01 April 2013.
01 Apr-16	01 Apr-15	01 Apr-14	01 Apr-13	01 Apr-12
06-Feb-17	01-Apr-16	01-Apr-15	01-Apr-14	01-Apr-13
315,218	307,876	298,101	287,481	275,061
24,049	22,123	20,582	18,558	16,801
25,304	25,569	25,863	26,488	24,577
271,013	263,928	255,928	247,017	237,333
186,916 (69%)	205,487 (77.9%)	201,299 (78.7%)	199,268 (80.7%)	184,617 (77.8%)
184,265 (68.3%)	200,699 (76.0%)	195,513 (76.4%)	194,480 (78.7%)	178,559 (75.2%)
84,097 (31.0%)	58,441 (22.1%)	54,629 (21.3%)	52,537 (19.3%)	52,716 (22.2%)
7,536 (3.9%)	8,205 (3.8%)	7,281 (3.5%)	7,762 (3.7%)	6,834 (3.6%)
195,665 (98.5%)	212,072 (95.6%)	209,704 (96.2%)	203,851 (93.9%)	198,863 (94.7%)

Annex A to DRS Annual Report 2017

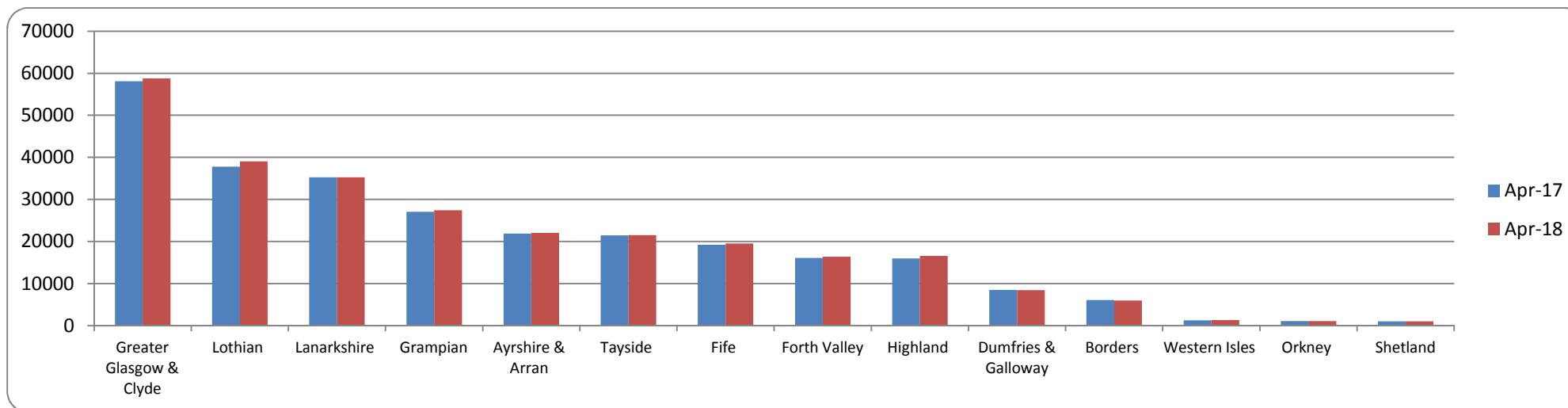
Difference in Invitation and Uptake rates by NHS Board for DRS Scotland 2011 – 2017 (2016 is current excluded as it wasn't a whole FY, 2017 data comes from Vector)

Invitation rate (KPI 1) by NHS Board over the past 7 years						
	2011	2012	2013	2014	2015	2017
Ayrshire & Arran	104.2%	103.2%	104.1%	103.5%	103.2%	99.0%
Borders	97.5%	78.2%	100.1%	102.2%	102.6%	97.7%
Dumfries and Galloway	102.2%	104.5%	105.1%	104.0%	101.7%	98.5%
Fife	101.7%	104.2%	108.8%	105.8%	105.3%	99.3%
Forth Valley	96.8%	96.9%	99.0%	94.6%	100.0%	89.8%
Grampian	102.7%	102.4%	99.5%	101.6%	99.3%	93.5%
Greater Glasgow	96.2%	96.0%	99.6%	99.6%	98.8%	97.1%
Highland	97.0%	107.5%	107.9%	104.6%	89.8%	96.2%
Lanarkshire	88.2%	90.8%	95.4%	90.4%	90.3%	89.2%
Lothian	99.0%	92.2%	99.6%	93.6%	99.5%	91.3%
Orkney	100.9%	99.8%	99.3%	88.0%	101.0%	98.6%
Shetland	1.2%	3.2%	0.6%	0.2%	0.2%	94.8%
Tayside	96.3%	89.0%	95.8%	97.2%	96.2%	96.4%
Western Isles	100.5%	101.3%	103.5%	102.5%	102.3%	97.7%
Scotland	97.6%	96.9%	100.5%	98.5%	98.3%	94.7%

Uptake rate (KPI 2) by NHS Board over the past 7 years						
	2011	2012	2013	2014	2015	2017
Ayrshire & Arran	80.9%	80.1%	80.6%	78.3%	79.0%	77.6%
Borders	79.3%	61.8%	77.9%	79.0%	77.8%	80.7%
Dumfries and Galloway	90.4%	91.0%	90.2%	89.9%	91.2%	88.2%
Fife	81.6%	77.3%	83.4%	82.7%	82.1%	79.1%
Forth Valley	78.6%	78.2%	80.6%	79.3%	81.2%	72.5%
Grampian	85.6%	83.1%	81.5%	83.1%	78.9%	72.6%
Greater Glasgow	77.9%	76.5%	80.0%	78.9%	78.8%	77.7%
Highland	74.3%	77.1%	76.3%	73.6%	69.2%	69.9%
Lanarkshire	73.7%	75.4%	79.4%	76.7%	72.0%	59.0%
Lothian	78.7%	75.7%	79.0%	73.1%	76.2%	72.6%
Orkney	87.8%	86.0%	88.1%	81.9%	91.2%	88.0%
Shetland	82.7%	87.3%	83.8%	81.6%	85.0%	82.7%
Tayside	80.7%	77.7%	83.2%	79.9%	78.7%	70.6%
Western Isles	78.6%	82.8%	85.0%	84.2%	78.6%	83.0%
Scotland	79.4%	77.8%	80.7%	78.7%	77.9%	73.3%

	Invitation rate(KPI 1)	Uptake rate (KPI 2)	Difference	Increase per annum
2011	97.6%	79.4%	18.2%	
2012	96.9%	77.8%	19.1%	+0.9%
2013	100.5%	80.7%	19.8%	+0.7%
2014	98.5%	78.7%	19.9%	0.1%
2015	98.3%	77.9%	20.4%	+0.5
2017	94.7%	73.3%	21.4%	+1.4%

Annex A to DRS Annual Report 2017

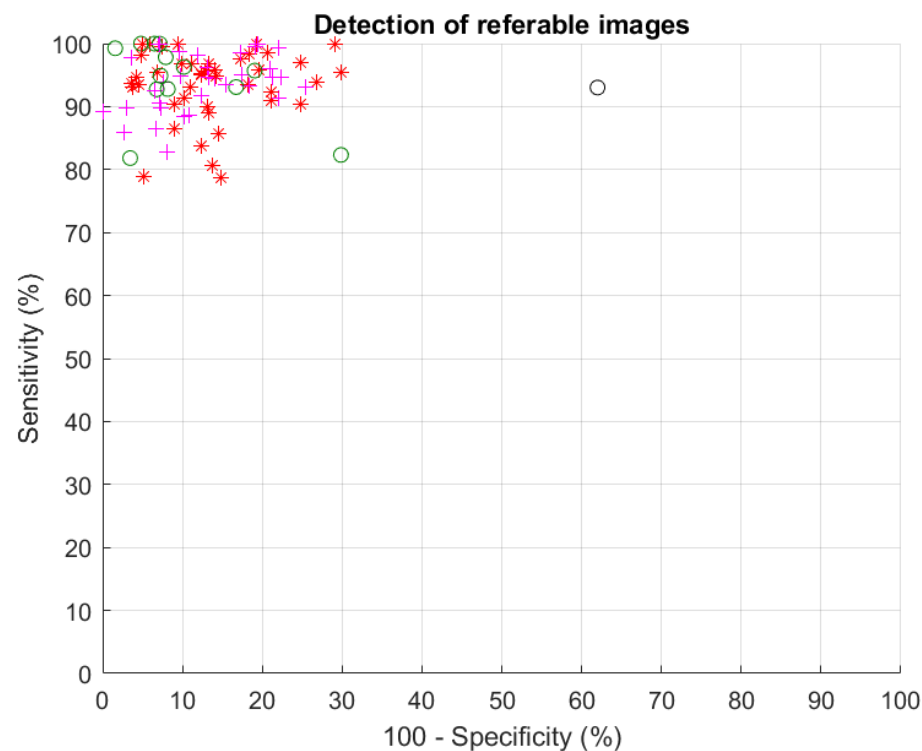
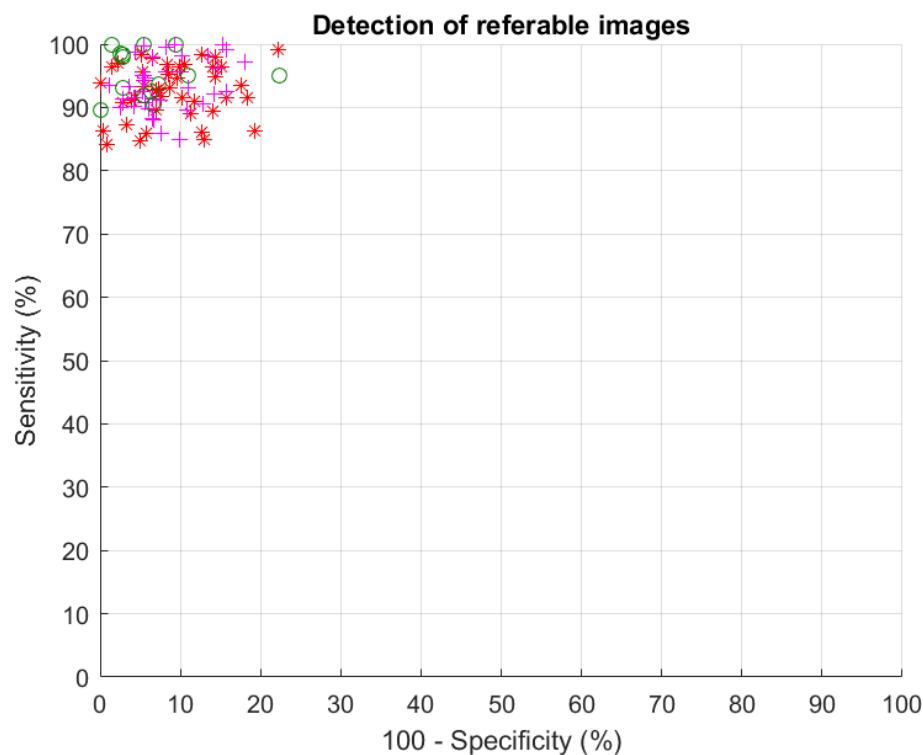


	Apr-17	Apr-18	Change
Greater Glasgow & Clyde	58097	58747	650
Lothian	37813	39071	1258
Lanarkshire	35277	35294	17
Grampian	27070	27427	357
Ayrshire & Arran	21893	22057	164
Tayside	21479	21532	53
Fife	19270	19561	291
Forth Valley	16113	16413	300
Highland	15990	16580	590
Dumfries & Galloway	8519	8446	-73
Borders	6087	6001	-86
Western Isles	1270	1327	57
Orkney	1081	1099	18
Shetland	1054	1052	-2
Scotland	271013	274607	3594

National trend for 2017 was **300** new (net) eligible patients being added to the system per calendar month.

Diabetic Retinopathy Screening Programme - External Quality Assurance (EQA) 2017

Summary of Receiver Operator Characteristic (ROC) plots for grader sensitivity/specificity in detecting referable images. Level 1 human graders are shown by red asterisks, Level 2 by magenta crosses and Level 3 by green circles. The black circle indicates the performance of the auto-grader. Detailed reports are provided for each round to all boards



Results from **Spring 2017** on the left and **Autumn 2017** are on the right. These reports were provided by Dr Keith Goatman – Aberdeen University.

Automated Grader – for the Spring EQA round the automated system did not take part. Fr the Autumn round it achieved a sensitivity of 93% with a specificity of 38%.

Annex C to DRS Annual Report – draft financial report – final report to follow.

NSD Return for financial Year 2017

**Diabetic Retinopathy Screening Collaborative
Budget Report for Year Ended 31st March 2018
National Services Division**

	Budget £	Actual YTD £	Variance £	
Salaries and Wages				
Lead Clinician	22,800	22,800	0	Dr Styles
Co-ordinator[Band 7]	53,195	53,195	0	Mike Black
IT Operational Manager [Band 6]	47,699	47,699	0	Neville Lee
Education & Training [Band 7]	4,255	4,255	0	SLA with NHS GG&C for training coordinator
Supplies and Services				
Computer/Office Equip	tba	tba	0	Computer Equip /Broadband fob etc
Stationery/printing supplies	tba	tba	0	
Travel expenses	tba	tba	0	
Facilities booking	tba	tba	0	BT meet me Conferences/Subsistence/Accommodation/course fees
EQA – University of Aberdeen	10,303	10,303	0	EQA
balance	tba	tba	0	
	tba	tba	0	
Total Expenditure	147,304	147,304	0	
Income to fund overtime etc	-3,477	-3,477	0	Invoice raised by DRS to cover overtime
NSD Funding 2017		-147,304		
		-147,304		

Annual Training Report 2017

The table below shows the number of candidates in each Health Board region who are currently registered and undertaking the City & Guilds Qualifications, the number of probationer slit lamp examiners, the number who have slit lamp accreditation and the number who have re-registered.

Health Board	City & Guilds Diploma Candidates registered and currently undertaking qualification	SL examiner probationer	SL award attained	SL re-registration
Ayrshire & Arran	7	0	0	0
Dumfries & Galloway	0	0	1	0
Fife	1	0	3	1
Forth Valley	0	0	1	0
Glasgow	7	0	3	0
Grampian	1	0	2	2
Highland	3	NA	NA	0
Lanarkshire	0	0	4	1
Lothian	4	0	2	0
Orkney	0	NA	NA	0
Shetland	0	NA	NA	0
Tayside	3	0	2	1
Western Isles	5	NA	NA	0
Total	31	0	18	5

The table below details the total number of candidates who have attained the City & Guild Diploma in Diabetic Retinopathy Screening each year since 2008.

Annex D to DRS Annual Report 2017

Year	City & Guilds Diploma Completed
2008	1
2009	8
2010	25
2011	20
2012	59
2013	1
2014	5
2015	3 Imaging certificates 2 Diplomas 12 Units only
2016	1 Diplomas 1 Imaging cert 6 single units 6 Diplomas
2017	8 Imaging Certificates 5 units

Items to note

- The number of people attaining the slit lamp examiner's award are as follows: 0 probationers, 18 people have slit lamp accreditation, 5 of whom completed revalidation of Slit Lamp skills in 2017.
- Boards were encouraged to register candidates before city & guilds registration deadline of 31 december 2016. This meant that there was a surge in the number of candidate registrations. There are 31 candidates registered for qualifications with City and Guilds. These candidates have until the end of December 2018 to complete the award.

As a replacement for the City & Guild qualification in Scotland work has been ongoing to provide Level 3 diploma for Health Screeners with specific units in Diabetic Retinopathy Screening. This qualification will be provided in Scotland by Pearsons and the Qualification will be administered within NHS Greater Glasgow & Clyde. Assessors and Internal verifiers for the qualification have been identified and training will be taking place in early 2018. It is hoped that registration of candidates for the qualifications will begin early 2018.

DRS Programme Resources, Staffing and Models of delivery - 2017

1. Programme Information					
1.1 Health Board Name	Ayrshire & Arran	Borders	Dumfries & Galloway	Forth Valley	Fife
1.2 Programme Board Coordinator	Susan Wilson Susan.wilson@aapct.scot.nhs.uk	Julieann Brennan Department of Public Health, NHS Borders 1st Floor, Education Centre, Border General Hospital Newstead, Melrose, TD6 9BS Direct Dial (01896) 825548 Mobile 07810 432777 Email: julieann.brennan@borders.scot.nhs.uk	Dr Nigel Calvert, Consultant in Public health Medicine (Health Protection and Screening) NHS Dumfries & Galloway, Ryan South, Crichton Hall, Dumfries, DG1 4TG Tel : 01387 272724 email: nigel.calvert@nhs.net	Dr Oliver Harding, Consultant in Public Health Medicine, Carseview House, Stirling, 01786 457265 oliver.harding@nhs.net	Dr Charles Saunders , DRS Board Co-ordinator Email: charles.saunders@nhs.net
1.3 Accountable clinical lead	Dr Mohan Varikkara, Consultant Ophthalmologist Mohan.Varikarra@aaaht.scot.nhs.uk , Tel 01563 527040	Dr Karen Madill Consultant Ophthalmologist PAEP ,NHS Lothian Chalmers Street Edinburgh EH3 9HA 0131 533712 Karen.madill@nhslothian.scot.nhs.uk	Vacant	Dr John Doig. John.doig@nhs.net 01324 566346 (Secretary)	Dr Caroline Styles, DRS Lead Clinician. Telephone: 01592 623623 ext 3853. Email: caroline.styles@nhs.net
1.4 Service Manager	Diane Smith, Diabetes MCN Manager/Retinal Screening Facilitator, diane.smith@aapct.scot.nhs.uk , Tel 01294 323470		Jane Carrick, DRS Service Manager Tel: 01387 244310 email: jane.carrick@nhs.net	Lorraine Fowler, Diabetes Systems Administrator, Stirling Community Hospital, Livilands Gate, Stirling, FK8 2AU. Lorraine.fowler@nhs.net . 01786 434169.	Lynn Garvey, lead Nurse First Floor Cameron Hospital, Telephone: 01592 226465(46465) Email: l.garvey@nhs.net
1.5 Location	Room 745, 2 nd Floor, Administration Building, Ayrshire Central Hospital, Kilwinning Road, Irvine KA12 8SS	Border General Hospital Newstead, Melrose, TD6 9BS	Diabetic Retinopathy Screening Service, Cairnsmore East, Crichton Hall, Bankend Road, Dumfries DG1 4TG Tel: 01387 244228 email: ann.weir@nhs.net or Tel: 01387 244325 email: kym.cowan@nhs.net	Diabetes Unit, Stirling Community Hospital, Livilands Gate, Stirling, FK8 2AU. 01786 434169. Forth Valley Royal Hospital, Level 2, J block, Stirling Road, Larbert - 01324 566928	NHS FIFE DIABETIC RETINOPATHY SERVICE, Ward 8, Cameron Hospital, Windygates, Fife, KY8 5RRk. Tel: 01592 226852
1.6 Referral Centres	Ayr Hospital, Crosshouse Hospital, Inverclyde Royal Hospital,	Eye Centre, Borders General Hospital (BGH)	Ophthalmology Department, D&G Royal Infirmary, Bankend Road, Dumfries DG1 4AP Tel: 01387 246246 Ophthalmology Department, Galloway Community Hospital, Stranraer DG9 7HX Tel: 01776 707707 Ophthalmology Department, 4 Warrell	Ophthalmology Dept, Falkirk Community Hospital, Westburn Avenue, Falkirk. OCT Clinic – Ophthalmology Dept, Falkirk Community Hospital, Westburn Avenue, Falkirk	Queen Margaret Hospital, Whitefield Road, Dunfermline, KY12 0SU Victoria Hospital, Hayfield Road, Kirkcaldy, KY2 5AH Ninewells Hospital, Dundee, DD1

			Drive, Rosehill, Carlisle Tel: 01228 602780 or 01228 814366		9SY
1.7 Biomicroscopy arrangements	Slit lamp examination carried out by all accredited Optometrists at 26 Optometry Practices immediately following photograph. If screening is deemed ungradable at the Diabetic Clinics, patients are sent an invitation to make an appointment with an accredited Optometrist for biomicroscopy. Slit Lamp is also carried out at HMP Bowhouse.	Either an appointment is made for them in a slit lamp clinic at the BGH or they are asked to make an appointment with a local optometrist, choosing from a list of participating optometrists provided.	2 static sites Site 1 provides a one stop photo +- slit lamp bio microscopy same day appt. Site 2 provides a one stop photo + S/L appt as above for 50% of patients and the other 50% require a second invite to a S/L clinic (usually the first Friday of the Month) Mobile service patients require a second appointment for bio microscopy at site 2. Appt usually within 4 weeks as there is a clinic first Friday of the month.	Patients with ungradable or unobtainable images following camera screening are examined in a slit lamp clinic. There are 3 slit lamp clinics per week in NHS Forth Valley. Two clinics are held in Forth Valley Royal, Outpatients Dept, Stirling Road, Larbert and one other clinic held in Stirling Community Hospital, Livilands Gate, Stirling., FK8 2AU.	3 slit lamp site across five patients are referred according to area
1.8 Health Board GP Practices	56	25	37	57	58
1.9 Screening GP Practices	57	25	37	57	58

2. Delivery Model					
	Ayrshire & Arran	Borders	Dumfries & Galloway	Forth Valley	Fife
2.1 Programme structure/ model	<p>Patients are invited to make an appointment for screening when their recall date is imminent. They are sent an invitation letter and list of Opticians including the hospital sites to choose from.</p> <p>26 Optometry Practices providing digital screening and Biomicroscopy.</p> <p>2 Hospital sites providing digital screening.</p> <p>External Agencies, Visioncall, Healthcall, First Sight Opticians all carry out Domiciliary visits only. JR Shaw Optometrists carry out Slit Lamp examinations at HMP Bowhouse</p>	<p>The programme is delivered using 1 mobile camera visiting various GP practices and NHS Borders premises.</p> <p>Slit lamp bio-microscopy is done by an ophthalmologist at the BGH or one of 17 community optometrists throughout the Borders. The optometrists are being used on a short term basis to help with a backlog.</p>	<p>Brief summary of how screening is delivered, including:</p> <ul style="list-style-type: none"> - number of photographic static sites - 3 - mobile – 1 van covering 20 G.P. practices, at 22 locations due to branch surgeries - number of bio microscopy sites – 2, one in Dumfries, one in Stranraer - whether any independent/external provider is used – No 	<p>People with diabetes within Forth Valley are invited to attend an annual retinal screening examination from the age of 12 onwards. There are 2 static photographic sites – Stirling Community Hospital has the capacity to screen 129 patients per week and Forth Valley Royal Hospital has the capacity to screen 153 patients per week.</p> <p>Forth Valley has 3 slit lamp clinics with the capacity to examine 45 patients per week, an OCT clinic with the capacity to examine 13 patients per week and an Ophthalmology clinic which can examine 7 laser patients or 12 review patients per week.</p> <p>There is no mobile service within Forth Valley.</p>	<p><u>Fundus Photography</u> The service has fixed cameras at Victoria and Queen Margaret Hospitals and a mobile camera which visits 11 further locations Fife At each of the Fixed sites 39 patients are appointed a day and 28 patients appointed at a mobile on average. At the Victoria Hospital and Queen Margaret Hospital clinics are run 5 days a week, Mobile locations are governed by the number of patients due and the availability of rooms as 9 of our locations are within GP surgeries. The images are graded and the results sent out. <u>Biomicroscopy</u> If the patient requires biomicroscopy an appointment is made and sent out requesting the patient attend 1 of the 3 sites where we provide biomicroscopy. These are Victoria and Queen Margaret Hospitals plus Cupar Health Centre.</p>

					<p>Once a patient has been appointed to biomicroscopy they are recalled there every year rather than Fundus Photography. The only exception to this is when they patient are discharged back from ophthalmology.</p> <p>Slit lamp examinations are preformed by the Level 2 graders/ SL examiner. We currently see 20 patients at the Victoria and Queen Margaret Hospitals sites and 17 at Cupar Health Centre</p>
2.2 Cameras Used	22 Topcon TRCNW6 with Nikon D70S 3 Topcon 3D-OCT with Nikon D7000 3 Topcon TRCNW6 with Nikon D80S 1 Topcon TRCNW8 with Nikon D90 1 Kowa Keeler Nonmyd 7 with Nikon AS15	1 Canon CR-DGI fundus cameras with Canon EOS 10D digital back.	4 cameras 3x Topcon TRC NW6S with Nikon D70 1x Topcon TRC NW6S with Nikon D80	There are 2 cameras supplied by Topcon – TRC NW6S with Nikon D70 digital camera backs.	3 x Canon CR-DGI Fundus Camera backs 3 x Canon EOS 20D Digital Camera 2 camera's and backs changed in Feb 13 to 2 x Canon CR-DGI2 Fundus Camera backs 2 x Canon EOS 60D Digital Camera
2.3 Workforce Information	Service Manager 1 Administrator 1 L3 Graders 2 L2 Graders 4 L1 Graders 32 Retinal Photographers 40	1 Service (Programme) Manager 3.9 Administrators 1 screener 4 Level 1 graders 3.8 level 2 graders 3 level 3 graders working part time 1 ophthalmologist working 0.2	Brief summary of workforce to deliver programme administrators - 0.8 retinal photographers – 3 (2 also L2 graders) graders – 2x L2 + 1x L3 Slit Lamp Examiners – 1 (also screener/grader L2)	The workforce to deliver retinal screening within Forth Valley includes: 6 Part time retinal photographers 3 Part time administrators 2 Level 1/2 graders 1 Level 3 grader 2 Slit lamp examiners	0:2 WTE Level 3 Grader/SL examiners (Associate Specialist attached to service) 1:6 WTE Level 2 grader/SL examiners (0:8 WTE On mat leave from April 12 – Jan 13) 1 :5 Screener/Level 2 grader 1:0 WTE Screener (trainee Level 1 grader) 1:0 WTE System Administrator (Full Time) 1:0 WTE DRS Administrator (30hrs) 0:5 WTE Booking clerk (18.5hrs)
2. Delivery Model					
		Borders	Dumfries & Galloway	Forth Valley	Fife
2.4 Retinal Screeners					
2.5 Retinopathy Graders		B – current screener/grader L2, full time, passed Diploma C - current screener/grader L2, full time, passed Diploma	B – current screener/grader L2, part time, passed Diploma C - current screener/grader L2, part time, passed Diploma D – current screener/grader L2, part time, passed unit 306 still to undertake units 307 & 308	Grader 1 – Current, part-time – Units 301,302, 307 & 308 completed and passed. Qualified in Slit Lamp Accreditation. Grader 2 – Current, part-time – C & G Completed completed.	Current 1 x Level 3 Grader (Associate Specialist attached to service) 4x Level 2 Grader pass 303, 307, 308 1 x Full time Level 1 Grader, Commenced July 10 Non-Current

				Grader 3 – Current, part-time - C & G not required.	
2.6 Slit Lamp Examiners		C - current screener/grader L2, SLE, full time, passed Diploma	C - current screener/grader L2, SLE part time, passed Diploma D – current screener/grader L2, SLE part time, passed unit 306	Examiner 1 – Current, part-time – Level 1-2 grader, Units 301,302, 307 & 308 completed and passed. Examiner 2 – Current, part-time – Level 1-2 grader, C & G units completed and passed	Current 1 x Level 3 Grader (Associate Specialist attached to service) 2 x Part time Level 2 Grader pass 303, 304, 305, 307, 308
2.7 Screening GP practices	57	37	35	57	58

1.1 Health Board Name	Grampian	Greater Glasgow	Highland	Lanarkshire	Lothian
1.2 Programme Board Coordinator	Dr Mike Crilly MD MPH MRCGP MFPHM Senior Lecturer in Clinical Epidemiology University of Aberdeen Medical School Polwarth Building at Foresterhill Aberdeen Scotland AB25 2ZD michael.crilly@nhs.net	Dr David Morrison, DRS Board Co-ordinator Telephone: 0141 2014747 Email: david.morrison@ggc.scot.nhs.uk	Vacant	Dr Tasmin Sommerfield Consultant in Public Health Medicine Department of Public Health NHS Lanarkshire 14 Beckford Street Hamilton ML3 0TA 01698 206336 tasmin.sommerfield@lanarkshire.scot.nhs.uk	Duncan McCormick, duncanmccormick@nhslothian.scot.nhs.uk
1.3 Accountable clinical lead	Dr John Olson, DRS Service Lead Clinician, David Anderson Building, Foresthill Rd, Aberdeen AB25 2ZP Telephone: 01224 555538. Email: john.olson@nhs.net	Dr Sonia Zachariah, sonia.zachariah@ggc.scot.nhs.uk Dr Mike Gavin, michael.gavin@ggc.scot.nhs.uk	Dr Simon Hewick Consultant Ophthalmologist Simon.hewick@nhs.net	Dr Meena Virdi Consultant Ophthalmologist Lead Clinician for Diabetic Screening Hairmyres Hospital Hairmyres East Kilbride Tel: 01355 584652 Meena.Virdi@lanarkshire.scot.nhs.uk	Dr Karen Madill Consultant Ophthalmologist PAEP ,NHS Lothian Chalmers Street Edinburgh EH3 9HA 0131 533712
1.4 Service Manager	Margaret Bruce, Retinal Screening Manager, David Anderson Building, Foresterhill Rd Aberdeen AB25 2ZP Telephone: 01224 550198. Email: m.bruce@nhs.net	David Sawers, Retinal Screening Manager Telephone: 0141 211 4754. Email: david.sawers2@ggc.scot.nhs.uk	Lisa Steele Service Manager, NHS Highland Diabetic Centre, Centre for Health Science, Old Perth Road, Inverness IV2 3JH Email: lisa.steele@nhs.net Tel: 01463 255938	Anne Dougan Retinal Screening Team Leader Administration Office Administration Building Coathill Hospital Coathill Coatbridge ML5 4DN 01236 707150 Ann.Dougan2@lanarkshire.scot.nhs.uk	Ms Norah Grant DRS Service Manager E3, PAEP, Chalmers Street Edinburgh EH3 9HA Norah.grant@luht.scot.nhs.uk 0131 536 3928
1.5 Location	David Anderson Building Foresterhill Road Aberdeen AB25 2ZP	Administrative centre address – Screening Department, 1 st Floor, Building 2, Templeton Business Centre, 62 Templeton Street, Glasgow G40 1DA	Diabetic Retinal Screening Centre for Health Science Old Perth Road Inverness IV2 3JH Tel Patient Booking Services on 0800 5877198	Administration Office Administration Building Coathill Hospital Coathill Coatbridge ML5 4DN 01236 707160 / 0845 337 3341	DRS Service E3, PAEP, Chalmers Street Edinburgh EH3 9HA 0131 536 4145
1.6 Referral Centres	Aberdeen Eye Clinic, Foresterhill Hospital. Dr Grays Hospital Elgin. Chalmers Hospital Banff. Jubilee Hospital Huntly. Turner Hospital Keith. Seafeld Hospital Buckie.	Ophthalmology Departments at the following – Stobhill Hospital, Victoria Infirmary, Southern General Hospital – all in Glasgow Royal Alexandra Hospital, Paisley; Inverclyde Royal Hospital, Greenock; Vale of Leven District General Hospital.	<u>North Highland patients are referred to:</u> Raigmore Hospital Inverness but can be seen at any of the peripheral hospital sites in Golspie, Wick, Fort William and Portree, depending on the nearest venue and treatment required. <u>Argyll & Bute patients are referred to:</u> Campbeltown Hospital Dumbarton Health Centre Dunars Hospital, Isle of Mull Dunoon General Hospital Inverclyde Royal Hospital, Greenock Mid Argyll Hospital, Lochgilphead Victoria Hospital, Rothesay Lorn & Isles DGH, Oban Gartnavel General, Glasgow Southern General, Glasgow	Ophthalmology Department Hairmyres Hospital Eaglesham Road East Kilbride Ophthalmology Department Wishaw General Hospital Netherton Road Wishaw Ophthalmology Department Monklands District General Hospital Monkscourt Drive Monklands Airdrie	Princess Alexandra Eye Pavilion, Edinburgh St. John's Hospital, Livingston.
1.7 Biomicroscopy	Technical failure examinations are performed at the following locations:	People with unobtainable or ungradable images are assessed by slit-	North Highland patients are referred to an Optometrist based slit lamp	Patients with a status of technical failure following photography, receive	An appointment is made for patients in a slit lamp clinic at one of the

arrangements	<p>All Aberdeen City residents are assessed at the David Anderson Building. Moray patient are offered a location closer to home and can may be booked into any of following venues:</p> <p>Leancoil Hospital Forres. Dr Grays Hospital Elgin Jubilee Hospital Huntly Chalmers Hospital Banff Seafeld Hospital Buckie Turner memorial; Hospital Keith</p>	<p>lamp biomicroscopy.</p> <p>These clinics are held weekly at Gartnavel General Hospital, Victoria Infirmary, Southern General Hospital and Glasgow Royal Infirmary – all in Glasgow, New Sneddon Street Clinic, Paisley and as required at Greenock Health Centre and Vale of leven Distric General Hospital.</p> <p>Ophthalmologists deliver the slit lamp clinics at Glasgow Royal Infirmary and at Royal Alexandra Hospital, Paisley. All slit lamp clinics are delivered by optometrists or by a nurse trained in slit lamp examination.</p>	<p>clinic in the following sites, depending on their nearest venue for referral:</p> <p>At Centre for Health Science, Inverness Lawson Memorial Hospital in Golspie Portree Hospital Belford Hospital in Fort William Caithness General Hospital in Wick</p> <p>Argyll & Bute patients are referred for a slit lamp examination into the Ophthalmology departments detailed above at item 1.6.</p>	<p>a letter to inform them that images taken are ungradable and they have been put on a waiting list to have slit lamp examination carried out. There is a slit lamp service at each of the 3 static sites. There is 3 sessions of slit lamp carried out at each of the 3 static sites. (a total of 24 patients each week per site) = wte 0.3 per site. Technical failure at slit lamp will result in the patient being referred to ophthalmology. The slit lamp clinics see patients for recall and patients who are newly referred to slit lamp. The slit lamp clinics are run by Registered Nurses who have undergone specialised training in slit lamp examination. The slit lamp clinics can be increased or decreased depending on demand as it is organised wholly within the Diabetes Retinal Screening Service.</p>	<p>locations below, based on where they live.</p> <p>St John's hospital, Livingston PAEP, Edinburgh Roodlands Hospital, Haddington.</p>
1.8 Health Board GP Practices	83	Approx 274	<p>North Highland = 67 A&B = 34 Total GP practices = 101</p>	98	126
1.9 Screening GP Practices	83	Approx 274	<p><u>North Highland</u> Patients are invited from the 12 Inverness based GPs to come for screening at DRS in Centre for Health Science, Inverness. DRS provide a mobile clinic based at the remaining 55 GP sites or nearest community hospital.</p> <p><u>Argyll & Bute</u> DRS provide a mobile clinic based at three of the GP practices which are not accessible to a High Street Optometrist in the area. DRS control recall of patients for all 101 practices but in Argyll & Bute the remaining 31 practices have their patients invited to the nearest participating High Street Optometrist practice for screening.</p>	98	126

2. Delivery Model					
	Grampian	Greater Glasgow	Highland	Lanarkshire	Lothian
2.1 Programme structure/ model	<p>Screening is delivered through a combination of both mobile and static screening venues. The static site is used to screen patient who live within the City boundary.</p> <p>The mobile screening clinic visits GP practices in Aberdeenshire and Moray. Screening is carried out within the practice. Vehicles are for transportation of equipment only.</p> <p>One Static Site Three Mobile units Six slit lamp sites No independent or external provider is used.</p>	<p>All diabetics are initially appointed to a photography screening clinic. These are held at 4 hospital sites and at 17 other sites – clinics, health centres, screening vans, and GP surgeries.</p> <p>5 of the photography sites are generally in use 52 weeks/year, and the other 16 sites are used as required, from 4 – 25 weeks/year. Optometrists are not used to deliver photography clinics.</p> <p>Diabetics who have unobtainable or ungradable images at photography are assessed by slit-lamp biomicroscopy. (If at the slit lamp clinic it is felt that gradeable images can be obtained in future then the diabetic's next appointment will be for photography.)</p> <p>Slit lamp biomicroscopy is delivered weekly at 4 hospital sites and at one other clinic site and less frequently at one other hospital site and at one other health centre site.</p>	<p><u>North Highland</u> Static photographic sites = 1 based at DRS in CFHS, Inverness.</p> <p><u>North Highland continued</u> Mobile clinics carried out at 55 GP locations in North Highland and/or nearest community hospital depending on room availability at the GP site. Photography is carried out by two full time NHS Highland retinal screeners.</p> <p>Slit lamp provision is provided at five sites detailed in item 1.7 and is carried out by an NHS Highland Optometrist.</p> <p><u>Argyll & Bute</u> Mobile clinics are carried out at 3 GP sites in the area; Rothesay, Tignabruaich and Lochgoilhead. This is covered by the NHS Highland retinal screening team from Inverness.</p> <p>The remaining areas are serviced by static photographic sites provided via external contractors who are professionally qualified High Street Optometrists. The area is split into 8 sites:-</p> <p>Oban, Lochgilphead, Campbeltown, Tarbert, Helensburgh, Dunoon, Isle of Islay and Isle of Mull.</p> <p>Over the 8 sites, there are 15 registered external Optometrists providing photographic screening only.</p> <p>Slit lamp referrals for the Argyll & Bute area are seen across the 10 Ophthalmology sites detailed in item 1.6.</p>	<p>Administration office is responsible for booking, cancelling appointments. To improve patient attendance office staff are responsible for reminder phone calls to patient on week of appointment. Telephone helpline is open from 9am to 12md and from 1.30pm to 3.30pm.</p> <p>There are 4 static sites in Lanarkshire, which are Buchanan Centre in Coatbridge, Wishaw Health Centre in Wishaw and Central Clinic in Hamilton. There is a satellite site in Central Health Centre in Cumbernauld. Each of the main sites has 2 fundus cameras and 1 slit lamp. Cumbernauld has 1 fundus camera.</p>	<p>The programme is delivered using 3 static cameras, located in the main Diabetic Out Patient Departments, and 3 mobile cameras in a variety of GP Practices and Health Centres. The screeners are photographers employed by the NHS. All of the screeners in Lothian also grade at either level 1 or level 2.</p> <p>Slit lamp bio-microscopy is done in 3 hospital sites (see 1.7 above) and is done by a mix of NHS employees (currently optometrists and ophthalmologists though 2 of our photographers are in the process of training for this) and community optometrists paid by the session.</p>
2.2 Cameras Used	<p>2 new Canon CR2 digital retinal camera's 2 canon CR1 digital retinal camera's with 50 D digital back</p>	<p>Fundus cameras – 4 x Canon CR2, 5 x Canon CR-DGI, 4 x Canon CR6</p> <p>Digital backs – 4 X Canon EOS Retina back, several Canon D30, 10D and 20D</p>	<p><u>North Highland</u> 1x Canon CR6 45NM Serial No: 300621/Canon EOS 20D 1x Canon DGI Serial No: 310325/Canon EOS 20D 1x Canon DGI Serial No: 311286/Canon EOS 20D</p> <p><u>Argyll & Bute</u> 1x Topcon NW65 Serial No:</p>	<p>7 x Retinal Camera Fundus Topcon NW6S 7 x Nikon AS15 3 x Nidek SL 450 biomicroscopy</p>	<p>6 Canon CR-DGi fundus cameras with Canon EOS 10D digital backs.</p>

			2881612/Nikon D90 1x Keeler Kowa NonMyd 7 Serial No: 1602600062/Nikon D80 1x Keeler Kowa NonMyd 7 Serial No: 1602600068/Nikon D80 1x Keeler Kowa NonMyd 7 Serial No: 1602600049/Nikon D80 1x Keeler Kowa NonMyd 7 Serial No: 1602600091/Nikon AF15 1x Keeler Kowa NonMyd 7 Serial No: 1602600057/Nikon D80 1x Topcon TRC/NW6S Serial No: 2881259/Nikon D80 1x Topcon NW6S Serial No: 2880004/Nikon D80 1x Topcon NW6S Serial No: 2881374/Nikon D80 1x Topcon NW6S Serial No: 2881347/Nikon D80 1x Canon DGI Serial No: 311531/Canon 40D 1x Canon DGI Serial No: 300343/Canon 40D 1x Canon DGI Serial No: 311525/Canon 40D 1x Topcon NW6 Serial No: NK 1x Topcon NW8 Serial No: NK		
2.3 Workforce Information	<u>2 Admin staff = 2 wte</u> Administrators x 1 full time receptionist Administrators x 1 full time Both current	The service has – 1 service manager 1 nurse co-ordinator 8 (6 wte) admin staff 10 (9.0 wte) retinal photographers 1 (0.6wte) photographer/level 1 grader 4 (3.4 wte) photographers/level 2 graders 4 (1.1 wte) slit lamp examiners/level 2 graders 1 associate specialist ophthalmologist (0.8 wte) and 2 consultant ophthalmologists (approx 1 session/week each)	Service Manager: 1 Administrators: 0.5 Retinal Screeners: 1 x full time and 1 x 0.5 wte External Photographer/Screeners: 15 Slit Lamp Examiner: 2 x 0.5 wte (North Highland only) All grading work is provided externally by the grading centre in NHS Grampian.	Administration Assistant Band 2 1wte Administration Officer Band 3 1wte Retinal screener Band 3 0.8 wte Retinal screener Band 4 1wte Retinal Screener Band 4 1wte Retinal Screening Nurse Band 5 0.56wte Retinal Screening Nurse Band 5 0.69wte Retinal Screening Sp Nurse Band 6 0.8 Retinal Screening Sp Nurse Band 6 0.53 Retinal Screening Team Lead Band 7 1wte	1 Service (Programme) Manager 5 Administrators 3 screeners 4 Screeners/Level 1 graders 4 screeners/level 2 graders 3 level 3 graders 1 employed optometrist plus 2 community optometrists working as needed at slit lamp plus 2 ophthalmologist. working as needed at slit lamp .
2.4 Retinal Screeners	<u>9 named screening staff = 8 wte</u> (including service manager) all participate in photographic screening sessions as required to meet service needs. All current	6 screeners have completed the C&G Certificate	Retinal Screeners: 1 x full time and 1 x 0.5 wte completed full diploma	Both band 4 retinal screener have completed City and Guilds diploma in retinal screening 2.8 wte spent on retinal photography	1.0 screener/Level 1 nil C&G accreditation 1.0 screener/Level 1 nil C&G accreditation 1.0 screener/Level 1 nil

					<p>C&G accreditation 1.0 screener/Level 1 nil C&G accreditation</p> <p>0.6 screener/Level2 nil C&G accreditation 1.0 screener/Level2 306 1.0 screener/Level2 nil C&G accreditation 1.0 screener/Level2 306</p> <p>All of the above staff members are current.</p>
2.5 Retinopathy Graders	<p>Level 3 graders x 2 named = (0.3 wte) <u>Level 2 graders</u> – four staff from the screening team mentioned above, participate in level 2 grading, as required to meet service needs.(including service manager) All current All L2 Graders have completed the City and Guilds diploma.</p>	<p>Photographer/grader 1 – current, 0.6 wte, grading at level 1, passed units 302, 304, 306 and 307 Photographer/grader 2 – current, 0.9 wte, grading at level 2, passed units 306 & 308 Photographer/grader 3 – current, 0.5 wte, grading at level 2, completed DRS Diploma Photographer/grader 4 – current, full time, grading at level 2, completed DRS Diploma Photographer/grader 5 – current, full time, grading at level 2, completed DRS Diploma</p> <p>Ophthalmologist 1 – current, 0.8 wte, grading at level 3 Ophthalmologist 2 – current, 0.1 wte, grading at level 3 Ophthalmologist 3 – current, 0.1 wte, grading at level 3</p>	Grading services provided externally via SLA with NHS Grampian.	<p>1.Retinal Screening Nurse (0.56 wte) 0.4wte photography 0.1 wte 2nd level grading 0.6 wte slit lamp training.</p> <p>2. Retinal Screening Nurse (0.69wte) 0.4wte photography 0.2 wte 2nd level grading 0.9 wte slit lamp examination</p> <p>3.Retinal Screening Specialist Nurse (0.8wte) 0.3wte photography 0.2wte grading 0.3wte slit lamp examination</p> <p>4.Retinal Screening Specialist Nurse (0.53) 0.2wte grading 0.3wte slit lamp examination 0.03wte Ophthalmic letters/office/orders</p> <p>5.Retinal Screening Team Leader (1 wte) 0.1wte grading 0.3wte slit lamp examination 0.1wte slit lamp training 0.3wte clinical management 0.2wte office/staff management (cover all types of clinics during staff shortage) All trained nursing staff have completed Diploma in Retinal Screening.</p>	<p>1.0 screener/Level 1 nil C&G accreditation 1.0 screener/Level 1 nil C&G accreditation 1.0 screener/Level 1 nil C&G accreditation 1.0 screener/Level 1 nil C&G accreditation</p> <p>0.6 screener/Level2 nil C&G accreditation 1.0 screener/Level2 306 1.0 screener/Level2 nil C&G accreditation 1.0 screener/Level2 306</p> <p>0.2 Level2 + slit lamp nil accreditation 0.2 Level2 + slit lamp nil accreditation no longer employed</p> <p>3 x level 3; P/T, ophthalmologists</p> <p>All of the above staff members are current unless otherwise stated and are shared with Borders.</p>
2.6 Slit Lamp Examiners	<p><u>Slit lamp examiners</u> - 3 staff from the screening team, participate in slit lamp examination as required to meet service</p>	<p>SLE 1 & 2 have completed units 301,302,307 & 308 SLE 3 has completed units 301, 302 &</p>	Slit Lamp Examiner: 2 x 0.5 wte (North Highland only) one fully accredited and one pending.	<p>See above. 4 slit lamp examiners have completed in service training</p>	<p>0.1 optometrist nil C&G accreditation no longer employed</p>

	needs (including service manager) . All are level 2 graders and have completed the city and guild diploma All Current	308 SLE 4 has completed unit 301		and adhere to National Guidelines to ensure registration for slit lamp is up to date. E.g. visit ophthalmologist from outside own board for testing and complete grading standards and see at least 200 slit lamp patient/year.	0.2 optometrist + level 2 grader nil C&G accreditation P/T community optometrist nil C&G accreditation P/T community optometrist nil C&G accreditation P/T ophthalmologist + level 3 grader P/T ophthalmologist Unless stated the above are all current staff.
2.7 Screening GP practices	83	Approx 274	101 as per item 1.8.	98	126

1. Programme Information				
1.1 Health Board Name	Orkney	Shetland	Tayside	Western Isles
1.2 Programme Board Coordinator	Louise Wilson Louise.wilson2@nhs.net	Vacant	Dr Julie Cavanagh DRS Board Coordinator Consultant in Public Health Directorate of Public Health King's Cross Cleington Road Dundee DD3 8EA 01382 425684 julie.cavanagh@nhs.net	Christina Morrison Health Protection and Screening Nurse Specialist NHS Western Isles 01851 708046 christina.morrison@nhs.net
1.3 Accountable clinical lead	Post vacant	Dr Pauline Wilson, Consultant Physician Email: paulinewilson@nhs.net Phone: 01595-743000 extension 3226	Dr Graham Leese DRS Clinical Lead Consultant Physician Wards 5 & 6 Ninewells Hospital Dundee DD1 9SY 01382 632237 or 01382 660111 bleep 4320 graham.leese@nhs.net	Vacant
1.4 Service Manager	Nickie Milne, DRS Administrator, Assessment and Rehabilitation Office, Balfour Hospital, Kirkwall. Nichola.milne@nhs.net 01856 888023	Alison Irvine, Diabetic Specialist Nurse, Gilbert Bain Hospital, Lerwick. Email: alison.irvine@nhs.net Phone: 01595-743000 extension 3444.	Mrs Samantha Creamer DRS Programme Manager Diabetic Retinopathy Screening Programme Diabetes Support Centre Level 8 Ninewells Hospital Duundee DD1 9SY 01382 740068 screamer@nhs.net	Christina Morrison Health Protection and Screening Nurse Specialist NHS Western Isles 01851 708046 christina.morrison@nhs.net
1.5 Location	Assessment and Rehabilitation Office, Balfour Hospital, Kirkwall. 01856 888023	Gilbert Bain Hospital, Lerwick. Contact number: 01595-743000 extension 3030	Diabetic Retinopathy Screening Programme Diabetes Support Centre Level 8 Ninewells Hospital Duundee DD1 9SY	The Diabetes Centre, Western Isles Hospital HS1 2AF
1.6 Referral Centres	Visiting Highland Ophthalmology Service held in Balfour Hospital, Kirkwall, Orkney	Gilbert Bain Hospital and Aberdeen Royal Infirmary (ARI)	Ninewells Hospital, Dundee Arbroath Infirmary Montrose Links Health Centre Stracathro Hospital Perth Royal Infirmary	Ophthalmology Clinic Out-Patient Department Western Isles Hospital/ Uist & Barra Hospital

1.7 Biomicroscopy arrangements	At present all patients requiring slit-lamp assessment is referred to the visiting Ophthalmology Service and is seen within their Out-patient Eye Clinic which is held on a monthly basis at Balfour Hospital, Kirkwall.	Gilbert Bain Hospital with visiting Slit Lamp Nurse from ARI	1x Ophthalmologist Slit Lamp clinic per week based at Ninewells Hospital 1x Ophthalmologist Slit Lamp clinic per week at Perth Royal Infirmary All Angus clinics undertaken by Specialist Screeners Montrose Links Centre x2 per annum Arbroath Infirmary x3 per annum Stracathro Hospital x3 per annum	R Doig Optometrist Ltd 36 Kenneth Street Stornoway R Doig Optometris Ltd Rathad Mhic Eoine Balivanich Benbecula Uist
1.8 Health Board GP Practices	15	10	68	10
1.9 Screening GP Practices	15	10	68	10
2. Delivery Model				
	Orkney	Shetland	Tayside	Western Isles
2.1 Programme structure/ model	<p>Screening is delivered on one site which is within the Balfour Hospital. We have one static retinal camera. We have two Retinal Screening Technician who delivers approximately one clinic per week.</p> <p>All slit-lamp patients are seen by the visiting Ophthalmology Service and their information is passed back to the retinal screening administration.</p> <p>Our grading is provided from NHS Tayside.</p>	We have 1 static photographic site and no biomicroscopy sites. We do not use any independent/external provider. OCT machine used to monitor patients with M2.	<ul style="list-style-type: none"> Two permanat static sites. One mobile unit which can be a 'transportable' system ie has a side lift so that equipment can be taken off the mobile unit and set up in a temporary static site. The same unit can also be used as a mobile unit. Second mobile unit is used for this purpose alone. Five biomicroscopy sites <p>Have an SLA with NHS Tayside Department of Ophthalmology to provide slit lamp service.</p>	<p>NHS Western Isles have contracted with R Doig Optometrist Ltd to provide image capture and slit lamp examinations. He has 2 cameras and 2 static sites, one in Stornoway(Lewis) and one in Benbecula (Uist). He is contracted to provide a peripatetic service and a domiciliary service.</p> <p>Patients are invited to make an appointment with R Doig Optometrist Ltd for their image capture. GPs can request a home visit for patients that are unable to go to either of R 'Doig Ltd premises. Screening is also provided for patients who are in hospital or nursing homes</p> <p>NHS Western Isles have a contract with NHS Tayside to provide Level 1-3 Grading</p>
2.2 Cameras Used	We have one camera. Canon EOS 20D with CR-DGi at present we do not have any back up digital camera or Fundus camera.	We use a Canon 10 D.	<p>Serial Number</p> <p>Canon CR6-45NM Non-Mydryatic Retinal Camera 300570 Canon CR6-45NM Non-Mydryatic Retinal Camera 300654 Canon CR-DGi Non-Mydryatic Retinal Camera 310708 Canon CR-DGi Non-Mydryatic Retinal Camera 310368</p>	2 Fundus Cameras Nokia D70s Topcon TRC NW6

			Canon EOS-20 Digital Camera 14209103 Canon EOS-20 Digital Camera 19210113 Canon EOS-20 Digital Camera 14309090 Canon EOS-20 Digital Camera 15309056	
2.3 Workforce Information	At present we have two members of staff within the retinal screening programme in Orkney who delivers all the administration, screening and co-ordination of the service.	We have 1 administrator (15 hours per week) and 1 retinal photographer (15 hours per week). We do not have any graders. We have a visiting Slit Lamp Nurse from ARI every 3 months.	0.2WTE 2x Level 3 Grader/SL examiners 1.0 WTE Programme Manager - SL examiner, Level 2 grader, photographic screener 1.0 WTE Specialist Screener- SL examiner, Level 2 grader, photographic screener 1.0 WTE Senior Screener - Level 2 grader, photographic screener 1.8 WTE Screeners - training in Level 1 grading 0.8 WTE Camera Operator (yet to be appointed) 1.8 WTE Administrators 0.5 WTE Booking clerk	<u>NHS Western Isles</u> 1 Part Time Administrator 1 Part Time Service Manager 1 Part Time board Co-ordinator <u>R Doig Optometrist LTD</u> 4 Screeners 1 Slit lamp examiner(Optomtrist) <u>NHS Tayside</u> Level 1-3 Grading
2.4 Retinal Screeners	For each retinal photographer who has worked in your programme at any time in the reporting period provide the following pseudo-anonymised information. This information should reflect the status at the 31 st March at the end of the reporting period: Current employment Part Time – 27 hours per week Part time – 7.5 hrs per month Not completed City and Guilds modules.	Current <i>1 (Part Time)</i> /Non-current <i>0</i> 301 passed	1 - 10 years in post, full DRS Diploma 2 - 8 years in post, full DRS Diploma 3 - 5 years in post, full DRS Diploma 4 - 1 year in post, enrolled in DRS Diploma 5 - 4 years in post, units 1-6 DRS Diploma	4 Screeners All working through the City & Guild Units with 3 having completed the City & guilds units.
2.5 Retinopathy Graders	Grading services are contracted to Tayside.	N/A as all grading is completed in NHS Grampian	1 - as above 2 - as above 3 - as above 4 - as above 5 - as above	Grading contracted to NHS Tayside
2.6 Slit Lamp Examiners	Not applicable as slit-lamp service at present delivered by Highland Ophthalmology Consultants	From NHS Grampian - ARI	1 - 0.4 WTE Ophthalmologist, level 3 grader 2 - 0.1 WTE Ophthalmologist, level 3 grader 3 - 0.2 sessions per week, level 2 grader 4 - 0.1 sessions per week, level 2 grader	1 Slit Lamp Examiner - R Doig Optometrist LTD
2.7 Screening GP practices	15	10	68	10

Annex F to DRS Annual Report 2017

Sample monthly ‘Performance profile’ report sent to all Health Board Service Managers, showing indicative invitation, attendance rates and population trends.



**Increasing the uptake of DRS patient for higher risk patient groups -
Minority Ethnic Health Inclusion Service (MEHIS) - NHS Lothian.**

- Diabetic Retinopathy is a common complication of diabetes affecting the blood vessels of the retina. It is the leading cause of blindness amongst people of a working age in Scotland. However if detected early enough treatment can prevent the progression of the disease and prevent sight loss for many years in most patients.
- Diabetic retinopathy screening for diabetic patients aged 12 and over is carried out by the Diabetic Retinopathy Screening Service (DRS) normally on an annual basis with some patients being seen more often depending on their condition.
- In 2016 there were circa **300,000** (Scottish Diabetes Survey - 2015⁴) patients aged 12 or over who are diagnosed with diabetes in Scotland. Of these **205,257** were offered an appointment and **185,067** patients were successfully screened by photography.
- In NHS Lothian there are a total number of **45,693** diabetic patients registered on the Soarian system, (2016 Q4, NHS Lothian). (The Soarian system is used to call/recall and manage patients who are screened for diabetic retinopathy). After suspensions the total number of eligible patients due to have their eyes screened for NHS Lothian is **37,813**.
- It can be seen from the reports of DRS statistics report Feb 2016, NHS Lothian that specific higher risk^{1, 2} ethnic groups have significantly lower than average national and local uptake rates for DRS screening appointments offered.
 - The screening uptake rate (Key Performance Indicator KPI 2) for 2015
 - **NHS average in Scotland = 80.1%**
 - **Overall average uptake for NHS Lothian in 2015 = 78.3%**
 - Chinese – 80.7%
 - Pakistani – 74.9%
 - Indian – 72.4%
 - Black African- 72.0%
 - Bangladeshi – 71.2%
 - Black Caribbean- 66.7%
- If these patients are not attending DRS appointments for retinopathy screening, it is highly likely that they may also not be attending other diabetes management appointments.
- Patients of South Asian ethnicity in particular are at higher risk^{1, 2} than others of losing vision from diabetes. Diabetic retinopathy and retinal lesions occur earlier and at higher levels amongst South Asian diabetics compared to Caucasian diabetics^{1, 2}.
- The objective in encouraging patients to attend for retinopathy screening would be to reduce the risk of sight loss and to reduce the long term costs of diabetes complications developing. Since the number of South Asian patients are relatively small, personalised contact by Minority Ethnic Health Inclusion Service (MEHIS) Link workers is a realistic objective

- Description of the initiative/project, its aims and objectives
 - The aim of this initiative is to increase uptake of DRS screening for patients of South Asian ethnicity in NHS Lothian.
 - The objectives would be to
 1. Recognise barriers to good attendance for these ethnic groups and remove or reduce these where possible
 2. Educate individuals to understand the importance of attending all diabetic management appointments.
 3. Educate patients and staff on the higher risks of certain ethnic groups
 4. Encourage the recording of ethnicity to help target high risk groups.
- Proposed Pilot
 - NHS Lothian's Minority Ethnic Health Inclusion Service (MEHIS) Link workers have successfully increased uptake of Keep Well health checks and Oral Health screening programmes.
Trained Urdu / Punjabi and Bengoli speaking MEHIS Link workers will contact identified Indian, Pakistani, Bangladeshi and other South Asian patients and invite them to screening appointments.
 - MEHIS will work closely with the DRS service in NHS Lothian
 - Baseline and monthly reports will be produced to monitor progress.
- Outcomes
 - An increase in DRS uptake rate to a level that is at least the average for NHS Lothian. As these groups are at higher risk^{1,2} then a higher than average uptake rate would be preferred.
- Lessons we expect to learn
 - Identify barriers to screening take-up from the patient's perspective-(language, importance of location of screening services, female/male staff, etc).
 - Educational needs for DRS staff, other health professionals and patients including their families and carers.
 - Cost effectiveness
 - Adjustments required to DRS systems and procedure, e.g. to ensure 100% ethnic coding.
- Advice to others / things to look out for
 - To review the local ethnic groups and compare attendance with other groups.
 - Review local capability of Link workers to contact high risk ethnic groups.
 - Review local policies and procedures for recording ethnicity.
- Is there potential for the initiative / project to be integrated into the wider work of the organisation?
 - If the South Asian pilot is successful, African and African Caribbean communities could be targeted by MEHIS African Link workers. Although specific high risk ethnic groups are targeted in this proposal, the initiative can be widened to other groups where identified to be below the local average uptake.
- Is there potential for the initiative / project to be replicated in other areas of Scotland?
 - Smaller health boards or boards with few high risk minority ethnic patients may not find it cost effective to employ Link workers.
 - It is possible to develop MEHIS to provide Link worker support to other Health Boards.
 - Telephone invitations from Link workers could be used for all Health Boards.
 - Link workers could also support health professionals to work cross culturally using telephone or video conferencing facilities.

- Other Health Board areas in Scotland will have different ethnic groups represented within their demographic who may be poor attendees. The outcomes of this initiative will help inform other health boards that pro-active steps can be taken to ensure that high risk ethnic groups within their health boards can be encouraged to attend diabetic management appointments and that any potential barriers for their attendance can be removed or reduced.

Contact details

Smita Grant
NHS Lothian, MEHIS
smita.grant@nhslothian.scot.nhs.uk
0131 537 7565

References

[1] Stolk RP, van Schooneveld MJ, Cruickshank JK, Hughes AD, Stanton A, Lu J, Patel A, Thom SA, Grobbee DE, Vingerling JR; AdRem Project Team and ADVANCE Management Committee. Retinal vascular lesions in patients of Caucasian and Asian origin with type 2 diabetes: baseline results from the ADVANCE Retinal Measurements (AdRem) study. *Diabetes Care*. 2008;31:708-13.

[2] Raymond NT, Varadhan L, Reynold DR, Bush K, Sankaranarayanan S, Bellary S, Barnett AH, Kumar S, O'Hare JP; UK Asian Diabetes Study Retinopathy Study Group. Higher prevalence of retinopathy in diabetic patients of South Asian ethnicity compared with white Europeans in the community: a cross-sectional study. *Diabetes Care*. 2009;32:410

Variable Screening Intervals - Four Nations research - Scottish proposal.

Executive summary

A UK wide Study Group was formed to address the study question: **can we determine optimal screening intervals for different risk groups that can be identified in the current data set?** We collected and analysed data from seven programmes (whole nation programmes in Scotland, Wales and Northern Ireland, and a sample of four of the 84 English programmes).

The Scottish DRS Collaborative management groups have discussed the proposal and have identified a high level draft implementation strategy as outlined below. The management groups also recognise that the current procurement of a replacement IT system (Vector) in early 2017 would mean that changing the screening interval periodicity should only be implemented after the replacement system was in place. It was not realistic or feasible for cost, risk and practical reasons to implement such a significant change to the screening interval within the lifespan of the current IT system (Soarian). The priority over this period would be to ensure that all patients were being screened as at present and changing to a variable screening interval at the same time would carry too much risk. Implementing variable screening intervals should however be carried out as soon as practicable once Vector was successfully in place. The replacement system procurement includes a specification for variable screening intervals.

Before any proposed change is implemented, Scottish DRS Stakeholders would be consulted and any draft proposals would be required to go through the appropriate Scottish screening governance arrangements which would need to be agreed.

Proposed Scottish DRS Strategy (high level draft)

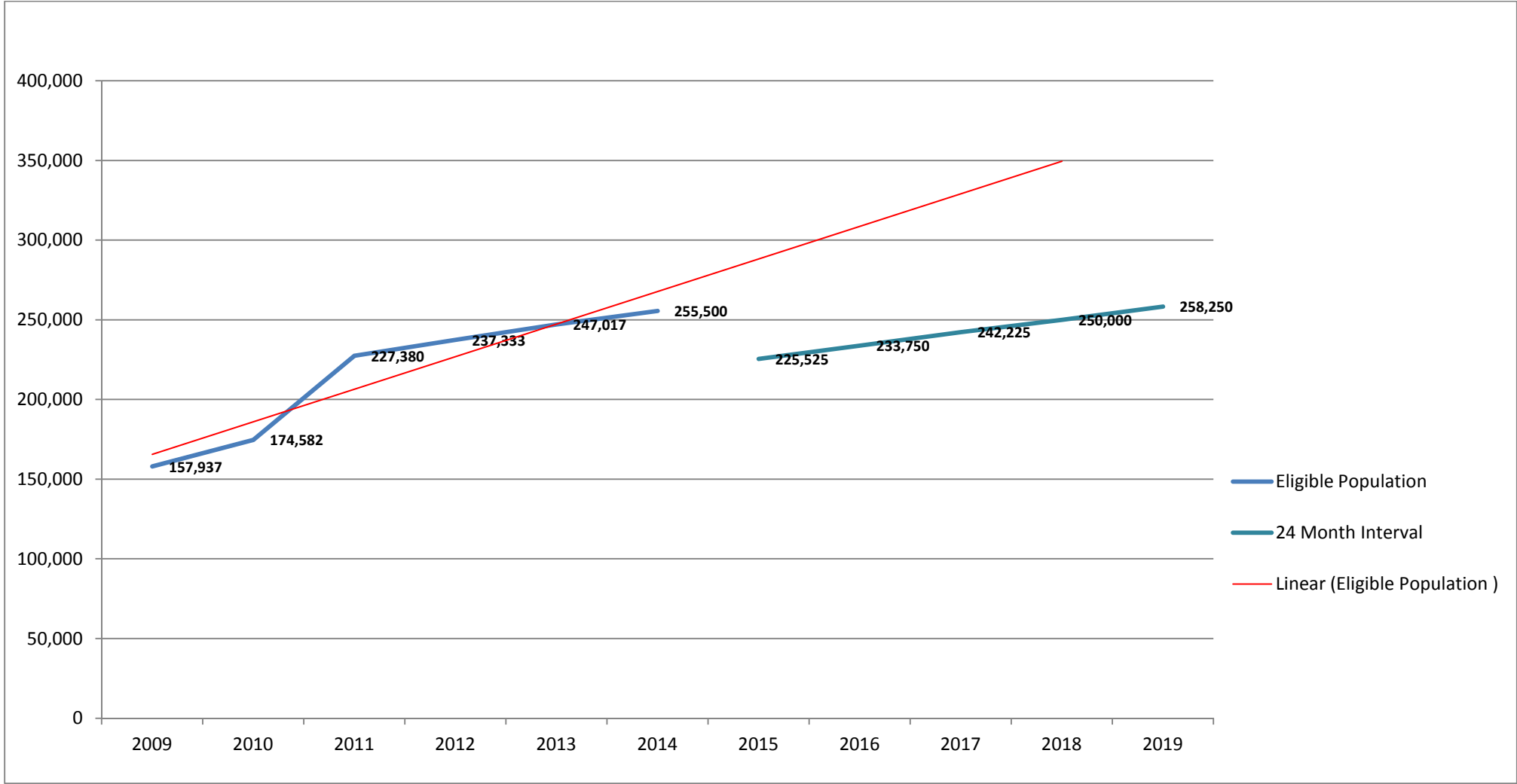
1. Based on an analysis of the last few years of screening data and selecting only patients who meet the criteria of having two contiguous results of R0/M0. The total number of patients that may be included in a variable screening cycle set to 24 month is approx **100,000** eligible patients or **40%** of the current total eligible population. (Based on 2015 total populations as reported in KPIs)
2. If all 100,000 patients were migrated across to a variable screening interval (of 24 months) in a single phase there would be a significant reduction in screening work for the following 12 months and then a significant increase in the following year when all of those variable interval patients were required to be re-screened. This fluctuation would continue in linear wave bunching for several years and would also result in significant fluctuations in referrals to Ophthalmology.
3. It is therefore suggested that in order to minimise the impact on the service and reduce significant fluctuations in patient numbers that a multiple phased approach is undertaken where the total number of patients migrated onto variable screening interval is limited to a maximum of **20%** of the total eligible patients (**circa 50,000**) per annum. The shortest period to migrate all relevant patients would therefore be over a 2 year period from a chosen start date although the migration period could also be longer.
4. A smaller cohort of patients could be selected if it was thought that a pilot was required to further understand the risks of variable screening intervals. Thereafter a larger group could be moved across to the 24 month interval as required with the maximum of 20% as mentioned above. This approach would extend the overall number of years for migration of all relevant patients to a variable screening interval and the results for a pilot may also take

several years to be produced. However, changes could be made to the migration protocol if risks were identified with the initial smaller group. It is not envisaged that a single health board pilot could easily be achieved given that we have a national IT system and that patients may move between areas or reside in one area and be screened in another.

5. The only proposed test that patients would need to pass is that they have two contiguous results of R0/M0. The DRS collaborative also considered that with the interface to SCI-Diabetes the Scottish DRS programme has ready access to other clinical data and this may also allow for other 'triggers' for reversion to annual screening if a relevant/significant diabetes episode should occur. It may also allow the GP or other health care practitioners using SCI-Diabetes to invoke a request to re-screen a patient sooner rather than wait for the next screening episode to take place. Only Scotland would have this ability as the other nations system are not interfaced to clinical systems in this way.
6. It is anticipated that where patients DNA or are unsuccessfully screened they are automatically reverted to a standard annual screening cycle until they meet the test of 2 x R0/M0. New patients will also be required to have two qualifying annual episodes and will therefore only move to variable screening intervals after being in the programme for 2 years.
7. It is important to realise that variable screening intervals will not significantly reduce the DRS screening programme workload over time. The maximum reduction per annum of patients requiring screening is suggested to be 20% and the current increase in numbers of patients' with diabetes (circa 5% per annum) will see the current population numbers requiring screening per annum restored to the current levels by 2019 should we start in 2015. See **Annex H** for a projection showing this. It is therefore vitally important that line managers and Health boards realise that although there may be a temporary reduction in patient numbers that it does not mean a significant reduction in DRS screening needs and staffing overall. Therefore there are no significant costs saved with staff levels and skills being maintained. This is in anticipation that the extension of screening intervals may be viewed by patients and the media as merely a cost saving exercise.
8. A draft workflow diagram for the adjustment of variable screening patients has been developed. A variable (**X**) can be adjusted in this process to have only a certain percentage of patients next screening date adjusted to an appropriate new date. This workflow diagram will need detailed work on the selection process of patients and the writing of next screening episode dates back to the IT system. Workflow diagrams will also need to be agreed for any exception triggers such as GP intervention or other clinical requirements.
9. The Scottish DRS programme currently has a **6 monthly** surveillance screening cycle as part of the Scottish DRS Screening Scheme 2007 V1.1 for R2/M1 (Observable/background Retinopathy or Maculopathy) and this will be retained. It is therefore envisaged that Scotland may have a variable screening cycle which varies from 6, 12 or 24 months.
10. The risks associated to the changes would need to be further analysed and be included in any draft proposal. It is anticipated that NHS Wales and other programmes in England may move to variable screening intervals prior to Scotland being ready so lessons may be learned from these organisations.

Annex H to DRS Annual Report 2017

Projection of patient numbers requiring screening, using a variable screening interval of 24 months. (Assuming the change happens in 2018 with a maximum 20% transfer per annum. (Based on DRS KPI reports for 2016)



Annex I to DRS Annual Report 2017

We did not have a national training day for the DRS programme in 2017 as activities centred on implementing Vector. However, we did provide training for Vector users in early 2017. This was broken into various components over as follows -

1. Training (User Acceptance Testers) UAT part 1 – held in Nov 2016 via Webex.
2. Training UAT part 2 – Webex held in Nov 2016 via Webex.
3. Podcasts x 13 were scripted, developed, produced and published for all users in late 2016 – available online see http://www.ndrs-wp.scot.nhs.uk/?page_id=124
4. Hands on training course in NHS GG&C. 21 PCs set up for training over 3 consecutive days 14th – 17th Feb 2017. There were over 40 attendees across the 3 training days. See the training schedule below. This training session was rated as excellent overall by those who attended. One comment was as follows “*Excellent trainers, very helpful and patient. Learned a lot!! Looking forward to starting Vector on 1st March.*” However these were also complaints that the room was too small, too hot and some of those at the back couldn’t hear everything that was said.
5. Vector user manual – to be made available in May 2017.
6. Vector training system – available in May 2017.

Date	Time	Topic
Tuesday 14th February	10:00 – 12:30	Board Management and Configuration
	13:15 – 17:00	Clinical (Screening, Grading and Slit Lamp) / Q&A
Wednesday 15th February	9:15 – 12.30	Administration
	13.30 – 17:00	Advanced Administration / Q&A
Thursday 16th February	9.30 – 16:00	Guided Learning / Board- Specific Issues / Q&A

What screening results might I get?

If the quality of the photograph is not good enough, you will be asked to return for a further examination.

If any slight changes to your eyes are found, you may be asked to return for a further appointment in 6 months' time.

Your results may show that you need further investigation or treatment. The hospital eye clinic will contact you with an appointment.

Diabetic retinopathy screening is part of managing your diabetes. Diabetic retinopathy is usually treatable, especially if caught early.

Only authorised staff and appropriate healthcare professionals have access to information about your screening results. If you need more information about NHS record-keeping, you can phone the NHS inform helpline on **0800 22 44 88** (textphone 18001 0800 22 44 88). The helpline is open every day 8 am to 10 pm and also provides an interpreting service.

How can I reduce the risk of developing diabetic retinopathy?

- Control your blood glucose as effectively as possible.
- See your doctor regularly to check your blood pressure is not raised.
- Attend your diabetic retinopathy screening appointments.
- Visit your optometrist if you have a problem with your sight.
- Take your medication as prescribed.

Where can I get more information?

Your invitation letter has more details about what you need to do next. You can also find out more by visiting:

NHS inform:

www.nhsinform.co.uk/screening

My Diabetes My Way:

www.mydiabetesmyway.scot.nhs.uk

Diabetes UK Scotland:

www.diabetes.org.uk/scotland

Or phone the Diabetes UK Careline

0845 120 2960

For information about your health rights and confidentiality:

www.hris.org.uk

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Traditional Chinese

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Your guide to diabetic retinopathy screening



DIABETES UK
DARE, CORRECT, CAMPAIGN
SCOTLAND



What is diabetic retinopathy?

This condition occurs when diabetes affects the small blood vessels in the retina, which is at the back of the eye. The blood vessels in the retina can leak or become blocked.

This condition may cause blindness or serious damage to your eyesight. In its early stages there are no symptoms so you may not realise that you have diabetic retinopathy.

Why should I be screened?

If you have diabetes then screening is important because your eyes are at risk of damage from diabetic retinopathy. Screening is a key part of your diabetes care and can reduce that risk by detecting the condition early, before you notice any changes to your sight.

Untreated diabetic retinopathy is the most common cause of sight loss in people of working age. When the condition is caught early, treatment is effective at reducing or preventing damage to your sight.

How often will I be offered screening?

Screening is offered every year to anyone with diabetes aged 12 and over.



What will happen at my screening appointment?

- 1 Photographs are taken of the back of your eyes. The camera does not come into contact with your eyes. All photographs are then carefully examined for signs of retinopathy.
- 2 Around **1 in 4** people may need to be given eye drops so that a good photograph can be taken.
- 3 The appointment will normally last approximately **10 minutes** (it may take **30 minutes** if eye drops are used).
- 4 Your result letter is sent to you and your GP (and your hospital diabetes clinic, if you attend one) within **4 weeks**.

Bring all the glasses and contact lenses you wear with you, as well as lens solution for contacts.

Are there any side effects?

If eye drops are used, there may be some side effects:

- Your eyes may sting briefly.
- Your eyes are likely to become sensitive to bright light, so you may want to bring sunglasses to wear afterwards.
- You may experience blurred vision and are not recommended to drive for a few hours after the appointment. You should make alternative arrangements for getting home safely.

By law, you should not drive if you cannot read a number plate clearly from 20 metres.

Will I still need to have a regular eye test at the optometrists?

Yes, you need to do both. Your screening photographs will either be graded by a health professional or an automated grading system to detect diabetic retinopathy but not any other eye conditions. You should continue to visit your optometrist regularly for a free eye check as well.