NHS Diabetic Eye Screening Programme Update

New national qualification for diabetic eye screening staff

PHE Screening has been working hard to secure a new national qualification in diabetic eye screening since the announcement that City and Guilds could no longer support the qualification. We need to continue to provide those working in the screening programme with a recognised qualification that provides them with a solid foundation for continued learning. As a result, on 1 April 2016, PHE Screening introduced the new Level 3 Diploma for Health Screeners. This nationally recognised qualification is now a requirement for all new clinical non-professionally regulated staff in the NHS Diabetic Eye Screening (DES) Programme.

The Level 3 Diploma for Health Screeners (Diabetic eye) will:

• provide screening staff with a nationally recognised qualification
• ensure staff have the underpinning knowledge and skills required to work within in a healthcare setting
• ensure staff have the underpinning knowledge and skills required to work within DES
• help staff's career progression and personal development

The diploma provides evidence of transferrable skills that support academic and personal development. It is on the Regulated Qualification Framework (RQF), regulated by the Office of Qualifications and Examinations Regulation (OFQUAL) and is based on the demonstration and assessment of work-based competencies.

Qualification requirements for new and existing staff are as follows:

• all new non-medical clinical staff must undertake all or specific units of the qualification - different pathways exist for the different staff roles within DES
• existing staff who have completed the required City and Guilds qualification/units do not have to take the diploma - additional units from the new qualification can be taken to supplement role development
• previously obtained qualifications will continue to be valid for working within DES
• optometrists within the programme do not need to take the entire qualification - they need to complete role specific units
• admin staff should continue to undertake the City and Guilds administration certificate

Structure of new qualification

There will be 13 mandatory units for DES programme staff. These will cover the basic knowledge and skills required to work within a healthcare setting.

They include:

• information handling
• consent
• personal development
• infection control
• screening principles
• safeguarding
• health and safety
• equality and diversity

These mandatory units include content already covered in the induction and initial training of new clinical staff in local programmes. They form the basis of good quality compassionate healthcare.
There are then 6 DES programme specific units. Learners take the appropriate units for the job role they have within their programme. All learning is undertaken within the work place and all assessments are based on demonstrating and evidencing workplace based competency. A rules of combination table is available to demonstrate the units that different staff groups should take (see **figure 1**).

Qualification providers

Four awarding organisations in England are providing the new qualification: *FutureQuals, Innovate Awarding, NOCN, Pearson*.

These are commercial organisations that provide the qualification in England to DES requirements. Having more than 1 awarding organisation gives local screening programmes the chance to determine which is best suited to provide the qualification for them. There is no difference in the content of the qualification between awarding organisations as they have been working closely with PHE and the screening programmes in its development.

Figure 1. Rules of combination for the Diploma for Health Screener (diabetic eye)

Units	Screener	Grader	Screener/grader	Optometrist	Assistant
13 mandatory units	✓	✓	✓	Principles of health screening unit only	
Anatomy and physiology of the eye	✓	✓	✓		
Understanding diabetes and diabetic retinopathy	✓	✓	✓	✓	✓
Prepare for diabetic retinopathy screening	✓		✓	role specific	✓
Undertake diabetic retinopathy imaging	✓		✓	role specific	
Detect retinal disease and classify diabetic retinopathy		✓	✓	role specific	
Understand how to safeguard the wellbeing of children and young people	✓	✓	✓		

How the qualification works

As with the previous qualification, learners will progress through the different units required using specific assessments based on work-based competency with support from their local screening programme. The assessor for the qualification will receive the indicative content required to successfully complete the unit. This outlines in detail what the learner must cover as part of the assessment for this unit. Learners should not see the indicative content for the units but the assessor should use it as a guide to how much content the learner must cover to successfully complete and assess the unit.

Assessment methods

A number of methods are available to assess learners' competence in the learning outcomes for the different units. These can include, but are not limited to:

- portfolio of evidence/experience
- log books
- clinical assessments
- e-learning and associated assessments
- online tests
- assignments
- case studies
- reflective practice
- professional 1 to 1 discussions with expert witnesses and assessors
- short notes
- course attendance

All staff have different styles of learning that require tailored assessment methods for the individual. Local programmes and their assessors, in conjunction with the awarding centres, will determine the most appropriate method of assessment to ensure learning outcomes are demonstrated. As this is a level 3 diploma, it should take between 6 and 12 months to successfully complete and evidence all the units to gain the qualification.

Registering a new learner

There are 2 options available to local screening programmes to register a new learner. The decision regarding which option to choose should be determined locally.

- **Option 1: Register as an awarding centre**

This involves registering with 1 of the 4 awarding organisations so that you can provide the qualification for your staff and also offer to other local screening programmes across the country.

Approved awarding centres are the administrative hubs for the qualification and are responsible for the oversight, administration and registration of the assessors and learners. They are also responsible for the quality assurance of the provision of the qualification in local screening programmes. Awarding centres will determine the charges to cover the associated costs of providing the qualification. As a registered awarding centre you need to have appropriate administrative capacity and associated quality control processes to provide the qualification.

If you want to pursue this option, you should initially contact your learning and development department to determine if your organisation is currently an awarding centre with 1 of the 4 awarding organisations. They will then be able to help you provide the qualification locally. If your trust is not registered with an awarding centre, a list of current awarding centres is available on the Screening CPD website.

- **Option 2: Register with an existing awarding centre**

Registered awarding centres can offer the qualification for 1 or any combination of the screening programmes that need to undertake the Level 3 Diploma for Health Screeners.

A list of the registered awarding centres that can provide the qualification within England is available by emailing the PHE Screening helpdesk at *PHE.screeninghelpdesk@nhs.net*.

Local programmes would then decide which awarding centre to register with and contact them directly. New learners and assessors would need to be registered with the chosen awarding centre. **Further information regarding the qualification is available on the Screening CPD website and on the PHE Screening blog.**

Driving up grading quality to prepare for variable screening intervals

In November 2015, the UK National Screening Committee (UK NSC) recommended introducing screening for diabetic retinopathy in low risk people every 2 years rather than every year at present. This change in screening intervals will have major benefits for the programme. It will free up capacity in the system to better support those people at higher risk while evidence shows that it will not make screening any less effective for those at low risk.

The national programme has set up a project team to plan and oversee the implementation of risk-based extended intervals. Patient safety is the top priority in formulating this plan. That is why 2-yearly intervals will only be implemented when there is assurance of consistently high standards of grading of diabetic eye screening images throughout the country. The national programme has been doing a lot of work to improve the quality and consistency of grading. It is looking to validate measures to show local programmes are grading to a high quality and find ways to help programmes drive up quality where needed. This work will help identify programmes suitable for early adoption of extended screening intervals.

Programmes are accessing the test and training (TAT) grading management reports daily. The screening quality assurance service (SQAS) regional teams have received the reports for 2 quarters and this has seen a reduction in the number of graders with an amber or red flag for sensitivity to referable disease. There is a new online video to help you interpret the report. You can find it on the *cpd.screening.nhs.uk* website by clicking programme specific > diabetic eye > grading quality reports.

The TAT system has been upgraded and the new image viewer system is available and ready for you to download and use. The image viewer boasts superior image manipulation and faster image uploads. The existing web-viewer will be retired at the end of September 2016 and it is important that programmes download the new image viewer to replace this.

New shorter, sharper format for QA visit reports

Local diabetic eye screening providers and commissioners should soon see improvements to the reports they receive following a quality assurance (QA) visit. SQAS is making a number of changes to the content and structure of the reports in response to feedback from local programmes and other stakeholders. Executive summaries of QA visit reports will be published on GOV.UK with the aim of publishing the full visit reports in future. All reports will conform to the same consistent format and processes, including the use of plain English.

The main changes you are likely to notice are:

• shorter reports with clear text and recommendations

• all recommendations are tagged to evidence

• less standard information about PHE, SQAS and how the visits are carried out - links will be provided instead

• less information about population and demographics where this is already well understood

• shortened text in each section to explain recommendations

• clear description of what is required to close each recommendation

• the priority for each recommendation will be either 'high' or 'standard' and individual target dates will be set for each recommendation

SQAS seeks feedback after every QA visit and looks forward to hearing your views on the new reports. It is also keen to identify and share areas of good practice. It now has a process for submitting cases for shared learning which are then published on the **PHE Screening blog** if approved.

The blog provides up to date news from the NHS Diabetic Eye Screening Programme as well as the other 10 NHS Screening programmes. You can register to receive updates direct to your email inbox. **If you have any queries about the NHS Diabetic Eye Screening Programme please email the PHE Screening helpdesk at *PHE.screeninghelpdesk@nhs.net*.**

The new face of a growing

As the new Chairman of BARS, I take over the position during a time of great change in the world of diabetic eye screening. The past year has seen the introduction of a new screening qualification, with implications for trainees and assessors alike, while the recommissioning of DESP's has become a common feature on the eye screening landscape, bringing the potential for service improvement, but also a level of uncertainty and stress for those on the ground.

Next year will see the introduction of new national standards for diabetic eye screening in England and a new software system for Scotland, and with planned changes to screening intervals for low risk patients and the possibility of a national IT solution on the horizon, the next few years could see the most significant developments in our field since the introduction of the Common Pathway in 2014.

Advances in technology have already shaped the way screening is delivered, most notably with the increasing use of OCT, but with a new study confirming the accuracy and cost-effectiveness of Automated Retinal Image Analysis (ARIA) software, the possibility of the rest of the UK following Scotland down the route of automated grading grows ever more real.

Having worked in diabetic eye screening for many years, I know that whilst change can be very positive, it can also bring worry and upheaval to those working in the field. I began my screening career as a Retinal Screener/Grader with the Brighton & Sussex DESP, before moving to London as Programme Manager of the Royal Marsden's DESP in Sutton & Merton. I now work as the Diabetic Eye Screening Specialist for HISL, one of the main software providers. This experience, combined with four years on the BARS Council has, I hope, given me an understanding of some of the challenges currently facing the screening workforce across the country.

In organising this year's conference, we have attempted to address some of these challenges and concerns, and the 2016 programme covers topics such as NDESP's Intervals Project, the new screening qualification, and the automation of grading.

My predecessor, Grant Duncan, has overseen a rapid expansion in BARS membership, and it is a great honour to take over from him and head the association at this important time in its history, alongside a team of experienced, knowledgeable and dedicated members of council.

The late Steve Jobs said that the only way to do great work is to love what you do. During my years in diabetic eye screening, I'm privileged to have met and worked with many outstanding people for whom that quote holds true. BARS members don't do what they do for money, prestige or excitement, but out of a desire to do great work that improves the lives of patients.

As an organisation, BARS wants to support its members through these times of upheaval and change, ensuring not only that this great work continues but – perhaps more importantly – that you continue to love what you do. My aim as the incoming Chair of BARS is to find new ways for us to do that.

If you're reading this at **the 2016 BARS Conference**, *do come and say hello, and tell me how BARS can help YOU. Alternatively contact me via the BARS website at www.eyescreening.org.uk*

Phil Gardner

and evolving bars

Professor Tunde Peto, MD, PhD is the current president of BARS, having taken over from Professor Dodson earlier this year. She is very much looking forward to being able to contribute to the work and growth of BARS and be able to continue the good work of the previous post-holder.

Prof Peto is a medical retina specialist Head of Reading Centre at Moorfields Eye Hospital and is in the process of relocating to Queen's University Belfast, Northern Ireland to take up the post of Professor of Clinical Ophthalmology there. She has been working in the field of diabetic eye care since 1991, first as a PhD student, then in clinical settings. Before the re-commissioning of the London DESP, she was the head of the Tower Hamlets DR Screening Programme, a well respected screening service in one of the most deprived areas of the UK. Currently she is the Deputy Head of North West London DESP, and after the move she will play a crucial role in the Northern Irish screening programme.

Prof Peto has been active in training of screeners/graders and administration staff both nationally and internationally. Many people have been trained by her and her team either through courses, or individual tuition. The World Sight Day Event was the UK's largest training event in DR screening and hundreds attended every year. The tradition will go on in Belfast, a city which will also host the European Association for the Study of Diabetes Eye Complications Conference, where we do hope to see you all!

Please do feel to email Professor Peto on *t.peto@qub.ac.uk* with any suggestions for making BARS working better for you!

Expand your skills and career prospects

As a BARS member

- *you will receive a free copy of the next issue of DiabeticEyeJournal,*
- *enter competitions and present case studies at the conferences,*
- *have an opportunity to network with colleagues and professionals in your field,*
- *attend seminars and workshops organised by BARS for the members,*
- *stand for election to the BARS Council and vote for other candidates,*
- *attend the BARS AGM and have your say on the future of the association,*
- *and submit your case studies for publication on to the BARS website.*

"Working to Support Professionals Involved in Retinal Screening for People with Diabetes"

Retinal Vein Occlusions in DR screening setting

Rengin Kurt, Medical Retina Fellow, Moorfields Eye Hospital NHS Foundation Trust
Tunde Peto, Head of Reading Centre and Consultant Ophthalmologist, NIHR BMRC at Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology

Beside diabetic retinopathy (DR), Retinal Vein Occlusions (RVO) are the second commonest cause of sight threatening vascular disorders. RVOs affect up to 2% of the population over the age of 40, so overall about 16 million people around the world suffer from it (1). The common cause of RVOs is the obstruction of the retinal venous system by a thrombus and can involve the central, hemi-retinal or branch retinal veins (1,2). Branch retinal vein occlusions (BRVOs) are 4 times more common than either central (CRVO) or hemi-retinal vein occlusions (HRVOs) (1). Rogers et al combined a pooled data in analysis of the prevalence of retinal vein occlusions and found that the BRVO have a prevalence of 4.42 per 1000 while CRVO had a prevalence rate of 0.8 per 1000 (1). The majority of RVO cases are unilateral. Of those with BRVO, 5% present with some evidence of bilateral involvement and 10% may have had the other eye involved at a previous stage; in contrast, 10% of those with CRVO present with bilateral involvement but only 5% may have had a fellow eye involvement in the past. (1)

There are a several known risk factors associated with RVOs, with diabetes mellitus, hypertension and hyperlipidemia being the most common. In some cases thrombophilia, hypercoagulation syndrome, systemic and ocular inflammatory diseases and smoking/drug abuse might contribute to the occurrence of RVOs. However, even detailed systemic examination does not always find a cause, especially for CRVOs. Given that diabetes mellitus is a common cause of RVOs, especially BRVOs, many of these are found when grading images taken during screening. A significant proportion of these are chronic cases with well-established collaterals with no need for further treatment, however appropriate clinical assessment is essential for the long-term health of the fellow eye as well. Both CRVO and BRVO are divided into ischaemic and non-ischaemic types based on the characteristic findings on the clinical and fluorescein angiography examination, but visual acuity taken at screening can also give some understanding of how ischaemic the eye is likely to be, the rule of thumb usually is that the worse the vision the more likely the RVO is to be ischaemic (2, 3, 4).

Let us now have a look at a short description of each type, defining each in more detail.

Central retinal veins occlusion (CRVO)

CRVO results from thrombosis of the central retinal vein when it passes through the lamina cribrosa. Clinically, a CRVO (**figure 1**) presents with painless visual loss, although in some cases it might not be obvious to the patient and can be a chance finding during screening. Those with large areas of ischaemia are more likely to progress to neovascularization and consequent vitreous haemorrhage. If left unattended, some of these patients may present with a red, painful eye due to neovascular glaucoma (**figure 2**), a visually devastating complication from CRVO.

On ocular examination, in acute cases retinal haemorrhages and dilated tortuous retinal veins can be seen in all 4 quadrants accompanied usually by cotton-wool spots, while macular oedema and optic disc oedema may also occur in some cases. Chronic cases can mimic the abnormalities seen in DR: intraretinal microvascular abnormalities (IRMA), microaneurysm-like small haemorrhages, venous sheathing, arteriolar narrowing and collateral vessels on the optic disc; in the macula chronic retinal pigment epithelial (**figure 3**) changes might develop.

The central retinal vein occlusion study (CVOS), ischaemic CRVO (**figure 4**) is described as more than 10 disc areas of capillary non-perfusion on seven-field fundus fluorescein angiography, but with the current wide field imaging technologies this description may need to be updated. On examination, indicators of ischaemic CRVO are all of the following: having poor visual acuity, relative afferent pupillary defect, presence of multiple dark deep intra-retinal haemorrhages and increased retinal vein dilation and tortuosity. Whilst 75% of CRVOs are non-ischaemic, 30% of eyes with initially non-ischaemic CRVO may convert to ischaemic subtype (4, 5).

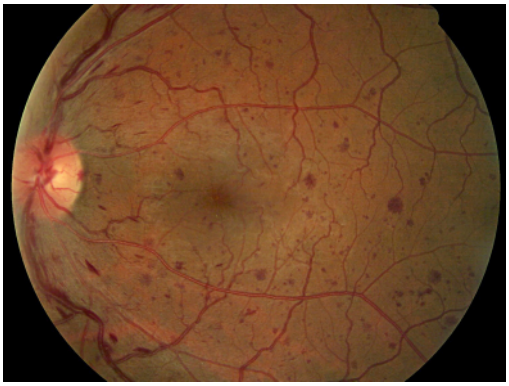

Figure 1. CRVO

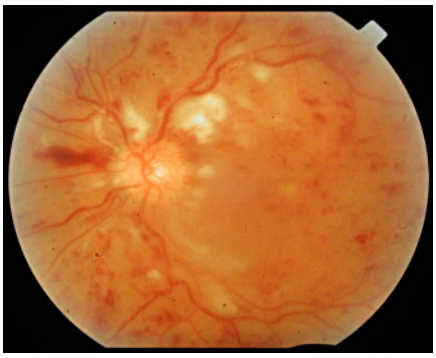

Figure 4. Ischaemic CRVO

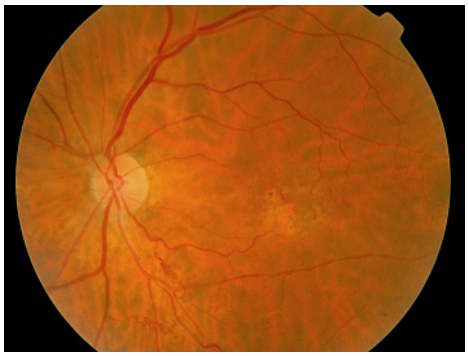

Figure 3. Chronic RPE changes

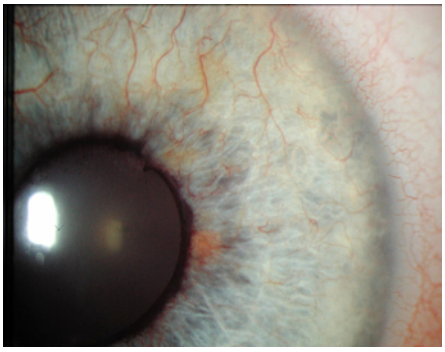

Figure 2. Neovascular Glaucoma

Hemicentral retinal vein occlusion (HRVO)

Hemi-retinal vein occlusions (HRVO) are accepted as variants of Central Retinal Vein Occlusions which involve either the superior or inferior arcade of the retina. This clinical presentation is known to be due to an anatomic variation of the retinal veins at the optic nerve head in nearly 20 percent of eyes. Although clinically HRVO resembles BRVO more, management should be closer to CRVO.

Branch retinal vein occlusion (BRVO)

The most common symptom of BRVO (**figure 5, 6**) is painless vision loss or blurring of vision, although if it does not affect the macula, it might be asymptomatic completely. The onset of vision loss may happen suddenly or become worse over time and is almost always observed in one eye only. The main mechanism of BRVO is accepted as the compression of the vein by the atherosclerotic artery. Compression of the vein leads to the turbulent flow which results in thrombus formation.

During the acute phase, in fundoscopy one will find the following lesions: flame and/or dot and blot haemorrhages, cotton wool spots, hard exudates, retinal oedema and dilated tortuous vessels in the area of occlusion. During the chronic stage, haemorrhages may clear and the macular oedema may be the only sign left, along with collaterals around the area of occlusion, vascular sheathing due to loss of transparency of the vessel walls, while in some cases retinal and optic disc neovascularisation can develop. There is no need for extensive testing in patients with a typical appearance of a BRVO, especially in those already known to have diabetes, as it is one of the main risk factors for developing the disease. In atypical cases such as bilateral involvement in young patients or in patients with a personal or family history for thromboembolism, a battery of laboratory studies can be very useful these include tests for establishing problems with the clotting pathways of the blood and checking for auto-immune diseases.

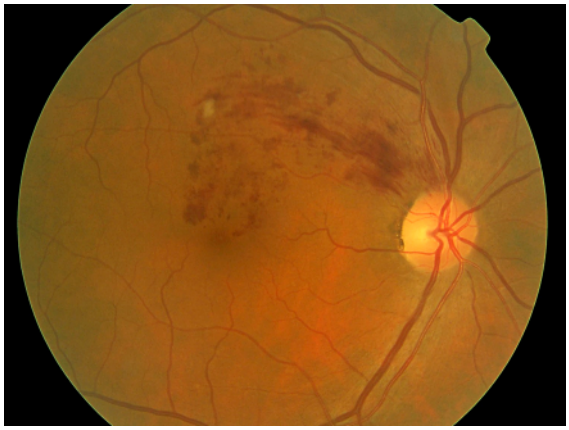

Figure 5. BRVO

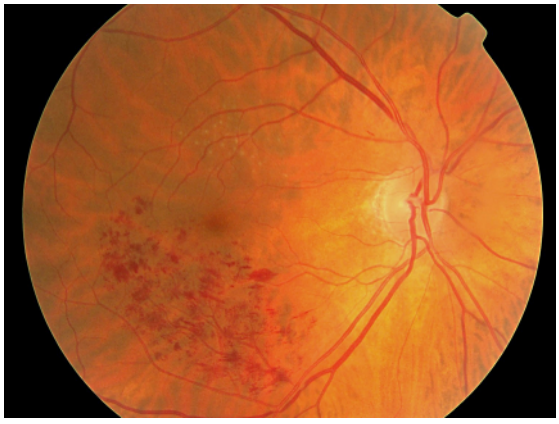

Figure 6.
Macular BRVO

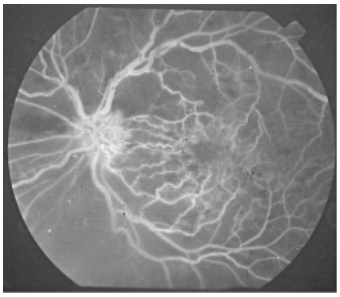

Figure 8. Ischaemic CRVO, poor FFA circulation

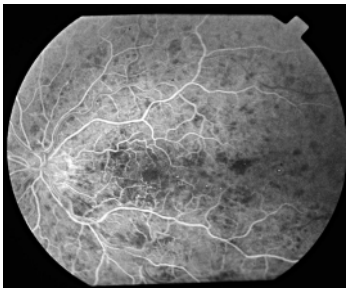

Figure 7. Good FFA circulation

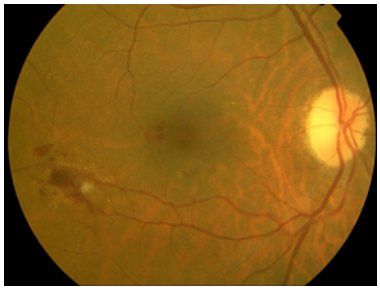

Figure 9. Incidental BRVO with DR

Clinical examination and treatment options

It is prudent to refer patients with RVOs to the eye clinics, although the referral pathway might vary according to local protocols. At the hospital eye clinic, the vision and pupillary reflexes are tested, intraocular pressure is measured and the anterior segment, including the iris and the angle are examined. General medical history is taken and in most eye clinics blood pressure and blood sugar levels are tested. For those found abnormal without the patient having been diagnosed with diabetes or high blood pressure previously, a referral to the GP is made. Once the eye is deemed to be safe to dilate, detailed examination at the slit lamp is carried out and imaging studies are done. These might include fundus fluorescein angiography (FFA) (**figure 7, 8**) to assess areas of ischaemia and potential new vessel formation and Optical Coherence Tomography for the presence of macular oedema. Treatment options must be discussed with the patient and a treatment plan drawn up, although these might need to be re-assessed if there is a significant change in the characteristics of the disease (such as conversion from non-ischaemic to ischaemic or the formation of macular oedema).

The options include no treatment to be offered as some RVOs resolve without any treatment or the patient might decide that they wish to have no treatment (this does not usually apply for neovascular complications, although the patients can make the decision not to have treatment even if the condition is sight threatening). Laser therapy in those with ischaemic changes and neovascularisation is still a valid treatment option. For macular oedema most patients receive intravitreal injections of anti-VEGF or steroid based drugs and most respond well to treatment. The visual outcome is limited by the initial visual acuity, the length of time since the occlusion and if there was an arterial occlusion occurring at the same time or not as well. The latest studies show that earlier treatment is beneficial, although patients referred for treatment even after significant time delay might benefit to a certain extent, hence the recommendation that all patients not known to have been assessed for treatment options before should be referred at least once for this. (6, 7, 8, 9)

Summary

In summary, prompt diagnosis and appropriate referrals are crucial for RVOs in order to achieve satisfactory visual outcomes where possible. Two major complications of RVOs are macular oedema and neovascularisation secondary to retinal ischaemia. Macular oedema can be managed by laser photocoagulation, intravitreal steroids and anti-vascular endothelial growth factor (anti VEGF) agents. If there is neovascularisation of the retina, optic disc or anterior segment, then pan retinal argon laser photocoagulation can be combined with anti-VEGF therapies. Delays in diagnosis may have serious consequences, in some cases the loss of the eye due to intractable pain. Patient history data, examination and imaging are all crucial elements in the diagnosis of RVOs. As DR tends to be symmetrical, very asymmetrical DR cases should always raise the suspicion of potential RVO and this should be flagged early on in the grading sequence. If in doubt, especially in chronic cases where IRMA might resemble DR-related IRMA, it is best to refer on for higher level of grading and then ask for feedback on the patient's outcome (**figure 9**).

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Summary of LESF

London Eye Screening Forum | June/2016

The first London Eye Screening Forum (LESF) took place on 8th June 2016. The objectives for this new forum are to share good practice between London DESPs, present case studies, share research and expertise to enhance learning experience of the employees, expand understanding of patients pathway between departments and positively impact on patients care. The theme of our first meeting was Diabetes and Pregnancy.

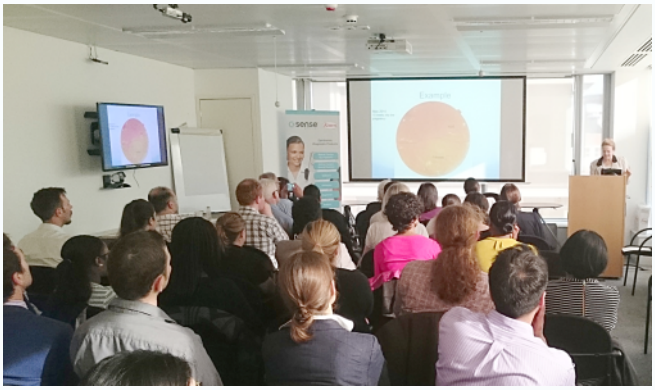
The introduction and welcome was given by Ali Askari – Programme Manager for NCL DESP: 'LESF aims to bring London based DESPs together two to three times per year to present interesting audits, discuss issues that are relevant to London programmes and share ideas and suggestions for improvement of services to London patients. The idea is for London Programmes to collaborate on the choice of topics and themes for future meetings.'

This was followed by a brief update of new imaging equipment by KOWA who kindly sponsored the meeting.

Susanne Althauser, Clinical Lead for NCL DESP, introduced the theme of Diabetes and Pregnancy , and welcomed Ms Michela Rossi, consultant in Endocrine and Diabetes from Whittington Health who gave a presentation about pregnant patients with Diabetes and their challenges, which linked very nicely with the presentation from Susanne on Diabetic Retinopathy and its treatment during Pregnancy.

Ms Stella Ward, Commissioning Manager North West London in adult screening, graphically described how new proposed Pan-London pregnancy pathway should function in practice and help to pick up pregnant patients for DS clinics. Even though referrals are coming from GPs, Antenatal clinics, and midwives already; some pregnant patients are still being missed or seen later into their pregnancy. The idea is that ownership or responsibility will be given to the midwives, who would see the patients during their 1st trimester, and refer them to our DS clinics alongside all the other important referrals that they are already incorporating.

There was a quiz with a prize of a Nikon digital SLR camera sponsored by Kowa from Sense Medical, which was presented to the winner from Homerton DESP by Dr Michela Rossi.



Ross Largan, senior screener/grader from SW London DESP-EMIS Care, presented a series of interesting cases of Progression of DR during pregnancy.

Ms Samantha Mann, Clinical Lead for SE London DESP from Guys and St Thomas' Hospital, presented cases of Late Diagnosis of Diabetic Retinopathy.

Alain Du Chemin, Programme Manager for Guys and St Thomas' who was involved in devising a new Pan-London pregnancy referral pathway, presented a paper that was published in BMJ about patient and system factors affecting attendance for DES.

The last presentation of the evening was from Simon Tong, Team Leader from NCL DESP, who showed a few intriguing retinal images, which were challenging and stimulating and encouraged the audience to search for other lesions in their daily grading work.

All in all this interesting evening of presentations and talks was very well received by all 60 participants from all the London programmes and stimulated a good discussion of ideas for the future forums.