The Changing Role of Graders

In the last issue of the Diabetic Eye Journal, I set out BARS' vision for improving the education and development of screening staff, and alongside Dr Andrew Brown, the BARS Education Lead, I went on to outline the association's plans at last September's conference. The response has been positive and I'd like to thank everyone who spoke to me then or has contacted me since with offers of help, messages of support or useful feedback.

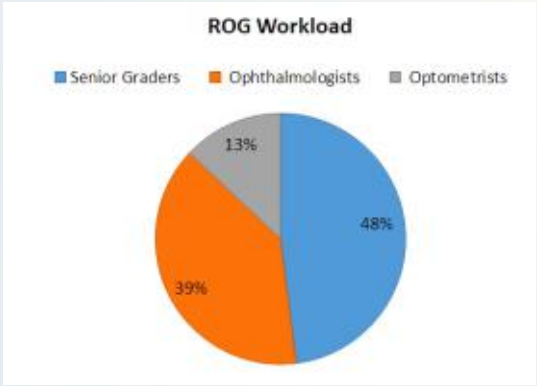
One of our first goals was to explore the possibility of developing a common competency framework for screening and grading staff, and in October Andrew and myself met with Professor Mike Burdon, President of the Royal College of Ophthalmologists, and Melanie Hingorani, the RCOphth Professional Standards Lead, to discuss our ideas further. The meeting was a positive one, and both Mike and Melanie gave generously of their time to offer some invaluable advice based on their experience of developing similar frameworks for ophthalmic HCPs.

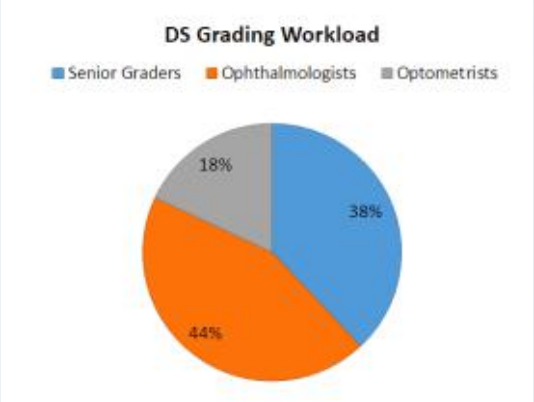
One of their recommendations was to gather evidence of current practice regarding the training and development of graders. We knew that in some DESPs, senior graders are increasingly undertaking activities such as referral outcome grading and slit lamp, but we lacked the evidence to suggest how often this might be the case, and whether it indicates an additional training need that should be addressed in a competency framework.

We felt that the best way to gather this information would be to conduct a survey of DESP Clinical Leads in an effort to understand the role they play in the development of DES staff and the variations that may exist between programmes. We approached NDESP with this proposal, and I would like to personally thank Patrick Rankin, the National Programme Manager, for his help and support with this project, which enabled us to carry out the survey quickly and easily in conjunction with the national programme.

A full report on the survey's findings is now available on the BARS website, and I would encourage you to read it, as it provides an interesting – and at times surprising – snapshot of how DESPs are operating in 2018, and how this has changed since the early days of the national screening programme.

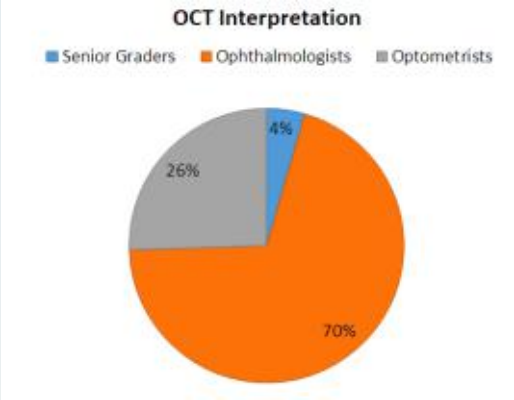
One of the most significant findings is that across the country senior graders may now be undertaking more referral outcome grading than ophthalmologists, with almost three quarters of DESPs giving graders some responsibility for ROG. This will surprise some more than others, but regardless of your own experience, it demonstrates how much the role of the retinal grader has evolved over the years, and how far we've come since the days when ROG was seen as the preserve of ophthalmologists.

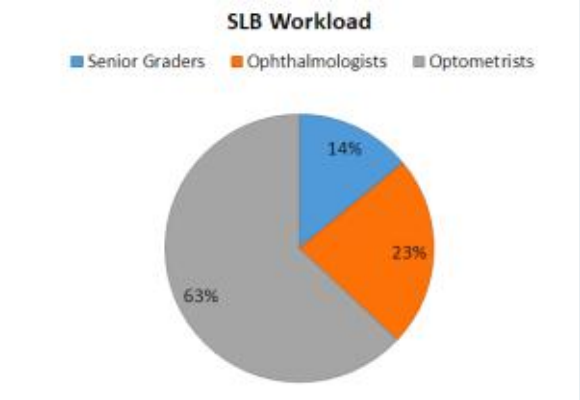




Graders now appear to be making the move into slit lamp too, with a third of DESPs now using senior graders for SLB to some extent. Overall, graders are only responsible for around one in seven slit lamp examinations, but judging by the popularity of the Slit Lamp Workshops we held at last year's BARS Conference, this is an area that many are keen to move into and there is no shortage of enthusiasm and ability amongst grading staff, so I would expect this figure to rise over the coming years.

OCT is another area that screening and grading staff express great interest in. The DESPs using OCT are still outnumbered by those that don't, and there are currently very few graders trained to undertake OCT interpretation. This is likely to change significantly, of course, if the use of OCT becomes a mandated part of the screening pathway.





It's clear from our survey that the roles of Clinical Leads and the grading staff they oversee are evolving over time, and that graders are increasingly being developed to undertake higher level grading and other clinical activities that may previously have been the responsibility of ophthalmologists or optometrists. As an association, BARS is keen to support this ongoing training and encourage the development of grading staff, which is not only good for individuals, but potentially vital in order to meet an ever-increasing service demand. Last year's Slit Lamp Workshops represented the first small step in this direction, and I'm confident those steps will become great strides over the coming months and years.

Phil Gardner BARS Chair

*The results of the BARS/NDESP Clinical Lead Survey are available on the BARS website at www.eyescreening.org.uk. Find it under '***Education***' on the main menu. Our grateful thanks to all the Clinical Leads who gave up their time to provide us with such useful information and evidence of good practice.*

Concept behind the New face of BARS website

My main focus for my design submission for the BARS website was trying to simplify a lot of important information into a clean, easy to read layout. I did this by changing the overall flow of the page and making it more digestible, where possible, whilst retaining the most important information at the top of the page.

I introduced a lot of horizontal scrolling in the page to, again, make the overall look less cluttered, but still delivering the same quantity of information as it did previously. This, combined with hiding content until the user requested it made for a cleaner, overall look.

The colours used in the layout were purely a case of retaining the base colour of the original site, but then combining complimentary shades and introducing one very different colour to bring strong attention to buttons and areas that I felt needed it.

All in all, the page shows the same information the original site did, I just tried to condense this into a more 'bitesize' layout, which I hope has been done successfully and helps any users visiting the site find what they need with very little effort.

Vicki Prior
Grading Manager/Senior ROG Grader
Health Intelligence Ltd

Last year BARS awarded two bursaries for our annual conference.

Here's some feedback from our recipients

"My name is Janine Kerr and I have been employed as a Retinal Screener within the Sunderland and South Tyneside screening service for just over 11 years. During this time, the service has grown from strength to strength. From April 2015, all South Tyneside patients were offered a, "one stop service" screening appointment whereby whilst attending their appointment they were offered all 9 key care processes as derived from NSF and NICE guidelines. This was a very exciting time and I really enjoyed being involved in the development and consequent growth of the service. In my role, I'm constantly looking for ways to develop and improve my knowledge and proficiency.

This year I was absolutely delighted to be offered one of two bursary places to attend the Annual Bars Conference in Leeds on the 21st and the 22nd of September. From the moment I arrived I was given a warm and friendly welcome by the Bars council members, in particular Phil Gardner and Alyson Jaycock, who promptly introduced me to the Oxford screening service who immediately took me under their wing and ensured I was not on my own for the remainder of the conference.

The speakers and presentations over the 2 days were instructive, educative and informative; with a wide and varied level of topics covered. One of the aims of the British Association of Retinal Screeners is to play an active role in the education and development of all screening staff and I personally feel this was achieved over the 2 days. Another highlight was talking to screening staff from other programmes.

The conference certainly gave me a better insight into the world of screening, a lot of which I will be taking back to my own service. I thoroughly enjoyed the whole experience and would recommend it to every screener.

I would just like to say a heartfelt thank you to the BARS for giving me this opportunity. And a big thank you to my manager Helen Bone for the initial nomination and for believing in me. Also thank you to each and every member of our screening team. The hard work and dedication given every day makes the service the success that it is. It is a pleasure to work with you all!"

Janine Kerr, Retinal Screener/Grader
Sunderland and South Tyneside DESP

Come and join us in Bristol

"I want to say a huge thank you to the organisers of the 17th Annual BARS Conference in Leeds, which took place on the 21st and 22nd September 2017,especially to Phil Gardner and Alyson Jaycock who looked after me.

The whole conference was organised extremely well. From the high professional level of the speakers, discussion of the very important national level screening issues to the small details such as precise timing, comfortable round tables and coffee breaks.

There were 20 talks spread over 2 days of the conference. As a ROG grader, I had a particular interest in those touching on the national screening standards, updates and grading quality. I also really enjoyed the talks made by graders from other programmes, sharing their experience and practice. We even had a speaker from Australia. The historical part of the conference (history of diabetes and laser) was very interesting and entertaining. At the same talks performed by clinicians (e.g. tumours, vascular changes and potential new treatment of DR) were deep and scientific. We even had a children's writer and a bariatric surgeon talking to us. It was amazing.

To complete the great atmosphere of conference the venue choice was fantastic. Just stepping into Marriott hotel, seeing bright excited faces and feeling the professionalism, makes you feel that you belong to something very important you can be proud of; the National Diabetic Eye Screening Programme."

Dr Valeriya Simonova, Senior Image Grader from Berkshire Diabetic Eye Screening Programme.

An update on uveitis

Alice Thomas BSc, MBBS, MA, MRCP, ST1 Ophthalmology trainee
Mr Harry Petrushkin MBBS MA FRCOphth, Uveitis Fellow
Moorfields Eye Hospital NHS Foundation Trust

Uveitis can be a daunting subject to eye-care professionals. Here, we review the relevant uveal anatomy and discuss clinical presentations of the more common uveitis diagnoses seen in clinical practice in the United Kingdom (UK).

Anatomy

The 'uvea' is made up of the iris, ciliary body and choroid. All of these structures are pigmented and continuous with each other. If the sclera was removed you would be left with an uninterrupted, pigmented layer covering the internal structures of the eye. The term is derived from the Latin 'uva' which means grape, as the dissected structure you are left with, if you remove the sclera, looks like a black grape with the stalk pulled out. 'Uveitis' is inflammation of any of these structures.

Classification:

i) Location

Uveitis may be classified anatomically: anterior - if the inflammation is restricted to the anterior chamber (also known as 'iritis), intermediate – if the vitreous and/or pars plana is involved, or posterior - if the choroid and/or retina are involved. The term 'panuveitis' infers that there is inflammation throughout the eye.

ii) Severity

The Standardisation of Uveitis Nomenclature (SUN) working group has determined criteria for defining the severity of uveitis by grading the cells or flare seen in the anterior chamber and vitreous (**Table 1**). These criteria were specifically designed for standardising clinical trials in uveitis, but have been adopted into general practice in many centres.

Table 1: The Standardisation of Uveitis Nomenclature (SUN) working group grading of anterior chamber cells (a) and flare (b):.

a) Number of cells seen (1mm by 1mm beam)	Cell grading
0	-
1-5	+/-
6-15	+
16-25	++
26-50	+++
>50	++++

b) Iris clarity	Flare grading
None	-
Hardly any	+
Definite but iris still clear	++
Obvious with hazy iris details	+++
Fibrinous flare	++++

iii) Infectious vs Inflammatory

Intraocular infection is an emergency that must be recognised and treated to save vision (and in some cases, life). It can be challenging to differentiate between infectious and inflammatory aetiologies in uveitis; much of the relevant information will be given in the patient's history. **Table 2** outlines the most common infectious agents and their intraocular manifestations.

Table 2: Common infections causing uveitis with their investigation and manifestations:.

Infective agent	Investigation(s)	Ocular Manifestation
Bacterial		
Tuberculosis	Chest X-ray, interferon gamma release assay (IGRA)	Choroidal granuloma, peripheral occlusive vasculitis, serpiginous chorioretinopathy, chronic granulomatous anterior uveitis
Syphilis	Venereal Disease Research Laboratory (VDRL)	Interstitial keratitis, anterior, intermediate or posterior uveitis, retinitis, chorioretinitis, cranial nerve and optic neuropathies
Toxoplasmosis	Toxoplasma IgG and IgM	Pigmented chorioretinal scars with evidence of activation on the border. Typical 'headlights in the fog' appearance.
Viral		
Herpes simplex and zoster	HSV/ VZV serology, polymerase chain reaction (PCR)	Hypertensive anterior uveitis, retinitis, arteritis
Cytomegalovirus	CMV serology, PCR	Retinitis, arteritis, typical 'pizza' appearance of haemorrhage surrounding retinitis.
Human Immunodeficiency Virus (HIV)	HIV serology, PCR	HIV retinopathy, immune recovery uveitis, cotton wool spots
Fungal		
Candidiasis, aspergillus	Fungal culture, PCR	Exogenous-following trauma/surgery Endogenous-following haematogenous seeding as complication of candidemia: chorioretinitis, snowballs

iv) Non-infectious uveitis

Non-infectious uveitis is caused by an abnormal immune response to intraocular self-antigens, and is more common than infection in the UK. Much of the non-infectious uveitis seen in clinic will be termed 'idiopathic'. Table 3 describes the most common causes of non-infectious uveitis and their intraocular manifestations.

Table 3: Common non-infectious causes of uveitis with their investigations and ocular manifestations:.

Non-infectious, inflammatory conditions	Investigation	Ocular manifestation
Sarcoidosis	CXR, Serum angiotensin converting enzyme (ACE)	Vitritis, granulomatous anterior uveitis, optic neuritis, retinal vasculitis, orbital disease
*HLA-B*27* related diseases: Ankylosing spondylitis (AS) and reactive arthritis	HLA- typing, clinical signs, lumbar and sacroiliac X-ray	Recurrent anterior uveitis, typically bilateral and more severe than *HLA-B*27-ve* individuals.
Systemic Lupus Erythematosis (SLE)	Serology ANA/ds-DNA	Cotton wool spots, anterior uveitis, retinal vasculitis, choroidal ischaemia
Multiple Sclerosis	Oligoclonal bands in cerebro-spinal fluid (CSF), enhancing lesions separated in space and time on T2 weighted magnetic resonance imaging (MRI), reduced visual evoked potentials	Optic neuritis, anterior uvetis, intermediate uveitis, pars planitis.
Behcet's Disease (BD)	Clinical diagnosis	Bilateral posterior/pan uveitis, retinal vasculitis

Epidemiology

The incidence of uveitis is about 15 per 100 000 in the developed world and approximately 75% of these cases are idiopathic acute anterior uveitis. Uveitis is more common in females (Gritz and Wong 2004). Around 50% of patients with uveitis have an associated systemic disease (James et al 2009). Reduced vision (≤ 6/18) is found in around 70% of patients and the main cause of the visual loss is cystoid macular oedema and/or cataract (Durrani et al 2004).

Clinical signs and symptoms

When considering the signs and symptoms it is advisable to examine the anterior and posterior chamber to determine the anatomical location of the greatest amount of inflammation (See **Table 4 and 5**). There may be spill over signs of inflammation in more than one anatomical sight. If the disease is bilateral then an underlying systemic condition is more likely.

Table 4: The Symptoms:.

Anterior Uveitis	• Pain (From inflamed iris) • Photophobia • Watering • Decrease in visual acuity (VA)(secondary to cells/proteins in the anterior chamber and inflamed spasmodic iris)
Intermediate Uveitis	• Gradual decrease in VA (secondary to cells in the vitreous) • Floaters • Discomfort
Posterior Uveitis	• Floaters • Decreased VA (Secondary to retinal exudates, optic nerve involvement, haemorrhages or inflammatory cells in the vitreous.) • Visual field defects • Photopsia • (Pain and redness are rare)

Table 5: The Signs:.

Anterior Uveitis	• Limbal injection • Hypoyon[1] • Posterior synechiae[2] • Miosis • Cells and flare[3] • Keratic precipitates[4] • Cystoid macular oedema
Intermediate Uveitis	• Impaired red reflex • Vitreous cells • Snowballs (leucocytes) • Snowbanking (degraded collagen and vitreous material) • Perivascular sheathing • Cystoid macular oedema
Posterior Uveitis	• Venous sheathing • Arteritis/Phlebitis • Exudative retinal detachment • Macular star • Retinitis • Optic atrophy • Optic disc swelling

[1]**Hypopyon:** This is a collection of cells in anterior chamber. The height can be measured to monitor progression (see **Figure 1**).

[2]**Posterior synechiae:** An adhesion between to iris and the lens caused by the inflammatory mediators.

[3]**Cells and flare:** These are white blood cells and inflammatory proteins and fibrin, floating in the aqueous. These may be seen with a slit lamp. The thin beam from the lamp reflects off the suspended inflammatory cells and proteins floating in the aqueous. The appearance is similar to the outline of a light beam seen reflecting off dust particles or smoke in a dark, dusty, smoky room. This is known as the Tyndall effect (Goldberg 2001) (see **Figure 2**).

[4]**Keratic precipitates (KP):** These are clumps of inflammatory cells on the corneal endothelium. Large 'mutton fat' KPs' are inferiorly located and are typically associated with granulomatous inflammation. 'Stellate KPs' are associated with Fuchs Heterochromic Iridocyclitis and tend to be distributed evenly over the endothelium.

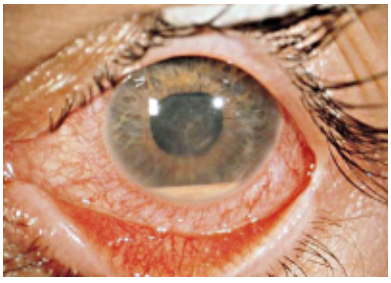


Figure 1: Hypopyon: There is a layer of inflammatory cells that have settled at the bottom of the anterior chamber

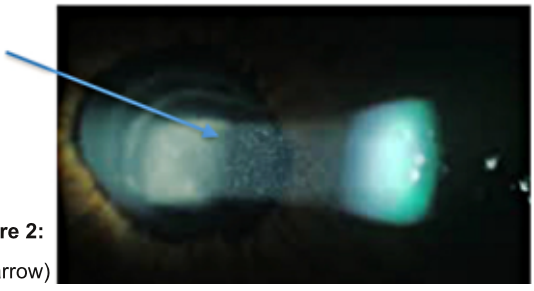


Figure 2: 3+ cells in the anterior chamber (See arrow)

Investigations

Systemic investigation is not normally indicated if the person is systemically well and has a case of single episode, unilateral acute anterior uveitis. Further investigations are needed if the uveitis becomes recurrent, bilateral, chronic or if there is resistance to standard therapy.

Baseline tests depend on the presentation, history, past medical history and signs and symptoms. Investigations may be grouped into investigations for infectious and inflammatory diseases. Patients with uveitis secondary to systemic disease may be managed most effectively in a multidisciplinary setting.

Other Lesions

When taking a systemic history for a uveitis patient, one should enquire about: joint pains (rheumatoid arthritis, seronegative arthropathies, systemic lupus erythematosis (SLE)), **skin rashes** (psoriatic arthritis, SLE, BD), **back pain** (ankylosing spondylitis (AS)), **bowel problems** (inflammatory bowel disease (IBD), BD), **urethritis** (reactive arthritis), **shortness of breath and weight loss** (sarcoidosis, TB) and **recurrent oral and genital ulcers** (BD). If these are present further investigations may be requested as listed in **Table 3**.

Uveitis mimicking diabetes

Uveitis may mimic diabetic eye disease. Retinal haemorrhages may occur in infectious causes of uveitis such as in TB, syphilis and viral retinitis. Haemorrhages may also occur in BD, HIV and SLE. Exudates causing macular star often secondary to infectious agents causing a neuroretinitis. may mimic exudates seen in diabetic retinopathy. Patients with anterior/intermediate uveitis may develop cystoid macular oedema, shown below in **Figure 6**. Bechet's disease may present with retinal infiltrates mimicking cotton wool spots. Cotton wool spots are also seen in HIV and in SLE.

Investigation specific to ophthalmology include:

Fundus photography has become increasing important to document findings and monitor outcomes (**Figures 3 and 4**). Fluorescein Angiography (FFA, **Figure 5**) and Optical Coherence Tomography (OCT, **Figure 6**) can be used to detect cystoid macular oedema, retinal exudates and cysts, ischaemia and perivascular sheathing. These imaging modalities also play a valuable role in monitoring disease progression and resolution.

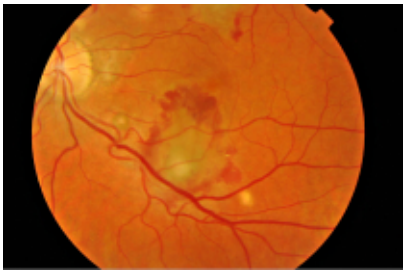


Figure 3: Macula haemorrhage secondary to choroidal neovascular membrane in presumed ocular histoplasmosis syndrome (POHS)

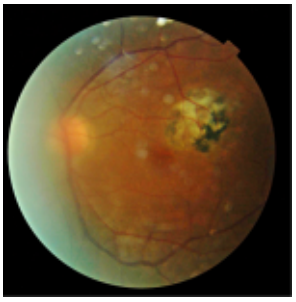


Figure 4: Pigmented macula scar in toxoplasma chorioretinitis

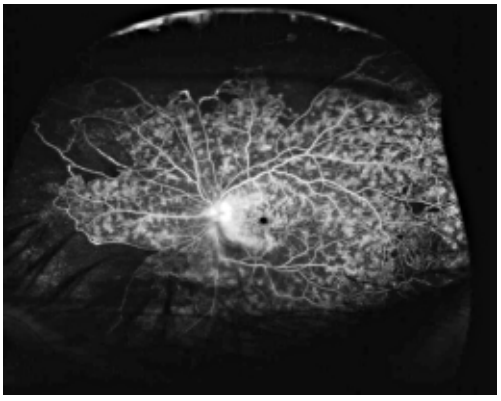


Figure 5: Wide field fluorescein angiogram showing retinal vasculitis and peripheral ischaemia in Behcet's Disease

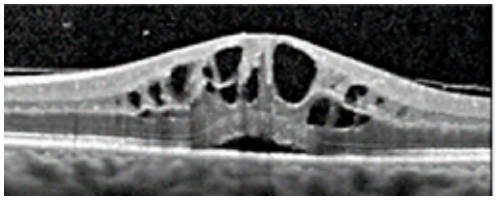


Figure 6: OCT showing cystoid macular oedema secondary to intermediate uveitis

Management:

The treatment depends on the site of the inflammation and the underlying disease causing it. The aim of the treatment is to eliminate inflammation and treat the causative agent (if known) and to treat pain and photophobia in the short term. The long-term aim is to prevent the development of complications (glaucoma, posterior synechiae and cataract formation), reduce relapses and preserve vision.

Topical:

• *Steroids* (e.g. guttae dexamethasone 0.1%) eye drops reduce the inflammation. These vary in the concentration and frequency depending on the severity of inflammation.

• *Cyclopentolate* 1% eye drops-These are used to dilate the pupil and reduce discomfort and reduce posterior synechiae from forming. This is when the iris becomes permanently stuck to the lens. This process may obstruct aqueous from entering the anterior chamber and lead to glaucoma.

• *Topical antihypertensive agent drops* if the intraocular pressure is raised.

Systemic:

• Oral or intravenous *corticosteroids* (if vision drops secondary to optic nerve involvement or occlusion of retinal vessels secondary to inflammation).

• *Antibiotics or antivirals* - be guided by local trust microbiology guidelines to treat identified infections. These may also be given intravitreally.

• *Antimetabolites* e.g. azathioprine, methotrexate

• *Calcineurin inhibitors* e.g Tacrolimus, cyclosporin

• *Biologics:* Anti-TNF alpha monoclonal antibodies, interferon alpha, anti-interleukin 6 monoclonal antibodies

New drugs licenced for use in uveitis became approved by the National Institute of Health and Care Excellence (NICE) in 2017. The VISUAL I trial looked to assess the efficacy and safety of adalimumab in patients with active, non-infectious uveitis requiring high-dose corticosteroid therapy. The authors showed that patients with active, non-infectious intermediate, pan, or posterior uveitis, that is uncontrolled on prednisone ≥10 mg daily, have a significantly lower risk of relapses if also on adalimumab (Jaffe et al, 2016). The VISUAL II trial demonstrated that adalimumab significantly lowered the risk of uveitic flare or loss of visual acuity upon corticosteroid withdrawal in patients with inactive, non-infectious intermediate, posterior, or panuveitic uveitis controlled by systemic corticosteroids (Nguyen et al, 2016). Adalimumab is given as an subcutaneous injection every other week.

Masquerade syndromes:

There are several conditions that present like uveitis and should be considered when there is a poor response to steroid therapy. Intraocular inflammation is caused by or simulated by a range of conditions in which uveal inflammation is not the primary pathological process. These syndromes include neoplasia (e.g. malignant melanoma or ocular lymphoma, leukaemia or reticular cell sarcoma) and bacterial endophthalmitis.

Neoplastic investigations include:

• Leukaemia: Full blood count, Bone marrow biopsy

• Lymphoma: PET CT scan, Fine needle aspiration Lymph node biopsy

Referrals:

If a new episode of uveitis is suspected it is important to refer the patient to their nearest eye casualty to be assessed by an ophthalmology doctor as soon as possible, as treatment needs to be started imminently to prevent further deterioration and protect vision. If a patient has chronic uveitis and they are on long term treatment, it is important to note if vision has deteriorated recently or whether they have a flare up of symptoms as a referral to an ophthalmologist may also be needed.

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DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

The future of diabetes

Diabetes UK has been talking to over 9,000 people affected by diabetes to find out what they want to live well with diabetes in the future, so that their views can be put at the heart of their campaigning. **Dr Susan Aldridge**, Editor of *Diabetes Update*, the charity's magazine for healthcare professionals reviews *The Future of Diabetes* report.

Every two minutes, someone in the UK is diagnosed with diabetes, leading to what is potentially the most devastating health crisis of our time. Diabetes can affect every aspect of someone's life (not just their vision). And sometimes, a lack of awareness and understanding can prevent people with diabetes getting the care and support they need.

As the leading charity for people affected by the condition, Diabetes UK is responsible for making change happen. But this involves everyone – people living with diabetes, parents and carers, healthcare professionals (including those working in retinal screening), campaigners and governments in the four nations of the UK. It is only by coming together to share knowledge and fight diabetes that we can build a better future – a world where diabetes can do no harm.

A nationwide conversation

Meeting the diabetes challenge starts with listening to people's experience of living with the condition. Our report, *The Future of Diabetes* sets out what we have heard during 2017 from over 9,000 people affected by diabetes. We sought the views of local Diabetes UK groups right across the UK. We ran 'Big Conversation' events in Belfast, Bristol, Cardiff, Glasgow, Leeds and London. Thousands responded to an online survey and hundreds more got involved in online discussion on Facebook and Twitter. We spoke to people with different types of diabetes, from different ethnic backgrounds and different income groups. Experiences proved to be as diverse as we are from one another. Some talk a lot about their diabetes, others don't think much about it at all. Diabetes UK will put what people told us at the heart of our message and campaigning going forward.

One clear message emerges from *The Future of Diabetes*. Living with diabetes is hard. There is never a day off. It affects work, family and social lives. For one in three of those surveyed, diabetes had got in the way of something they, or their family, wanted to do that week. Lack of understanding by employers, school, friends and even healthcare professionals can make life harder.

Education and information help a lot (if you can get it). And access to the right technology and treatment help people manage their diabetes. Finally, people want hope for the future. People told us that the following six things would make it easier to live with diabetes:

- More support for emotional and psychological health.
- Better access to healthcare professionals who understand diabetes.
- Better access to technology and treatments.
- Widely available information and education.
- More support and understanding at work and school.
- Hope for the future.

Let's look at the 'big six' in a bit more detail now.

More support for emotional and psychological health

"I told my consultant that I felt horrendous". He replied *"I'm not here to talk about your emotions"*.

The impact of varying blood glucose levels on mood, fear of hypos and the unremitting need to manage the condition can affect mental health. We were told that there is, particularly, a lack of emotional support at diagnosis, with people feeling left alone to deal with the condition. People want both professional and peer support and often they can't get it. All healthcare professionals should be trained to support emotional and mental health in people with diabetes and there should be specialist psychological support available if referral is needed. This is particularly important at the point of diagnosis. We also need to find new ways for people with diabetes to get together for peer support.

Better access to healthcare professionals who understand diabetes

"Going into the clinic, I feel like I walk in as a time slot and walk out as an appointment".

All too often people with diabetes are being let down by the healthcare system. Multiple and short appointments and lack of involvement in decision-making can make people feel frustrated and unsupported. People requiring inpatient care can feel unsafe and anxious in hospital. The support of healthcare professionals who really understand can make a huge difference.

Thus, we need to develop a workforce with the capacity and confidence to deliver excellent diabetes care. More 'one stop' shops to avoid multiple appointments and more planning care around people's actual lives would help too.

Better access to technology and treatments

"I am only given one pack of test strips per month. I have to pay for the others I need myself".

While many people are benefiting from new medications and equipment, getting access to what you need and what works can be a lottery with 28 per cent reporting issues. People found problems getting test strip supplies, pumps, continuous glucose monitoring and newer types of insulin.

Local policies and procurement should allow access to the best treatment and technology, with NICE and SIGN guidance being used to support this access.

Education and information

A lack of information about diabetes, particularly at diagnosis, can be very damaging. And only 39 per cent had attended diabetes education, even though 70 per cent wanted it. More information was also wanted on food, as living with diabetes often means adapting to a new relationship with food.

Healthcare professionals should promote clear, consistent and evidence-based information on diet, medication and diabetes management to signpost people to sources of this and use tools like Diabetes UK's Information Prescriptions. Diabetes education should be made more widely available. Finally, easy to understand nutritional information on foods should be available at point of sale.

DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

More support and understanding at work and school

"A big part of why I left teaching was that we didn't have the chance to eat and such with all the lunchtime duties, and I struggled to control my sugars under that stress".

Some people don't like to ask for time off work for diabetes appointments and some parents believe their children with diabetes do not get the same opportunities to study and play as their classmates. People with diabetes need more understanding, flexibility and support from schools, colleges and employers. Schools must have and implement a medical conditions policy and employers could raise awareness about diabetes and the implications for the workplace.

Hope for the future

"My long-term hope is a cure for diabetes in my lifetime".

Research can change lives and there have been incredible breakthroughs since the discovery of insulin in 1921.

More money needs to be spent on diabetes research, though, for out of every £1 spent on diabetes care, just half a penny goes on research.

In conclusion

The 9,000 people we spoke to in our survey told us that diabetes can be tough. They said that there are steps we can and must take, right now, to build a better future for people living with diabetes. Diabetes UK has a vision of a world where diabetes can do no harm. We'll continue to raise awareness and tackle stigma, invest in research and directly support people with diabetes, healthcare professionals and researchers.

But we can't do this alone. To achieve a better future for people living with diabetes, we need action from governments, health services, policy makers, healthcare professionals, local decision-makers and from across society. Together, we can achieve so much more.

www.diabetes.org.uk/futureofdiabetes

Photo credits to Diabetes UK

For a world where diabetes can do no harm

An international perspective on dry eye management

Dr Penny Asbell, Professor of Ophthalmology, Icahn School of Medicine at Mount Sinai, New York. U.S.

This article provides a summary of a presentation by Dr Asbell held in London on 22 November 2017 and attended by UK ophthalmologists and optometrists. The meeting was organised and funded by Santen UK Ltd to bring together experts to consider and share their insights into the diagnosis and management of dry eye disease (DED). This article was developed in collaboration with Santen UK Ltd.

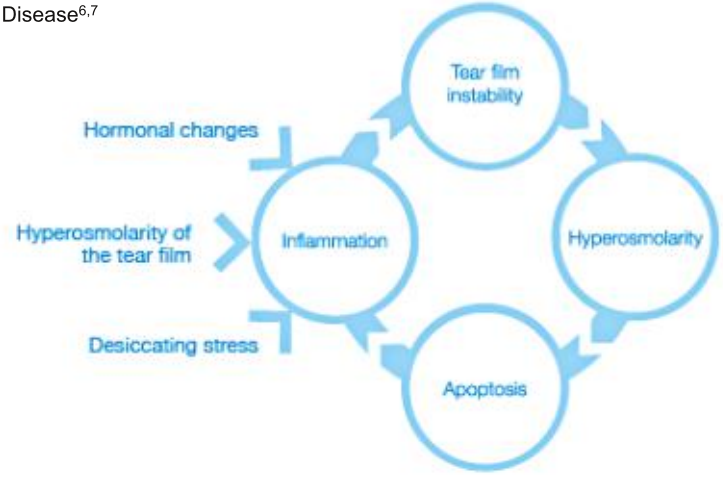
Dry Eye Disease (DED) is a "multifactorial disease of the ocular surface", as per the latest DEWS II definition.[1] Over 50% of people with diabetes suffer from DED,[2] which can have a huge impact on their quality of life. It can affect work productivity, visual acuity and sustained visual attention. This means that day-to-day activities such as reading, driving or working with a computer can be severely impaired.[3]

Inflammation is a core mechanism of DED. Many diseases, such as rheumatoid arthritis, are commonly characterised as "inflammatory diseases", and anti-inflammatory agents have been used systematically to control the disease for decades.[4] However, it has only been in the last 15 years that significant attention has been paid to the importance of inflammation of the cornea, known as keratitis, in DED.[5]

Once inflammation is apparent, a vicious circle is initiated worsening tear film instability, hyperosmolarity and cell damage. This in turn causes further inflammation, which restarts the circle and worsens the signs and symptoms of DED (**Figure 1**). As such, an anti-inflammatory therapy may be used to break the vicious circle of chronic severe DED, to reduce and signs and symptoms of DED.[6,7]

Figure 1.

The Vicious Circle of Dry Eye Disease[6,7]

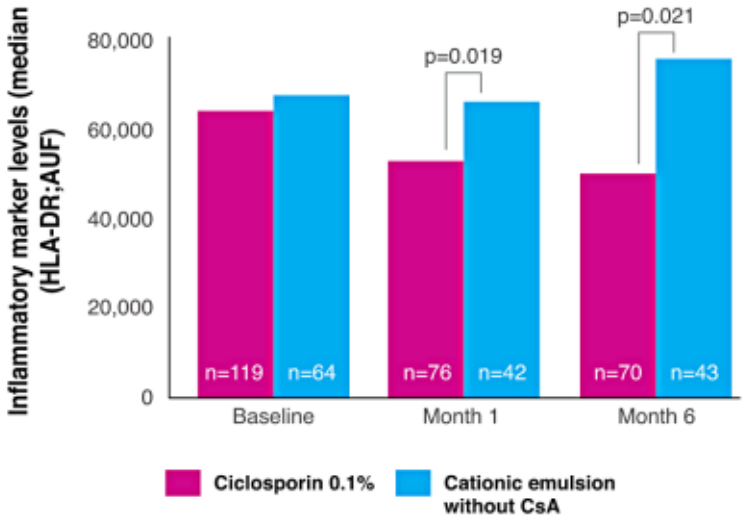


Adapted from Baudouin et al. Fr Ophtalmol 2007;30:239–46.

Biomarkers

Biomarkers are important to understanding the pathology of DED, as well as demonstrating the efficacy of specific treatments in controlling inflammation. Previous studies have shown that a cationic emulsion eye drops preparation of ciclosporin (1mg/mL), which acts as a localised immunosuppressant, significantly reduces the inflammatory biomarker HLA-DR (**Figure 2**).[8]

Figure 2: Decrease of biomarker, HLA-DR, with topical positively charged ciclosporin[8]



Adapted from Leonardi A et al. Eur J Ophthmol 2016;26(4):287-296. AUF: arbitrary units of fluorescence; CE: cationic emulsion without ciclosporin; HLA-DR: human leukocyte antigen-DR

A number of inflammatory biomarkers in DED are currently under investigation. The Dry Eye Assessment and Management (DREAM) clinical trial has been designed to quantify the inflammatory changes that occur in DED. From the results of the DREAM trial, expected in 2018, we hope to learn about the correlation between biomarkers and the signs and symptoms of DED, as well as the impact of anti-inflammatory treatments.[9]

Anti-inflammatory treatments in the UK and US

In both the UK and US, topical steroids are available short-term to manage inflammation in DED. Long-term risks of steroid use are well known, however; making topical steroids inappropriate for chronic treatment of DED. These risks include infection, cataract formation, elevated intraocular pressure and glaucoma, all of which could lead to loss of vision. It would be extremely unusual for a patient in the US to be treated with steroids on a long-term basis and clinicians would be unlikely to prescribe steroids for longer than an initial course of a few weeks. This may be due, in part, to the fact that ciclosporin has been available for the treatment of DED for over 10 years.[11]

Ciclosporin inhibits T-cell maturation, decreases pro-inflammatory cytokines and upregulates anti-inflammatory cytokines. The approval of ciclosporin in the US in 2003 paved the way for a paradigm shift in the treatment and management of DED and was a turning point in understanding DED as an inflammatory disease. It was approved in the US to increase tear production in patients whose tear production is presumed to be suppressed due to ocular inflammation associated with keratoconjunctivitis sicca. Increased tear production was not observed in patients concomitantly taking topical anti-inflammatory drugs or using punctal plugs.[11]

The ciclosporin approved in the US is a twice daily, anionic (negatively charged) emulsion with a concentration of 0.05%.[11] Ikervis®, the ciclosporin approved for use in the UK and Europe, has a different formulation. Although it is the same ciclosporin, Ikervis® is a cationic (positively charged) lipid emulsion of 0.1% ciclosporin, delivered once daily.[12] The negatively charged cornea attracts the positively charged drop which improves the penetration of the ciclosporin into the cornea when compared to an anionic formulation, as evidenced by animal model data (**Figure 3**). [13]

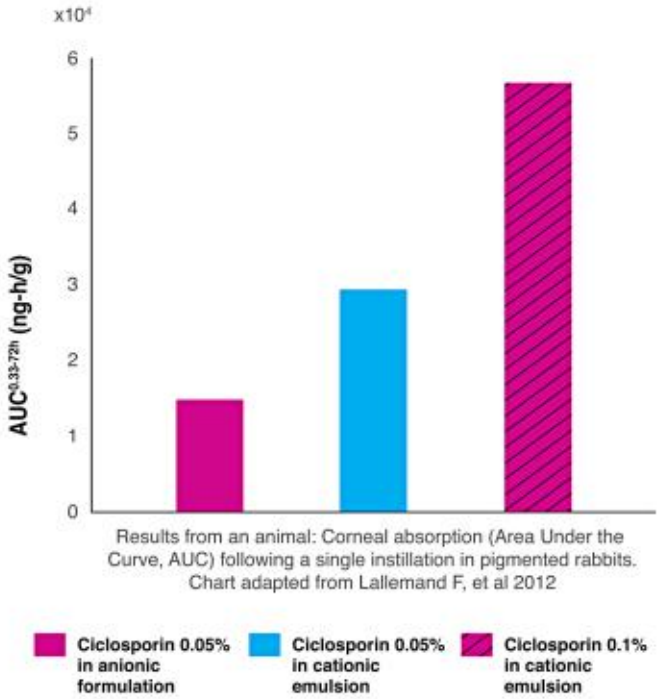


Figure 3. Effect of ciclosporin formulation on penetration[13]
Adapted from Lallemand F et al. J Drug Deliv 2012: 604204.

Clinical data from the SANSIKA study found that patients treated with Ikervis® showed a statistically significant improvement, reduced staining, in-corneal staining at three months and continued to reduce corneal damage over 12 months (Figure 4).8 Post hoc analysis of this study also showed that treatment with Ikervis® for 6 months was approximately three times as likely to improve corneal damage to 'absent or minimal' vs. cationic emulsion without ciclosporin.[8] In addition to this, 44% (n=51/115) of patients with severe keratitis at baseline, who received Ikervis®, achieved 'absent or minimal' corneal damage at 12 months.[14]

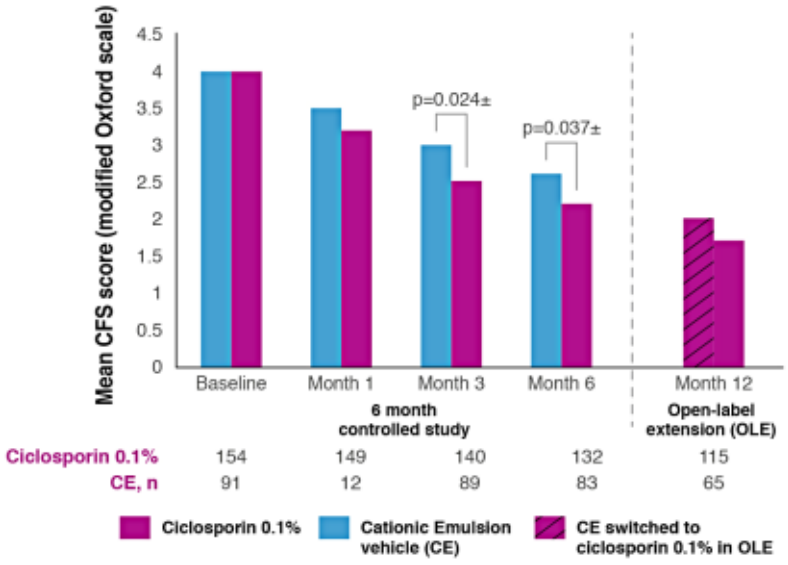


Figure 4. Ikervis® continuously reduces corneal damage over 12 months in the SANSIKA study[8]

Adapted from Leonardi A, et al. Eur J Ophthalmol. 2016;26(4):287-296 and Baudouin C et al. Eur J Ophthalmol 2017;27(6):627-800, e175-e195. The SANSIKA study included 245 DED patients with Grade 4 CFS score at baseline. ‡Significant reduction in corneal staining observed at 3 and 6 months for Ikervis patients vs. baseline, compared with CE patients vs. baseline. CE = cationic emulsion without ciclosporin. CFS = corneal fluorescein staining

Case studies:

As discussed, inflammation is a core mechanism of DED, and effective treatments are now available to treat this inflammation and help to manage DED.

When treating DED, clinicians may keep a number of factors in mind in order to best manage their patients, for example:

1. For patients with typical dry eye symptoms, including grittiness, burning and pain for several years, ocular surface imaging techniques are now available. These can be used to determine if there are abnormalities in the Meibomian gland, which is commonly seen alongside DED.

2. When treating a patient with severe DED, for whom anti-inflammatories are a clear first step, many ophthalmologists begin by starting an additional therapy, such as steroids, alongside the anti-inflammatory treatment. This is to help the patient with the initial phase of the treatment by combatting effects such as stinging. Scleral contact lenses may also be used in patients who do not respond to anti-inflammatories.

3. To test treatment adherence in patients using over-the-counter drops, ask about their most recent experience i.e. 'did you take your drops yesterday?' or 'how often do you take your drops?'. This will gauge more accurately what patients are using and can identify the need for education on the benefits of regular use of artificial tears.

4. For patients trying to relieve irritations, such as stinging and hyperaemia, by using over-the-counter drops in excess, check for preservatives in their drops, such as benzalkonium chloride (BAK), as toxicity can be an issue. For these patients, treatment options include: unit dose, non-preserved tears, hyaluronic acid or neurostimulation.

5. When in a dark room using a fixation light for motility testing, ask the patient to gently close their eyes as they would if going to sleep. Before initiating the examination, touch the pen to the patient's forehead. This will make the patient feel more relaxed ahead of the examination. As the light is touched to the closed upper eyelid, look for light escaping above the lower eyelid - this may indicate lagophthalmos and the need for use of lubricants, such as gels or ointments, before sleep.

Abbreviated Prescribing Information

Please refer to the product Summary of Product Characteristics for full details.

Product Name: IKERVIS® 1 mg/mL eye drops, emulsion.

Composition: One ml of emulsion contains 1 mg of ciclosporin and 0.05mg cetalkonium chloride as an excipient. Please refer to the Summary of Product Characteristics (SmPC) for a full list of excipients. Indication: Treatment of severe keratitis in adult patients with dry eye disease, which has not improved despite treatment with tear substitutes.

Dosage and administration: IKERVIS® treatment must be initiated by an ophthalmologist or a healthcare professional qualified in ophthalmology. The recommended dose is one drop of IKERVIS® once daily to be applied to the affected eye(s) at bedtime. Response to treatment should be reassessed at least every 6 months. To reduce systemic absorption, advise patients to use nasolacrimal occlusion and to close the eyelids for 2 minutes after instillation. If more than one topical ophthalmic product is used, 15 minutes should separate their administration. IKERVIS should be administered last.

Contraindications: Hypersensitivity to any of the ingredients. Active or suspected ocular or peri-ocular infection.

Warnings and Precautions: Use with caution in patients with a history of ocular herpes . Contact lenses: Patients wearing contact lenses have not been studied. Monitor carefully in patients with severe keratitis. Contact lenses should be removed before instillation of the eye drops at bedtime and may be reinserted at wake-up time. Concomitant therapy: Use with caution in patients with glaucoma, especially in those receiving concomitant beta-blockers which are known to decrease tear secretion. Immune system effects: Medicinal products which affect the immune system, including ciclosporin, may affect host defences against infections and malignancies. Contains cetalkonium chloride which may cause eye irritation.

Interactions with other medicinal products: Coadministration with eye-drops containing corticosteroids may potentiate effects on the immune system.

Pregnancy and Breast Feeding: Not recommended in women of childbearing potential not using effective contraception or during pregnancy unless the potential benefit to the mother outweighs the potential risk to the foetus. Benefits of treatment must be weighed against the benefits of breast feeding.

Driving and using machines: Moderate influence on the ability to drive and use machines. If blurred vision occurs on instillation, the patient should be advised to not drive or use machines until their vision has cleared.

Undesirable Effects: Consult SmPC for full details. The most common adverse reactions in clinical studies were eye pain, eye irritation, lacrimation, ocular hyperaemia and eyelid erythema. Patients receiving immunosuppressive therapies including ciclosporin, are at an increased risk of infections.

Special Precautions for Storage: Do not freeze. After opening of the aluminium pouches, the single-dose containers should be kept in the pouches in order to protect from light and avoid evaporation. Discardany opened individual single-dose container with any remaining emulsion immediately after use.

Package quantities and basic NHS cost: 30 x 0.3ml single-dose containers £72.00. **Product Licence Holder:** Santen Oy, Niittyhaankatu 20, 33720 Tampere, Finland (PL 16058/0012) (EU/1/15/990/001 & 002) Date of **Authorisation:** March 2015 **Legal Category:** POM

Date of last revision of Prescribing Information: 14/04/2016.

IKERVIS® is a registered trademark of Santen Pharmaceuticals Co., Ltd. Job code: STN 0418 IKV 00004c

Disclosures

P. Asbell has is a consultant for, or has received research grants from, Alcon/Novartis, B&L, CLAO, Kao, MC2, Regeneron, Santen, Senju, Shire, Web MD, Research to Prevent Blindness, Martin and Toni Sosnoff Foundation, NEI

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The Role of OCT within Diabetic Retinal Screening Service in identifying referable Diabetic Macular Oedema: and looking at a correlation for Ethnicity, Postcode, Age and Gender: A clinical Audit

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Introduction

The work of the clinical audit was undertaken for completion of a Masters Degree in Diabetes Care Management. The audit aimed to evaluate the effectiveness of Optical Coherence Tomography (OCT) in detecting referable Diabetic Macular Oedema within the Diabetic Retinal Screening Service in NHS Greater Glasgow and Clyde. The audit also hoped to assess if there was a correlation for Ethnicity, Postcode, Age and Gender. OCT is a quick and easy non invasive laser scan which is commonly used as a diagnostic tool within the Ophthalmology Clinic for numerous ophthalmic conditions.

Within NHS Greater Glasgow and Clyde, 10.5% of people registered with Diabetes Mellitus had Type 1 Diabetes and 88.3% had Type 2 Diabetes Mellitus. Effective management of Diabetes Mellitus is necessary in order to prevent or reduce complications, one of which is Diabetic Retinopathy. The Diabetic Retinopathy Screening Service (DRS) in Greater Glasgow and Clyde was established in 2004 to detect sight threatening Diabetic Retinopathy and aid onward referral for timely treatment and intervention within the Hospital Eye Care Service. It was however found that many of these referrals qualifying as M2 Maculopathy in accordance with the Scottish National DRS protocol for grading and referral did not actually require treatment or further follow up and were either discharged to DRS or continued in the eye clinic in the absence of a better option. OCT was thought to be a useful adjunct in streamlining referrals for this category.

The audit focuses on two OCT clinics within DRS service held in the South side of Glasgow. The data was obtained for DRS eye clinic referrals between the period of January 2013 to December 2014.

The purpose of the Audit was to determine if introduction of the DRS OCT clinics were effective in reducing the numbers of referrals without compromising on quality of care. Current Scottish Diabetic Retinopathy Screening Referral criteria to secondary care in Ophthalmology include R3, R4, and M2 grades as per the Scottish Diabetic Retinopathy Screening Grading Scheme 2007.

Background

A pilot study of one OCT clinic in the South side of Glasgow was carried out between January and June 2012. This study looked at OCT scan findings correlated with a concurrent slit lamp examination. 116 patients were identified by the level 3 grader (Ophthalmologist) as M2 for referral to secondary care eye clinics. These 116 patients were booked to specifically designed OCT clinics within the Greater Glasgow and Clyde DRS Service. Following the pilot only 31 patients, 27% of the original referable patient cohort (116) actually needed to be seen in an eye clinic for OCT positive macular oedema. Of the remaining patients, 45 were considered suitable for rescreening either in the OCT clinics or photography clinics in 6 months and 40 patients was considered safe for annual screening.

Following the results of the pilot, virtual OCT clinics which did not include slit lamp examination were rolled out to two further sites. The Audit is based on the data obtained from the two South side OCT clinics between the period of 01/01/13 till 31/12/14. The DRS Service had a cumulative total of 3,884 Ophthalmology referrals during this period. This equated to 4% of the overall screening population of 61,647 patients in NHS Greater Glasgow and Clyde and was comparable with the acceptable referral rate nationally at that time. A total number of 1185 OCT clinic appointment episodes were noted which were then refined to 725 (when reviews and non-attenders excluded). Patients were appointed to the OCT clinics if they fulfilled M2 Maculopathy criteria due to a single blot haemorrhage or hard exudates or both noted within 1 disc diameter (DD) of the fovea. Blot haemorrhage and hard exudates are deemed surrogate markers for Clinically Significant Macular Oedema (CSMO) as defined by the Early Treatment Diabetic Retinopathy Study (ETDRS).

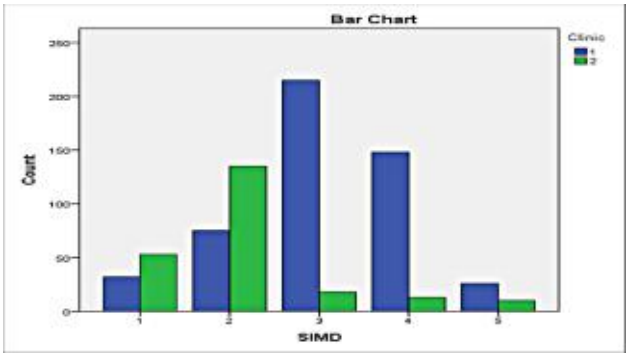
Table 1: Audit population gender and clinic distribution in relation to age groupings

Age	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-93
F	7	27	44	69	69	58	34	3
M	19	34	70	122	99	56	14	0
C1	17	45	82	129	109	74	37	3
C2	9	16	32	62	59	40	11	0

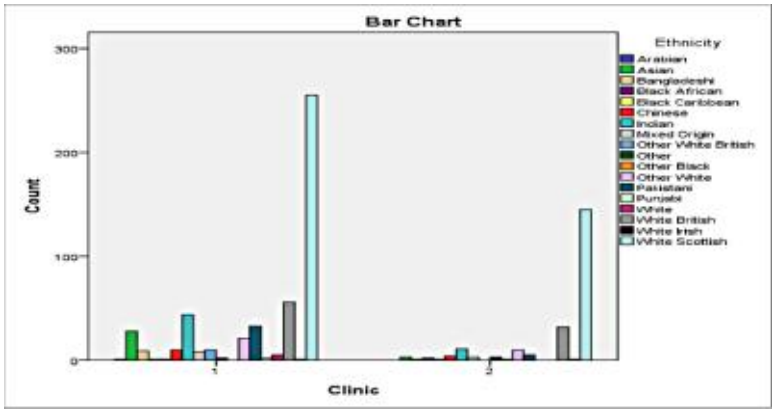
Codes: F = Females, **M** = Males, **C1** = Clinic 1 and **C2** = Clinic 2

The audit population characteristics included 414 males & 311 females with 20.9% being type I diabetics and 79.1% being type II diabetics with an age range of 20 years to 93 years. The data also encompassed 27 postcode areas across 5 (SIMD) Scottish Index Multiple Deprivation categories and 18 Ethnic patient groups.

Clinic 1 & 2 distribution in relation to SIMD categories



Ethnicity distribution for the audit population across clinics 1 & 2



Possible Outcomes following OCT scan:

The outcomes following the scan were 6/12 Diabetic Retinopathy Screening (DRS) OCT clinic review, 6/12 DRS photography/ Slit Lamp review, 12 month DRS Slit Lamp or photography review, onward referral to secondary care eye clinic.

The OCT outcomes distribution across both clinics was as follows:

OCT Outcome	Clinic 1	Clinic 2
6/12 OCT	214	86
Eye clinic referral	63	36
DRS 6/12 review	90	43
DRS 12 month review	128	64
TOTAL	**495**	**229**

Patients received up to two appointments to attend the OCT clinic. Patients who did not attend either appointment were returned to be rephotographed or onward referral depending on the original pathology. In our audit only one person did not attend either of two appointments.

Results of the Eye clinic referral group

The number of referrals to Eye clinic from the original cohort of 725 was reduced to 99. The largest age group for referral was between 61-70 years. More Males than Females were referred according to the gender ratio of the referral group (M=60 v F=39). SMID deprivation Category 2 was also found to be the largest group (n=33) out of the five categories for eye clinic referral. A total of 18 Ethnic groups were included in the Audit as described in the ethnicity distribution bar graph. White Scottish were found to be the largest ethnic group (n=62) within the Eye Clinic referral outcome group.

General Audit Cohort Characteristic results

Statistical testing was carried out by pearson CHI square testing. White Scottish were the largest Ethnic group (n=400) overall. Distribution of OCT outcomes was similar across both clinics. The mean age for both OCT clinics in the wider cohort group was 58 years in contrast to 61 years in the final referral outcome group.

The largest SIMD Category of Deprivation for clinic 1 was SIMD Cat 3 (n=215). This varied in Clinic 2 with the largest SIMD deprivation Category being SIMD 2 (n=135). Gender distribution also differed between SIMD categories. There were more females in SIMD Cat 2 (n=111), with more males in SIMD Cat 3 (n=146). The largest SIMD Category of deprivation for the general cohort of 725 patients was SIMD Cat 3 (n=233).

Conclusion

In this Audit we found that Hospital Eye Service referrals were reduced to 14% of original cohort. OCT is sensitive in detecting macular oedema and can be used as a valuable tool within DRS to assess need for referral and treatment. Introduction of DRS-OCT clinics can refine the process of onward referral to Hospital based secondary care, thus reducing unnecessary appointments and relieving significant pressure on the Hospital Eye Clinics. There is potential for further work to be done of the clinical data following the Audit period which also includes a further clinic rolled out to the north of the city.

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Screeners in Diabetic Eye Careers

From optometrist to slit lamp diabetic retinal screener

Liz Kime The Newcastle upon Tyne DESP

Q: What made you apply for a job as a slit lamp retinal screener?

A: Even in primary school I had friends who were diabetic, and had to be careful about what they ate etc. and I have always wanted to find out more about the disease and the way it affects different people. When I qualified as an optometrist in 2000, I was keen to get involved in diabetic eye screening and applied to join the local scheme which was running in South Cumbria, where I was living at the time. I attended one lecture in Lancaster and then had an assessment by an ophthalmologist at Furness General Hospital in Barrow-in Furness to make sure that I could view a retina. I did pass the assessment, but unfortunately my first baby came along before I had actually screened anyone. By the time I returned from maternity leave, the scheme had been replaced by the National Retinal Screening programme which did not require optometrists.

Therefore, when I saw a part-time post advertised in 2015 for a slit lamp retinal screener, I was keen to apply - this was my chance to learn more about diabetic eye disease and improve my skills in assessing these patients. As a general optometrist, I had not realised how much I did not know, and initially there was a steep learning curve. However, I received excellent training and support, including working alongside the clinical lead ophthalmologist in the hospital diabetic ophthalmology clinics for several weeks, and my confidence grew quickly.

Q: Do you think that screening allows career progression?

A: The answer to this is definitely yes for an optometrist. Not only is the prevalence of diabetes increasing, but there are other eye diseases which are more common in diabetics such as cataracts etc. Therefore experience in recognizing and grading diabetic retinopathy is very useful not only in the hospital eye service but also in community practice. My experience of working in the service gave me the confidence to apply for my current position as medical retina optometrist specialist.

Q: What did you do before diabetic retinal screening?

A: Having completed my pre-registration year at Manchester Royal Eye Hospital, I had worked in the Newcastle Eye Centre as an optometrist for 12 years in a variety of different clinics. Although I saw a lot of patients with diabetic retinopathy in the course of my work, I was never really confident at grading, and was often concerned in case I had missed an important feature. I also worked in private practice as a locum optometrist occasionally. Working for Emis care was also a new step for me, as it was the first time that I had been employed by a private company for a long time. I found the staff to be very friendly and supportive, and did not notice any significant differences from being employed by the NHS during the time that I was with them.

Q: What have been the main advantages for you of your involvement in the Retinal Screening programme?

A: I have now been working in the service for about 10 months. I have seen lots of different types of diabetic retinopathy and my grading accuracy has greatly improved. I enjoy being able to reassure patients that they do not have diabetic eye disease, or to refer them on to the appropriate hospital eye clinic and fulfil this important role in trying to prevent them from losing vision.

One thing that I didn't expect was to learn such a lot about other eye diseases too. Diabetes is linked to a number of syndromes which affect ocular structures, and for example it was very interesting to examine a young patient with bardet biedl syndrome recently as I had only ever seen a fundus like that in a text book previously. I have also seen patients with rare corneal dystrophies, macular dystrophies etc. which I had not seen before.

A few months after starting my diabetic retinal screening job, I was appointed as a specialist optometrist in the medical retina service at the Newcastle Eye Hospital, where I am currently employed. Part of my role involves working in the macular clinics, and the knowledge that I have gained from my diabetic retinal screening job has been invaluable here as many of the patients are there for review or treatment of diabetic macular oedema.

Q: What can optometrists offer to the Retinal Screening programme?

A: Optometrists have extensive training in slit lamp examination as part of their degree, and this is a useful skill for diabetic eye screening. I was very pleased when College of Optometrists and Public Health England mapped the College-accredited Professional Certificate in Medical Retina to the new level three Diploma for Health Screeners. This means that optometrists who achieve this qualification will have met all the requirements for the level three Diploma for Health Screeners (Diabetic Eye) apart from the imaging unit.

Q: Where do you think the future of diabetic eye screening will go?

A: I think that advances in technology such as retinal cameras will improve the quality of the images in the future, and perhaps make it easier to obtain them technically. It may even be possible for some patients to take their own photographs at the G. P. surgery! However, there will always be some patients from whom it is difficult to obtain good images, and therefore a need for experienced and skilled photographers. There are likely to be many challenges to the service in the future due to the increasing number of people with diabetes, many of whom are elderly and have multiple pathology. In general, the diabetic eye screening service will have to find ways of working more efficiently without reducing the quality of the service. I am obviously biased, but I would like to see some diabetic eye screening carried out by community optometrists again along with the NHS sight test.

Q: Do you have any advice about how to get the best view of the patient's retina on the slit lamp?

A: Co-operation from the patient is really important, and so it is well worth having a friendly chat with them before the examination. Many are anxious, especially if this is their first time and they are not sure what to expect. With patients who have any form of dementia, it is important that they do not feel threatened or unsafe in any way, and so it is especially worth spending a little extra time to establish some rapport and to gain some trust.

I would also recommend assessing the pupils again prior to examination, as sometimes extra drops are required. Try and adjust heights of chairs etc. to make sure that both you and the patient are comfortable. Technically, take care about the distance of the Volk lens from the eye as this can affect the field of view, and encourage the patient to keep their forehead against the bar if this is possible.

Finally, I would say don't give up! I waited five minutes once for an unco-operative patient, who eventually gave up and kept their head perfectly in position on the slit lamp for me! Peering between the spokes of a cortical cataract can also be time consuming and feels a bit like trying to see all the details in a room through vertical blinds with narrow gaps, but if you can see everything that you need to with a bit of patience then why not? There are times though when it is important to recognize that you cannot get a good enough view and to report this rather than try to achieve the impossible.

Q: Where do you see yourself in the future?

A: I intend to build on the experience and knowledge that I have acquired, and continue to work in the Hospital Eye Service. There is scope to expand the role of hospital optometrists in tertiary care diabetic eye clinics, for example in reviewing 'stable R3's', virtual review clinics etc. and I would like to play a role in this.

Q: How would you like to summarize?

A: I have gained a lot from my year of diabetic retinal screening, and feel privileged to have been involved in detecting diabetic retinopathy early when treatment is most effective. I would encourage any interested optometrist to get involved and hope that optometrists do continue to play a role in this very important service.

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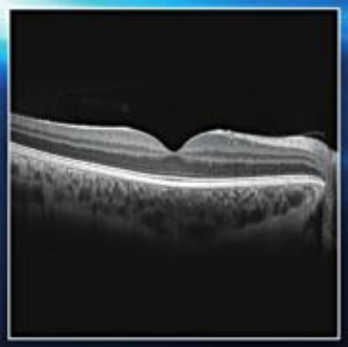

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