

college news



The ROYAL COLLEGE of
OPHTHALMOLOGISTS

QUARTERLY MAGAZINE
APRIL EDITION 2020



The Royal College of Ophthalmologists would like to sincerely thank Mike Burdon for his service and hard work during his presidency.

Cataract Workforce Chair

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Focus

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Museum Piece

PAGE 14 Florence Nightingale at 200





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Articles and stories to be considered for publication should be sent to:

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Dear fellow members,

When I became President of The Royal College of Ophthalmologists three years ago, I didn't imagine that I would spend the last few months of my tenure overseeing the College's response to the COVID-19 pandemic that is having such a devastating effect on our lives as individuals and as part of the worldwide community.

In my election manifesto, I resolved to uphold and promote the values enshrined in our Royal Charter, to encourage all members to contribute to College activities, and to develop new models of care in cooperation with allied health professionals. Looking back, I think that these aims have been at least partially achieved:

- The recent marked rise in the political profile of our specialty is illustrated by NHSE/I's decision to begin its work on transforming outpatient services with ophthalmology.
- The National Ophthalmology Database, one of the most significant pieces of work that our College has ever done and an exemplar to the NHS of how national audits should be carried out, has secured sustainable funding and is set to branch out in to other areas of our specialty.
- The completion of the OCCCF curriculum will enable closer working relationships with our nursing, optometry and orthoptic colleagues.
- In line with the aspirations of the Vision 2020 campaign, our College is now contributing more than ever to efforts to provide access to high quality eye care elsewhere in the world, particularly through its formal link with the College of Ophthalmology of Eastern, Central and Southern Africa.

This work, and much more, has been achieved by a highly dedicated and professional team of College staff, College Officers, and Committee Chairs supported by a large section of the College membership. They should all be justifiably



proud of what they have achieved. As a temporary 'first amongst equals', I am very grateful to all of you who have given me invaluable advice and encouragement over the last three years. I am confident that you will give our new President, Bernie Chang the same support.

Normally, the Presidential handover takes place in front of members during the Annual General Meeting at Congress. This year will be different. On the 21 May, Bernie may take over a 'virtual' College until a resolution of the COVID pandemic allows us to physically reoccupy 18 Stephenson Way. I have every confidence that he will prove to be entirely worthy of the trust that College members have placed in him. The College will continue to work to campaign on behalf of our patients and our profession. Who knows, the new ways of working that we are currently developing in response to the COVID pandemic may help to shape the future of ophthalmology.

Mike Burdon, President
president@rcophth.ac.uk

Recognising the contribution of members and colleagues during COVID-19

There are many ophthalmologists, members of the ophthalmic team and other professions doing their bit on the front line, or in medical wards or carrying on in eye units. Many staff and College officers are also working in the background, with leaders in the health care system, charities and other professionals in the sector. A small but dedicated team is working with specialist groups to provide clinical guidance and with Public Health England and the NHSE on adapting PPE advice for ophthalmology procedures and the workforce.

We are also working with the College of Optometrists and NHSE/I in contributing to the recent CUES commissioning document for emergency eye care during COVID-19, to provide patients with access to eye care in the community and manage appropriate patients into the hospital eye service. We are helping the Macular Society with support advice and information to help field the anxious call of patients about their eye appointments and postponed treatments.

With everything changing daily, and the workforce and people from all walks of life having to adapt to the impact of the pandemic, July's edition of College News will feature the work that is going on and, undoubtedly will continue for some time in our hospitals. I would like to hear from members and colleagues about their experiences during this unprecedented time – please send me stories and images, video content, that show how you have adapted to new working conditions, how you're using your medical skills in deployment in different areas of the hospital system and with patients, of the challenges faced and how they have been overcome, breaking through concerns and spirits uplifted by the examples of others.

You can drop me a couple of paragraphs or a single line, images (with permission for the College to publish) or an article of about 200 - 300 words.* Please send your contributions by **29 May**, to Liz Price Head of Communications & Engagement, liz.price@rcophth.ac.uk

**RCOphth retains editorialship of content and may adapt submissions*

Introducing RCOphth's first Cataract Workforce Chair



My name is Jonathan Bhargava and I am a Consultant ophthalmologist in Chester. Providing a high quality, safe and efficient service has always been central to my practice since I started training in ophthalmology in Nottingham. I have piloted high volume cataract services in Chester and have presented to the North of England Ophthalmological Society

about how we can improve efficiency in theatre. It is against this background that I am extremely excited to have been appointed by The Royal College of Ophthalmologists to chair the Cataract Workforce Guidance Committee. Our aim is to provide a 'guidance on the workforce required to deliver the hospital component of a safe and sustainable cataract pathway from referral to discharge. The pathway must be patient centered and efficient whilst being of the highest quality.

Currently there is great variation in our theatre practice in the United Kingdom. Generally, routine cataract surgery may take 10 minutes to perform. As we all know, the 'turnaround' time taken by the whole team to do this may be much longer. This may be due to many factors such as proximity of the waiting area to the operating theatre, numbers of theatre staff etc. We seem to be managing our theatre lists in a similar manner to when I started my ophthalmology training 20 years ago.

Technology has moved on but in many cases working practices haven't. Again, this may be for many reasons, including the difficulties encountered when trying to implement change within the NHS.

Our group will consult all parties concerned, surgeons who run higher volume services, nursing staff, optometrists, managers and patients. We will investigate the future demand for cataract surgery, how we can address this in a sustainable manner and, most importantly, provide detailed guidelines for staffing and how this can be achieved and adopted by units throughout the UK. We will examine the hurdles and stumbling blocks that currently exist preventing improved efficiency and work to provide evidence backed accepted solutions. I am sure that we are all aware of the unique nature of ophthalmology within the whole of medical practice. The numbers of out patients we see and operations we perform are the highest of any medical specialty. However, from my own experience, our NHS Trusts often have a 'one size fits all' policy that hinders progress. By providing a robust gold standard we will have evidence to show that Ophthalmic services are different and must be treated as such so that we can all reach our potential and provide the best service possible for the future.

Please feel free to contact me at john.bhargava@nhs.net to discuss any issues and share any experiences (good and bad!) that you may have on this hot topic.

2020 AGM

The 32nd AGM of The Royal College of Ophthalmologists and the first to be held online will be on **Wednesday, 20 May 2020** at 6.00 pm (UK time).

All members are entitled to attend the Annual General Meeting and an invite will go out to all members with detailed instructions and information for joining the online AGM. Please note that only Fellows, Members and Diplomates in good standing are entitled to vote.

Questions for College Officers and Committee Chairs and questions on any other business must be sent to **president@rcophth.ac.uk** by **10 May 2020**.

Mike Burdon, President **Declan Flannigan**, Vice President
Mohit Gupta, Hon. Secretary **Nick Wilson-Holt**, Hon. Treasurer
Melanie Corbett, Education **Melanie Hingorani**, Prof Standards
Andrew Lotery, Scientific **Fiona Spencer**, Training
Bob Taylor, Examinations

AGM AGENDA

1. To receive the 2019 Annual Report
This will be on the College website by **28 April 2020** **www.rcophth.ac.uk**
2. To receive a report from the President
3. College Officers and Chairs of Standing Committees to receive questions on the work of the College
4. To receive the Financial Statements for 2019. These will be on the College website by **28 April 2020** **www.rcophth.ac.uk**
5. To re-appoint Sayer Vincent and Co. as auditors to the College for the coming year
6. To approve the proposed increases in annual subscription for 2021
7. To receive the results of the appointment of College Officers
8. To receive the results of the elections of Council members
9. Any other business

The AGM will be followed by the Presidential handover.

Membership Fees Notice

Following feedback from trainee members we have updated the way we charge membership fees. Currently trainees who pass their Part 2 exams early and achieve the FRCOphth are charged a higher fee as they become a Fellow of the RCOphth. We consulted the Ophthalmologists in Training Group (OTG) on how we can make membership fees fair for trainees, the outcome is to charge all trainees the same fee throughout the seven years of Ophthalmic Specialist Training programme.

We are simultaneously making the subscription fee for low earners equal to the trainee subscription rate from 2021, to ensure our membership fees are fair for all our members.

Our full list of proposed membership subscriptions for 2021 is below.

RCOphth Membership subscriptions - 2021

CATEGORY	2020 SUBSCRIPTIONS	2021 SUBSCRIPTIONS
UK Consultants	£530	£546
UK Fellows, Members, Diplomates, Affiliates (inc SAS doctors)	£407	£419
UK members with gross annual earnings up to £46,000 from medical sources	£331	£350
Trainee Affiliates and Trainee Fellows	£271	£350
UK Seniors (those retired from all medical practice)	£188	£194
Overseas Fellows, Members, Diplomates, Affiliates - Band A countries	£298	£307
Overseas Fellows, Members, Diplomates, Affiliates - Band B, C and D countries	£234	£241
Overseas Seniors (those retired from all medical practice)	£153	£158

The banding of countries is based on a World Bank classification. Band A countries include those such as Australia, Canada and the USA and are deemed richer than Band B countries as specified by the World Bank.

New RCOphth Ophthalmic Services Guidance for Genomics

The NHS in England is undergoing a radical change in the structure and breadth of genetic services. The drive towards developing a national **Genomic Medicine Service** will in turn facilitate the delivery of personalised approaches to diagnosis and treatment for patients across the UK. The evolving infrastructure developed to support this encompasses seven regional Genomic Laboratory Hubs (GLHs) and Genomic Medicine Centres (GMCs), with a comprehensive genomic test directory and concurrent development of education and training for clinical and scientific staff.

These innovative changes represent an exciting opportunity to embed personalised approaches to diagnosis and treatment, which lie at the heart of clinical medicine. Together, with the NHS Five Year Forward View embracing a technologically advanced and data driven approach to healthcare, the opportunity to improve health, reduced healthcare costs and accelerate research will be realised.

The implementation of genomic medicine is possible due to the development of powerful new DNA sequencing technologies.

It is widely acknowledged that genomic medicine has the potential to bring enormous potential benefits to clinical care delivering personalised medicine for patients. This was underlined by the 2016-17 Chief Medical Officer's report Generation genome (published July 2017), which aligns to the Life Sciences sector report. Following the success of the 100,000 Genomes Programme, the development of a national Genomic Medicine Service by NHS England will allow a wider delivery of genomic medicine making it available to all patients throughout the UK benefitting the entire population.

As with any medical advance, it is important that the implementation process is carefully managed, as part of a planned programme so that patient safety and clinical benefit are ensured. This document aims to describe the opportunities and challenges for ophthalmology posed by this innovation in healthcare delivery.

www.rcophth.ac.uk/wp-content/uploads/2020/03/Genomics-Services-Guidance-2020.pdf

To print or not to print!



April's College News has been impacted in some part by the COVID-19, but mostly because of staff shortages in the communications team – but we're carrying on. Unfortunately, this has meant delays and fewer articles and contributions than normal. Because of this, we have taken the decision to only produce a pdf of what is normally a printed magazine. I hope members will not be too disappointed.

July's issue I hope will be a bumper edition and something to look forward to, dare I say, coming out of lockdown?

Liz Price, Head of Communications & Engagement



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Genomic Medicine in Ophthalmology

Mr Jay Self BM FRCOphth PhD

Consultant ophthalmologist and Associate Professor
University of Southampton
University Hospital Southampton

Dr Mariya Moosajee MBBS BSc PhD FRCOphth

Consultant ophthalmologist and Associate Professor
Moorfields Eye Hospital NHS Foundation Trust
Great Ormond Street Hospital for Children NHS Foundation Trust
UCL Institute of Ophthalmology, London

What is genomic medicine?

Genetics is the study of certain parts of an individual's DNA, usually a limited number of genes or parts of genes. In contrast, genomics is the study of the entirety of an individual's DNA (approximately 3 billion nucleotides and over 20,000 genes) or a significant proportion of it. Genomics is a relatively new term as it has only been made possible by recent advances in technology which allow massive amounts of DNA to be sequenced in parallel and data to be analysed using high-performance computing and mathematical techniques known as bioinformatics.

Genomic medicine is an emerging medical discipline/approach that involves using genomic information about an individual as part of their clinical care (e.g. for diagnostic or therapeutic decision-making) and is increasingly being recognised as having a major impact on healthcare systems and individualised medical care.

How is genomic medicine impacting ophthalmology?

Genomic medicine is central to the move towards precision medicine, which is a key priority for the NHS as part of its '5 year forward view'. For some time, genetic testing has been available for certain rare ophthalmic conditions but with the advent of modern sequencing techniques and better pipelines for interpreting results, genomic information is now part of 'best practice' management for many ophthalmic conditions and helping to tailor treatments and diagnostic workflows in most ophthalmic specialties. Many novel therapies, such as gene and stem cell therapies, have relied for some time on genomic information to select patients which may respond to treatment but pharmacogenomics (the study of how an individual's genomic makeup dictates their response to specific medicines) is now starting to show promise for more common conditions such as glaucoma and AMD. Even when genomic studies do not direct the ophthalmologist to a specific treatment, they can help ophthalmologists to plan future screening for the individual, provide more informed prognostic information and provide genetic counselling to families and risk stratification for relatives. Additionally, in some cases excluding or identifying conditions which require ongoing systemic management is becoming a key role and leads to earlier diagnosis, access to treatments or the correct specialists to reduce co-morbidity and in many cases significantly fewer diagnostic investigations.

Why is genetic testing important?

Despite the improvement in genetic testing in ophthalmology in recent years, and the numerous reasons for its importance, it is still sometimes considered to be of limited value or of 'research interest' only. In the table below, we outline some of the most common ways in which pursuing a genetic diagnosis can help patients, clinicians and the NHS more broadly in the context of busy ophthalmic practice.

Outcome	Benefits
Identification of associated/potential systemic features	Hastening medical care for associated pathologies and reducing co-morbidity
Exclusion of more significant genetic disorders	Reducing investigations and screening costs and providing life-long information to patients
Identification of whether the condition is progressive or non-progressive	Providing information allowing patients to plan their futures. Allowing clinicians to plan future care/screening and typically reduce costs and investigation burden
Identification of the likely mode of inheritance	Facilitating genetic counselling and family planning Permitting targeted screening of family members – increasing early diagnosis and reducing unnecessary screening in some cases
Identification of genetic aetiologies for which established genetic therapies or clinical trials are currently recruiting	Permitting access to current clinical trials or established genetic therapies for specific disorders
Identification of specific disorders for which targeted medical or surgical therapies exist	Permitting early treatments which would not otherwise have been considered
Identification of the specific disorder <i>per se</i>	Patients value simply knowing what their condition is. This is often underappreciated

Example 1

Lisa is a 9 year old girl who is healthy, has no previous medical history and takes no medications. She reported blurring of her vision, which had progressed over the previous year (no previous ophthalmic examinations) and was found to have bilateral cataracts, visual acuities of 0.6 LogMAR in either eye and an otherwise normal ocular examination (see Figure 1).

At the time of cataract surgery, a congenital cataract gene exome sequencing panel was sent, which identified a homozygous, known disease-causing variant in the CYP27A1 gene suggesting a diagnosis of autosomal recessive cerebrotendinous xanthomatosis (CTX). Subsequent segregation in her parents and cholestanol studies confirm the diagnosis, which triggered a prompt referral to the regional metabolic service.

CTX is a multisystem disorder and oral bile acid replacement therapy can halt disease progression and prevent symptoms entirely in asymptomatic individuals. Therefore, early diagnosis and treatment is extremely important in order to prevent the significant systemic complications of this condition including: seizures, ataxia, dementia, cholestatic liver disease and cardiovascular disease. In this case, ophthalmic panel testing, in a girl with a seemingly isolated ophthalmic disorder, was key to this patient's life-long medical care and provided targeted screening for family members.

Example 2

Jasper was born with poor vision and was diagnosed with Leber congenital amaurosis (LCA) (see Figure 2). Genomic testing became available on the NHS when he was 4 years old. This demonstrated that he had a mutation in RPE65, which is a gene expressed in the RPE working to convert all-trans retinal back to 11-cis retinal as part of the visual cycle. When faulty, it leads to an excess of all-trans retinal build-up within the RPE that leads to severe visual impairment beginning very early in life. In September 2019, NICE recommended the first licensed gene therapy for vision loss caused by RPE65-mediated retinal dystrophy called voretigene neparvovec (also called Luxturna made by Novartis Pharmaceuticals UK). Jasper now has the option to receive a targeted gene therapy that may slow his retinal degeneration or even halt disease progression. This is delivered through vitrectomy and subretinal injection.

Do all ophthalmologists need to become genomics experts?

No. However, as genomics is taking up a more central role in ophthalmology, there is currently a focus on how services can integrate genomics and what roles non-specialist ophthalmologists will take. However, broadly, there is a move away from the previous model by which only a few major centres were involved in genomic testing and the well recognised inconsistencies in management due to postcode lottery. The rapid changes in how genomic tests are ordered, who can order them and how they are funded (soon to be centrally funded through a National Genomic Medicine Service (NGMS)) mean that every ophthalmologist will be involved in genomics to some degree, perhaps from time-to-time and perhaps purely in staying abreast of which patients may benefit from genomic testing and referring on. In order to prepare for these changes the RCOphth is acting now to make changes to the Ophthalmic Specialist Training (OST) curriculum and provide additional CPD courses in order to develop a broad, genomics literate workforce. The United Kingdom Eye Genetics Group (UKEGG) have an education page that provides free access to a range of teaching material and CPD/CME courses: <https://ukegg.com/education/>

How do clinicians find the best genetic test for individual patients?

In the UK there is an advisory organisation called the UK Genetic Testing Network (UKGTN) that aims to promote high quality, equitable laboratory services for patients and their families who require genetic advice, diagnosis and management. It has a membership of diagnostic laboratories that meet a wide range of professional criteria including quality assurance and accreditation for molecular genetics services. Clinicians can access this site (<https://ukgt.nhs.uk>) to identify which laboratories provide particular genetic tests, providing information on cost and turnaround time. In most instances an established system will be in place for most conditions and currently local services often have bespoke arrangements, although there are plans to standardise these clinical networks through the NGMS. It is important that clinicians ensure that patients know what conditions are being tested for and are counselled appropriately (consider a retinal gene panel with circa 200 genes, some of which cause significant or even life limiting conditions).

Summary

The role of genomic medicine is rapidly embedding in ophthalmology due to precision medicine/genomics being central to the mission of the NHS. Similarly, the benefits to patients, clinicians and the NHS more broadly are now being recognised and valued more than ever before. Consequently, changes are happening very quickly in regards to centralised NHS funding, laboratory services and the establishment of a National Genomic Medicine Service. It is imperative that ophthalmology in the UK reacts to these changes, and in broad terms, moves towards a genomics-literate workforce in the interest of our patients.

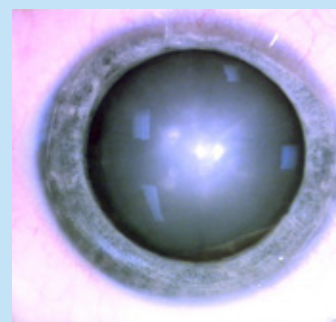


Figure 1. Mixed layer congenital cataract

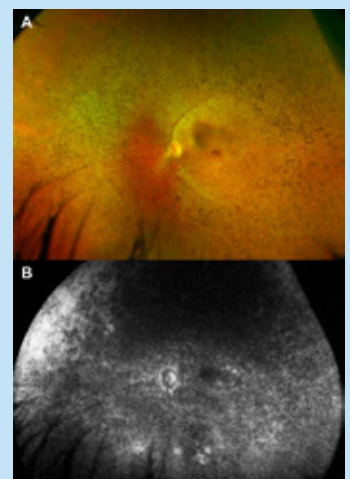


Figure 2. RPE65 retinopathy (A) widefield fundus image and (B) corresponding autofluorescence

Andrew Tatham Editor, Focus

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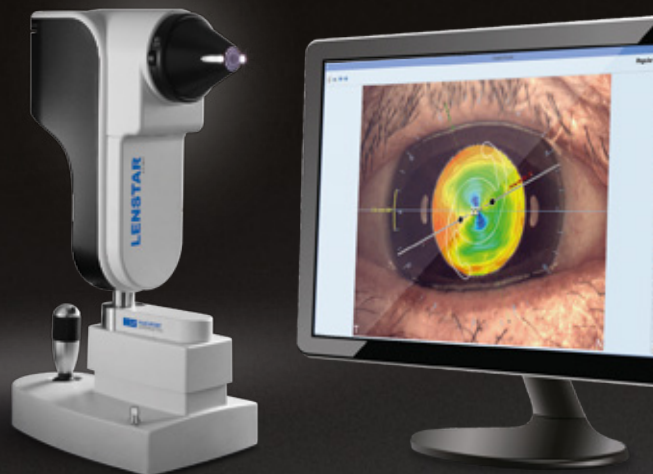
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Professor James Bainbridge elected to Fellowship of the Academy of Medical Science



The Royal College of Ophthalmologists is delighted to congratulate Professor James Bainbridge on his recent election to Fellowship of the Academy of Medical Science. This award is only given to the most talented medical scientists. Each year around 45 new fellows are elected.

Professor Bainbridge has led the translation of gene therapies from proof of concept in experimental models via preclinical models to clinical trials for the benefit of people affected by inherited blindness. In 2007 he performed the world's first gene therapy for inherited eye disease.

Interestingly the two other ophthalmologists most recently elected to Fellowship of the Academy of Medical Science also received their awards in part for their contribution in widening the role of genetics and genetic therapies in ophthalmology.

They are Professor Robert MacLaren in 2018 and Professor Graeme Black in 2016. Professor MacLaren is world renown for his development of retinal gene therapy trials internationally as well developing pioneering surgeries such as successful implantation of the first electronic retina in the UK and, more recently, performing the world's first robotic eye operation in Oxford. Professor Black has developed next generation sequencing diagnostic services that have greatly increased the number of patients who can receive a genetic diagnosis for their eye disease. He has also been instrumental in identifying many novel genetic causes of blindness.

Their Fellowships recognise their ingenuity and scientific ability and also demonstrate how the application of genetics and molecular biology is beginning to transform ophthalmology with novel insights and novel genetic therapies.

Andrew Lotery

Chair of the Scientific Committee

AGS International Scholar Award 2020



The American Glaucoma Society (AGS) will bestow Professor David (Ted) Garway-Heath with the International Scholar Award in February 2020. The purpose of this award is to "honor his lifetime contributions to glaucoma research, education, and patient care."

In addition to his clinical work, Prof. Garway-Heath is leading research in visual assessment and imaging at the NIHR Biomedical Research Centre at Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology. Besides this role, he conducts his own research aimed at improving care outcome by developing new, and evaluating existing, diagnostics, improving clinical trial design to reduce trial duration and cost, identifying risk factors for disease progression, and developing decision-support software to provide evidence-based guidance in clinical care. His 2015 Lancet paper reporting the findings of his landmark UK Glaucoma Treatment Study is highly cited (top 1% of academic field of Clinical Medicine) and has been referenced in the NICE Glaucoma Guidelines. The structure-function map that he developed has now been incorporated into

a clinical device software used worldwide. Prof. Garway-Heath's research has been widely recognized, and he has been invited to give over 25 keynote lectures worldwide and has been invited as visiting professor to 11 universities.

In recognition of his contribution to the European Glaucoma Society (EGS), Prof. Garway-Heath was elected President of the Society in late 2017. In this role, he has been driving the Society's strategy forward while providing input into the planning and implementation of the Society's educational activities. The EGS was established nearly 40 years ago with the key mission to raise the standards of glaucoma care within the boundaries of Europe. Today, the reach of the EGS extends beyond Europe with its clinical practice guidelines translated into 12 languages including Arabic, Chinese and Russian, and its biennial congress attracting delegates from around the world.

Over 20 years, he has mentored and supervised a great number of fellows and students from the UK, Europe, Asia and America. He has also been driving a mentorship Nationally. Prof. Garway-Heath's contributions to the health services have been recently acknowledged by a Gold Clinical Excellence Award. He is Chair of the Design Steering Group for the new building of Moorfields Eye Hospital and the UCL Institute of Ophthalmology.

Ophthalmologists in Training

So, what's it like to be a Veterinary Ophthalmologist?

An interview with Claudia Hartley

Head of Ophthalmology
BVSc CertVOphthal DipECVO FRCVS



Why veterinary ophthalmology?

Part of the joy of veterinary ophthalmology is the range of species we see and I have been lucky enough to examine some truly magnificent wild animals during my career. My personal highlights include: orang-utans, a lowland gorilla, lemurs, gibbons, slow lorises, African and Indian elephants, many bear species (sun, moon, sloth, and brown), many avian

species (parrots, owls, eagles, corvids and aquatic birds), pinnipeds (seals and sea lions), and some of the big cats (tigers, lions, clouded leopard, jaguar). Ophthalmology cases can be so varied, and sometimes so unexpected, there really isn't any opportunity to get bored of the discipline.

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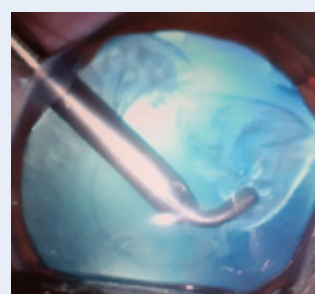
Diploma to be a specialist in Veterinary Ophthalmology
(3 year residency)

Common pathology

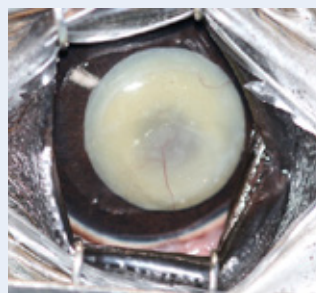
There are a vast number of pathologies but to pick out some of the more common ones would be adnexal and orbital disease (conformational, oncological or traumatic as the biggest groups), corneal injuries, penetrating and perforating intraocular injuries, cataracts, retinal degeneration and detachment, and glaucoma.



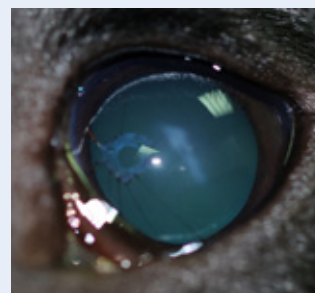
Cataract in a Humboldt penguin



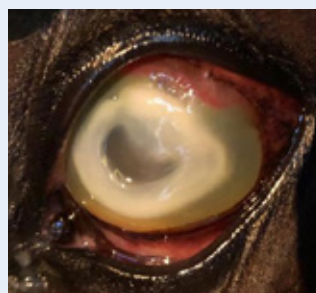
I/A in canine cataract surgery



Anteriorly subluxated cataract in a common seal

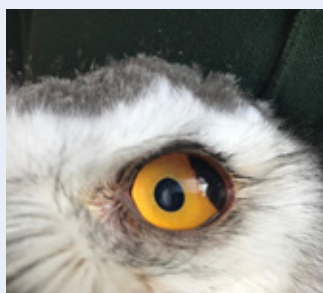
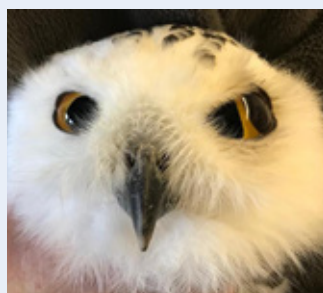


Bizarre persistent pupillary membrane in a puppy



Severe fungal keratitis in a horse

Glaucoma is a particularly devastating and difficult disease to treat in most veterinary species as medical treatment will ultimately fail, and many glaucoma surgical procedures (including trabeculectomies) are not successful in our patients.



Snowy Owl: a) Buphthalmos secondary to trauma b) traumatic cataract and iridodialysis

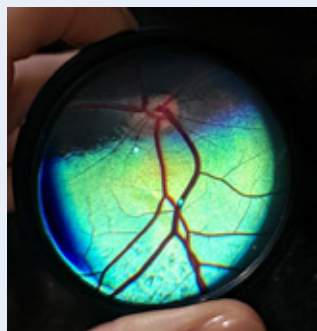
Are all animals eyes similar?

There are some basic elements of eyes that are universal but there is, as you might imagine, a huge variation in anatomical, physiological and pathological ocular features in different species. For example - the variation in retinal vasculature - cats and dogs, and most of the farm animal species have holangiotic retinas, whereas the horse has a paurangiotic retina, the rabbit a merangiotic retina, and guinea-pigs an anangiotic retina.

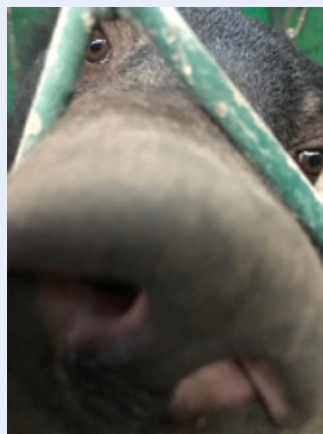
There is also a big variation in how 'vision-centric' different species are - primates and birds are highly vision-centric, so loss of or reduced vision in these animals is more disabling and can have a profound effect on welfare. Compare this to bears (one of my favourite species) who have a fantastic nose, and proportionally very small eyes. There is no doubt that they fair better with vision, but they can cope blind with a reasonable quality of life in captivity.



Leaf frog eye



Normal sheep fundus



Moon bear with a large nose and small eyes

How do you test vision?

Vision testing in animals is depressingly crude. The menace response is our first test, but is broadly only accurate to 20/10,000. Obstacle tests, cotton ball drop tests, placing tests are all useful adjuncts, both under photopic and scotopic conditions. Often in wild species, it is a behavioural assessment.

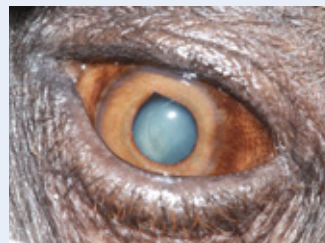
In most of our patients we are looking for a clinical improvement - no longer bumping into obstacles or spooking on a certain side, noticing butterflies around the buddleia in the garden, seeing a rabbit darting across a field on a walk etc.

What eye drops do you use?

We treat animals under the 'cascade', which means that if there is an appropriate licensed drug available for the condition and species in question we are obliged to use this drug. However in veterinary ophthalmology there are actually very few licenced drugs and consequently we often use 'human' drugs. For example, there are no licensed anti-glaucoma drugs for veterinary species, and we therefore use the same drugs that you would reach for in your clinics (latanoprost, dorzolamide, brinzolamide, timolol etc.). Some of these drugs are not appropriate in some species - for example prostaglandin analogues are not effective in cats and generally avoided in horses (as glaucoma in horses is most commonly secondary to chronic uveitis).

Tell us about a memorable patient

A team (two ophthalmologists, a wildlife specialist and two nurses) went to Borneo to operate on a rescued orangutan with cataract. This involved getting the team portable operating equipment (operating microscope, phacoemulsification machine, anaesthetic equipment, sterile surgical kits and consumables etc) out to a swamp boundaried forest sanctuary location (planes, taxis, and speed-boats) and using a generator for power supply. It was quite a logistical puzzle, but an experience unlike any other.



Cataract in an orangutan



Your new Trainee Co-Editors are
Conor Lyons & Kavita Aggrawal

Contact Kavita and Conor at
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Museum Piece

Florence Nightingale at 200: an Ophthalmological connection

Florence Nightingale was born two hundred years ago in Italy on the 12th May 1820. She was named Florence after her birthplace.

This article celebrates her 200th anniversary and explores her connection to ophthalmology and also the short period from 1854-56 she spent in Scutari during the Crimean war that made her name.

Florence was born at a time when a career in nursing was considered unsuitable for a person of her upbringing. Her parents tried in vain to dissuade her from becoming a nurse.

In the period 1850/51 she went to study in Germany at the Institute of Protestant Deaconesses in Kaiserswerth in Germany. This was at exactly the same time that the young Hermann von Helmholtz, not so far away in Königsberg, was inventing the ophthalmoscope.

On her return to England she took a job in Harley Street, London, for ailing governesses and because of her work and attitude was soon promoted to superintendent.

It was at this time that there was an outbreak of cholera in London and she volunteered at the Middlesex Hospital to help treat the victims. Part of the work she instigated was a system of better sanitary procedures, practical experience that held her in good stead for what was to come.



Fig 1. William Bowman 1867

Miss Nightingale's connection with ophthalmology was William Bowman (Figure 1). He and Dr Bentley Todd, a senior surgeon at King's College Hospital were largely responsible for setting up St John's House in 1848 for training nurses. Bowman first met Miss Nightingale while they were both working in Harley Street. He noticed her outstanding ability and although she was only in her early thirties they had discussions in 1854 about her supervising nursing

at Kings College Hospital where he was the senior ophthalmic surgeon. As a result of these discussions and her high regard for him he became a mentor.

In 1853 the war in the Crimea commenced.

Sidney Herbert, the Secretary of War was aware of Miss Nightingale's reputation and in late 1854 approached her to head a group of nurses to the Crimea where the government had come under severe criticism for the bad conditions in the hospital experienced by sick and wounded British soldiers. He gave her full authority over the 38 nurses from all backgrounds that she took with her to supervise the care of the wounded soldiers after the Battle of Alma. What she found at Scutari was a great shock to her and her nurses. There were 18,000 soldiers wounded or ill and no female nurses. She immediately reorganised the hospital, above all cleaning it up.



Fig 2. Letter from Scutari 1854

Just ten days after her arrival she wrote a twelve page letter to Bowman outlining in great detail the terrible conditions in the hospital. Figure 2 is a photograph of the envelope showing Florence Nightingale's signed comment under the flap. *This is only the beginning of things. We are still expecting the assault.*

Miss Nightingale's sometimes undiplomatic and dictatorial approach to the organising of the hospital in Scutari caused ructions. A number of young surgeons such as Alexander Struthers, from Edinburgh, soon to die of cholera, volunteered their services in the Crimea. He wrote a critical letter home about their treatment at Florence's hands. Back in England an exchange of letters took place with Sidney Herbert. There were letters from Dr John Struthers, Alexander's brother and others from Dr James Young Simpson the first person to use chloroform as an anaesthetic in obstetrics. It is interesting that in defending their medical colleagues in the Crimea it was to William Bowman that these two prominent surgeons wrote to act as arbitrator. Simpson already knew Bowman from the time when he attended one of Frans Donders' lectures in Utrecht in 1850 (before he was an ophthalmologist). He persuaded Donders to visit London and experience the eye hospitals, one of which was the Royal London Ophthalmic Hospital where Bowman was senior ophthalmic surgeon. That suggestion, which was taken up, had far reaching consequences for ophthalmology when Donders with Albrecht von Graefe met Bowman in London in 1851, the year of the Great International Exhibition.



Fig 3. Florence Nightingale in 1857

In 1856 Florence Nightingale returned to England worn out and sick but a heroine for her deeds in the Crimea. She was given a large sum of money by a grateful government which she used to set up the Nightingale Fund. She asked Bowman to be a Trustee. It was St Thomas' Hospital where she established her school of nursing not at King's College Hospital but her close association with Bowman continued with letters being exchanged on a variety of subjects connected to nursing until Bowman's death in 1892.

Several of Florence Nightingale's original letters will be on display for a special exhibition on ophthalmology at the RSM Library, the dates to be announced.

Richard Keeler, Honorary Curator
rkeeler@blueyonder.co.uk

Eye Journal - Editor's choice Selected papers from 1st quarter of 2020



Proliferative vitreoretinopathy: revised concepts of pathogenesis and adjunctive treatment

In the February issue, D. Charteris, *Eye* (2020) 34: 241-245, provided insights into the potential reasons why proliferative vitreoretinopathy (PVR) remains a challenging complication of retinal detachment repair despite advances in vitreo-retinal surgery. An area that requires re-visiting is the pathogenesis of PVR. Rather than focusing on migrating retinal pigment epithelium as originally described, he stressed the importance of glial cells forming a major component of the peri-retinal tissues. He also suggested the need for better classification system for PVR to refine inclusion-exclusion criteria for clinical trials for this condition and also took note of the fact that adjunctive therapies such as steroids may be the way forward as steroid treatment may be able to modify the acute retinal response to detachment. We await the results of the ASCOT trial on the use of triamcinolone in penetrating trauma cases undergoing vitrectomy surgery (the ASCOT study) to better understand the use of adjunctive therapy for this condition.

The impact of artificial intelligence in the diagnosis and management of glaucoma

In the January issue, Mayro et al. discussed the role of deep learning in the management of glaucoma in their review in *Eye* (2020) 34: 1-11. Various algorithms that show promise to detect both structural and functional loss in glaucoma are described. In addition, the incorporation of intraocular

pressure into these tools will indeed revolutionise the way glaucoma is managed in routine practice including the ability to decide the target intraocular pressure for an individual. Clinical decision tools generated from these algorithms that utilise copious data on digital fundus photographs, ocular coherence tomographs, visual fields, intraocular pressures may provide a consistent approach to accurately interpret disease progression.

Has the EAGLE landed for the use of clear lens extraction in angle-closure glaucoma? And how should primary angle-closure suspects be treated?

In the January issue, Tanner et al, *Eye* (2020) 34: 40-50, reviewed the current management of angle-closure glaucoma. Although laser peripheral iridectomy is the standard treatment for patients with primary angle-closure glaucoma, the authors justify the need to change practice and consider clear lens extraction as first line in these patients, especially in more advanced angle-closure disease based on the results of the EAGLE study. The EAGLE study showed that clear lens extraction is a superior option compared to laser peripheral iridectomy in people with angle-closure and an IOP > 30 mmHg, and those with angle-closure glaucoma in terms of IOP control and patient reported quality of life.

Sobha Sivaprasad
Editor in Chief, *Eye*

Obituaries

The College wishes to send condolences to the family and friends of members who have recently passed away

Charles George McEwen, Scotland, UK
J Michael Daurant, Exeter, UK

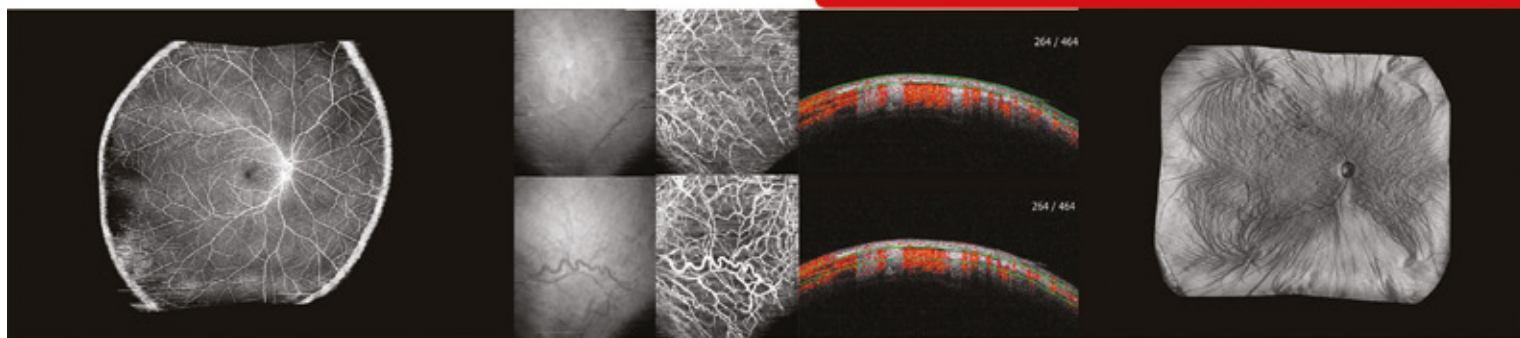


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References

1. DOF2019OTH4003 – Clinical Investigation of the **TECNIS**® Next-Generation IOL Model ZFR00 (**TECNIS Synergy**™ IOL): 6-Month POC Data. 23 Apr 2019. **2.** DOF2019OTH4002 – Weeber H. MTF of the **TECNIS Synergy OptiBlue** IOL, and other lens models. 27 Mar 2019.

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Appointee	NHS Trust	Hospital or Area
Miss Hal Ali	Frimley Health NHS Foundation Trust	South West Thames
Mr Ahmad Aziz	Imperial College Healthcare NHS Trust	North West Thames
Miss Arundhati Dev Borman	University of Bristol NHS Foundation Trust	South Western
Mrs Savita Jayakar Patil	Northampton General Hospital NHS Trust	Trent
Mr Luke Nicholson	Moorfields Eye Hospital NHS Foundation Trust	Moorfields
Miss Sahar Parvizi	Surrey and Sussex Healthcare NHS Trust	South East Thames
Miss Yusrah Shweikh	Brighton and Sussex University Hospitals NHS Trust	South East Thames

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All seminars and surgical skills courses are held at the RCOphth premises unless otherwise specified.

CESR Applicant Training Day

TUESDAY 1 SEPTEMBER 2020

The College will hold a training session for CESR applicants on Tuesday 1 September 2020, from 10.00am to 4.30pm. This training session would be beneficial for anyone thinking of or in the process of applying for Specialist Registration via the CESR route. The Training Session will include: What is a CESR and who is eligible to apply?, Tips on how to prepare a CESR application in ophthalmology and more.

Research changes lives – practice changing research

TUESDAY 3 NOVEMBER 2020

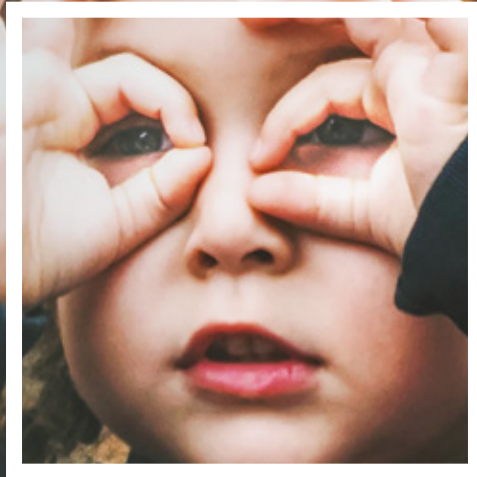
This symposium is offered over two days (3 & 4 November 2020), although each day may be booked independently. Day one gives an overview of research and day two focuses on the use of ophthalmic statistics. The aim is to provide clinicians with an introduction to evidence based ophthalmology through: 1. an overview of research design and implementation, appropriate statistical approaches and evidence appraisal and synthesis; 2. an opportunity to embed learning by discussion of research ideas at an early stage.

Surgical Skills Courses

Please check the website or contact the Education and Training Co-ordinator on **020 3770 5341** or skills.centre@rcophth.ac.uk for availability as courses get fully booked quickly.

Look out for the 2020 seminar programme on the RCOphth website - book early to avoid disappointment.

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