Irish College of Ophthalmologists

*Eye Doctors of Ireland*

*Protecting your Vision*

## Irish College of Ophthalmologists

*Yearbook 2018-2019*

# ANNUAL CONFERENCE

**GALWAY BAY HOTEL, GALWAY**

**MAY 15th - 17th 2019**

Irish College of
Ophthalmologists
*Eye Doctors of Ireland*
*Protecting your Vision*

# Irish College of Ophthalmologists

# *Yearbook*
# *2018-2019*

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# Letter from the President

Dear Fellow College Members,

I would like to extend a very warm welcome to you all to the 2019 Irish College of Ophthalmologists Annual Conference at The Galway Bay Hotel. Galway is set to be European Capital of Culture in 2020 and has much to offer visitors, both Irish and foreign.

The programme of symposia and talks this year include Ocular Emergencies and Trauma, Paediatric Ophthalmology, Nutrition and Age-relatged Macular Degeneration, and Cataract Services: expert care for large numbers.

We are delighted to welcome our speakers from home and abroad, esteemed colleagues who will share their expertise and experience and their knowledge of cutting edge developments in their chosen subspecialties.

Professor Nicholas Jones, Consultant Ophthalmologist and Clinical Director of Uveitis Service, Manchester Royal Eye Hospital and Honorary Professor of Ophthalmology, University of Manchester will deliver the 2019 Mooney Lecture.

2018 was a very special year for the College and centenary celebrations culminated in a special event on November 16th in the Royal College of Surgeons, a gala dinner following the Montgomery Lecture given by Dr Mike Brennan. This celebration of 100 years of Irish Ophthalmology was enjoyed by many of you and was a fitting tribute to the Irish Ophthalmological Society and the Irish College of Ophthalmologists "Protecting Irish Eyes" for 100 years.

Thank you to all the Council members, Committee Members and to the Honorary Officers at the College for your time and commitment to the College, in particular to our departing Council members Gerry Fahy, Fiona Kearns, Richard Comer and Billy Power.

We especially thank the Chairs of the ICO Committees; Patricia Quinlan, Mark Cahill, Yvonne Delaney, Fiona Kearns, Gerry Fahy, Richard Comer and John Doris.

Thank you to our colleagues who attend national and international meetings to represent our specialty; Denise Curtin and Deirdre Townley at the European Board of Ophthalmology (EBO) and to all examiners who travel annually to Paris for the oral EBO examination. Pat Logan at the European Society of Ophthalmology (SOE), and to Denise Curtin at the European Union of Medical Specialists (UEMS).

A particular thank you is due to Gerry Fahy, Chair of Training Committee and Yvonne Delaney, Dean, whose terms are concluding this year and who have been wonderful guides and mentors to trainees over the past number of years. Many thanks also to Siobhan, Marian & Ciara in the College office.

It is with great joy that I can announce that a new medal honouring my father John Blake (1932-2011) will be presented for the best research paper at the conference. A consultant in the Royal Victoria Eye and Ear and St Vincent's Hospitals, John Blake's greatest contribution to Irish Ophthalmology was his research into the mechanism of injury in Road Traffic Accidents and his perseverance which resulted in legal and political changes to seat belt wearing and laminated windscreens which have virtually eliminated the perforating injuries that resulted from RTAs. This will bring to three the medals available for competition at the conference, the others being, the William Wilde (Ophthalmologist and founder of St Marks Hospital for diseases of the eye in 1844) and the Barbara Knox (founder of the National Council of the Blind of Ireland)

My term as President will draw to a close at the Annual General Meeting during our conference. It has been a great honour to represent the College for the last two years and I thank everyone for the generous support they have given me in the role. I wish Patricia Quinlan the very best as she takes over as President, I will support her in every way I can. I appeal to all members to support each other and the College as opportunities arise at this time, so that improvements for our patients and our specialty can be implemented. We will respect the traditions of the past 100 years and continue to make advances for our patients and the specialty in the future.

Best wishes
**Alison Blake**
President
Irish College of Ophthalmologists
May 2019

# Welcome to Galway –
## *The Wild Atlantic Way Awaits!*

We are delighted to welcome you all to our Annual Conference in the medieval and culture rich city of Galway!

We trust you will have a most enjoyable stay in this harbour city on the edge of Ireland's rugged west coast with a wealth of activities and places to visit on our doorstep.

Allowing for a little leisurely downtime over the busy three day conference schedule is always a priority for the College and this year we are spoilt for choice in this beautiful location on Galway's Bay.

For those who like to get out and about, the College has a number of activities on the programme to keep you busy!

The annual ICO golf tournament has become a firm fixture on the programme, with time allocated for the greenways at the Galway Bay Golf Resort Oranmore on Thursday afternoon.

An invigorating 5km early morning run has also built up in momentum and popularity with our members over the years – a great way to start the day on Thursday morning!

Outside of the official programme, delegates will not be short of places to see and things to do in the city of Galway. The famous Salthill Promenade, a favourite of walkers and joggers, is just moments from the hotel and for those feeling adventurous, a dip in sea or a plunge off the Blackrock diving boards is waiting!

The city's hub is 18th-century Eyre Square, a popular meeting spot surrounded by shops and traditional pubs that often offer live Irish folk music. Nearby, stone-clad cafes, boutiques and art galleries line the winding lanes of the Latin Quarter, which retains portions of the medieval city walls.

A more relaxed and informal event is planned for our Annual Conference dinner this year with a barbeque and music on the terrace over-looking the bay on Thursday evening. We hope members will join us for what promises to be an enjoyable and sociable evening with friends and colleagues.

As an official member of the Healthy Ireland Network, the ICO is committed to supporting this Government led initiative to get Ireland healthy and active. Promoting the health of our population to prevent illness is an essential part of the Sláintecare strategy. We are mindful that every effort to support and increase awareness of the importance of a healthy lifestyle is beneficial to us all!

hi Healthy Ireland

**#HealthyIreland**

**#OffTheCouch**

**#ICOconf19**

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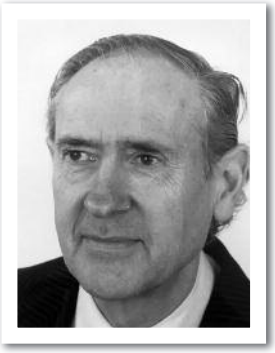


*John Blake (1932 - 2011)*

# John Blake Medal

John Blake was born in Cork in 1932. From a medical family, he won a scholarship to University College Cork to study medicine and subsequently trained in Nottingham and London, England and Heidelberg, Germany.

He returned to Ireland in 1966 to a consultant post in the Royal Victoria Eye and Ear Hospital and the Our Lady's Hospital for Sick Children, Crumlin, and subsequently St. Vincent's Hospital when it moved to Elm Park in 1971. He was medically curious and an inspirational teacher, as lecturer in University College Dublin.

John Blake was horrified by the carnage caused by road traffic accidents, in particular eye injuries, numbering 100 perforations a year, and occurring at relatively slow speeds when the patient was otherwise unharmed.

He first petitioned government to have seat belt wearing made compulsory and was successful in that aim. In 1983, he wrote a widely read paper in the British Medical Journal which helped influence government, who after significant lobbying by John Blake, regulated windscreen manufacture changing from toughened glass to laminated in 1986. This practically eliminated perforating eye injuries from road traffic accidents and was of serious benefit to car drivers and passengers, changing the nature of eye emergencies immediately.

The Blake's would like to honour other research achievements in Ophthalmology with this award.

# Report of Council 2018-2019

*Maureen Hillery, Honorary Secretary*

There have been five Council meetings: May 18th 2018, September 8th 2018, November 17th 2018, February 10th 2019 and April 13th 2019.

**Honorary Officers:** Alison Blake, Billy Power, Patricia Quinlan, Mark Cahill and Maureen Hillery.

**Council Members:** Marie Hickey Dwyer, Fiona Kearns, Pat Logan, Richard Comer, Ian Dooley, John Doris, Grace O'Malley, Gerry Fahy, Garry Treacy and Barry Quill.

Yvonne Delaney attends Council in her role as Dean of Postgraduate Education.

All Council members have attended the minimum required number of meetings

## Changes in Council Membership

The Council terms of Gerry Fahy, Fiona Kearns and Richard Comer have concluded.

On behalf of all the College members I would like to thank Gerry, Fiona and Richard for their immense contribution on Council and their commitment to the College Committees.

Billy Power's term as Vice President draws to a close but he will continue to attend Council in his capacity of Clinical Lead for the National Clinical Programme in Ophthalmology.

The new appointments to Council for 2019 will be announced at the AGM.

Alison Blake's two-year term as President of the ICO concludes at the ICO Annual Meeting. We thank Alison sincerely for her dedication and commitment to the role and welcome Patricia Quinlan as our new President.

At the close of 2018, the membership for the Irish College of Ophthalmologists stood at 189.

The full audited accounts for the year ended 31st December 2018 have been circulated to all members and will be discussed during the AGM.

## International Representation

Thank you to our colleagues who attend national and international meetings to represent our specialty; Denise Curtin, Alison Blake and Deirdre Townley at the European Board of Ophthalmology (EBO) and to all examiners who travel annually to Paris for the oral EBO examination. A special acknowledgement to Marie Hickey Dwyer for her commitment to the EBO examinations, and to Alison Blake for her role at the Royal College of Ophthalmologists, London, Pat Logan at the European Society of Ophthalmology (SOE), and to Denise Curtin and Alison Blake at the European Union of Medical Specialists (UEMS).

Edward Loane delivered the 2018 SOE Lecture at the ICO Annual Conference in Kilkenny on "Strabismus Serendipity". Claire Hartnett will deliver the 2019 SOE Lecture at the ICO Conference in Galway on "Retinopathy of Prematurity".

## ICO First National Audit

The ICO carried out a national audit with its members on the visual acuity recording system being used in eye clinics. The data collection concluded on March 31st. The Audit Report, results and conclusions were circulated to ICO members in April to facilitate CPD compliance by May 1st. The results will be discussed and reviewed at the ICO Conference in Galway.

# Dean's Report 2018-2019

*Yvonne Delaney, Dean*

## Postgraduate Training in Ophthalmology in Ireland.

The yearbook gives us an opportunity each year to look back at the achievements of the training programs as well as focus attention on the challenges that lie ahead. May 2019 sees the new medical ophthalmology training program complete its first year, the streamlined basic surgical training program conclude its second cycle, and dual-entry move towards it final year.

## The National Training Programs in Surgical and Medical Ophthalmology

The streamlined basic surgical training program had at its core the purpose of redirecting training away from the gap years and back into the 3 years of core training, focusing on the development of a trainee equipped to take on the rigours and demands of higher surgical training without the benefit of the gap years. As we come to the end of its second full cycle analysis confirms what initial evaluation of the first complete cycle suggested - that this goal has largely been achieved. The new basic medical ophthalmology training program will take on a similar 3-year template as per the streamlined basic surgical training program with predefined rotations and timetables, targeted workplace based assessments, blended e-learning with remote interactive classrooms, human factors and a logbook of both procedures and clinical cases - and will hopefully be steered down an equally successful path. Entry into higher medical training will, as with surgical training, be competitive with a scorecard collated as trainees progress though each year of training.

We did note this year that considerable expense can be incurred by trainees as they travel to international and national meetings to optimise their learning, deliver presentations, go to wet labs etc with the intention of enhancing their competitiveness. There is good news on this front as starting in July 2019, the HSE is making additional funds available to trainees who will be able to claim up to an additional 1200 euros (for BST/BMT) and 2000 euros (for HST/HMT) of funding per year to travel and attend meetings as part of an enhanced training support scheme for NCHDs.

2019 saw our focus move from the years of basic training to the higher training programs. We know that further consolidation of both higher programs is required in order to ensure that the HSTs and HMTs are prepared, without the benefit of the gap years, to optimally deliver eye-care in the increasingly complex health system in which we practice. The introduction of the new end-of-year 2 HST assessment is, I believe, an important and necessary step to strengthen our program. Higher Medical Training already has similar assessments for each subspecialty module in medical glaucoma, medical retina and paediatric ophthalmology.

Beyond higher training the College continued to support fellows and new appointees with the 2nd and 3rd Seminar Series - Investing in Ophthalmology – held in November 2018 and March 2019. This Seminar Series is purposefully targeted at introducing the audience to the non-clinical complexities of the health system which often provides the most significant challenges when taking up a new post. Discussions on funding, contracts, quality improvement, leadership, integrated care as well as very honest personal accounts of the early consultant years made for some unforgettable presentations as well as robust and challenging exchanges between presenters and participants. Important to all the Seminar days was the recurring theme of burnout and an excellent presentation by Dr. Paddy Barrett reflected the current notable reluctance to admit to burnout despite it being a recurring headline in the medical news in recent years.

## Simulation Training in Ophthalmic Surgery

The discipline of ophthalmology has always self-identified as being innovative and at the cutting edge of technology. Equally the training program must adapt to new ways of training and be an early and progressive adopter of change. January 2019 saw the Anterior Vitrectomy Simulation Course delivered in Ireland for the first time, in the RCSI Simulation lab, the most advanced simulation lab in Europe. Equipped with phacoemulsification machines and microsurgical instruments the course provided a high-fidelity 'operating theatre' experience augmented with didactic teaching and human factors training. This represents an important departure for postgraduate surgical training in Ophthalmology. The trend to deliver training though simulation is well underway internationally and it is important that as a specialty we continue to perform and deliver training at the cutting edge.

## Working together

My term as Dean will come to an end in July 2019. I would like to take this opportunity to say the most sincere thank you to the trainers and educational supervisors in each unit. What we have achieved together has been beyond what I and many others thought possible when we started this journey. Every unit has continued to work alongside the College to deliver the highest levels of training despite operating in an under-resourced environment. I would like to thank all the members of the training committee including Ian Flitcroft, Donal Brosnahan, Marie Hickey Dwyer, Deirdre Townley, Shauna Quinn, Zubair Idrees and John Stokes for all their assistance over the last years not just in their formal capacity as Educational Supervisors but as colleagues whose considered advice I have sought on many occasions. Outside of the Training Committee I would like to thank all the faculty who have assisted in delivering the College courses including the phacoemulsification bootcamp, the microsurgical skills course, the refraction course, the Waterford strabismus course as well as the phacoemulsification and anterior vitrectomy simulation courses. Paul Connell, Programme Director from 2013-2015 deserves a special thank you for his ongoing support and advice.

Finally, I cannot but highlight in particular the work of Gerry Fahy, Programme Director and Siobhan Kelly, CEO without whom the achievements of this job would not have been possible. Their professionalism, their smarts and their commitment to the College and to the wider ophthalmic community has been outstanding. To the trainees themselves, it has been an honour and a privilege to see you embark on your training journey and grow in knowledge, mastery and maturity with each passing year. I wish you individually but more importantly collectively - as our future ophthalmic profession - the very best in all of your endeavours. Thank you.

# Scientific & CME Committee Report 2018-2019

*John Doris, Chairman*

**Committee Members: Denise Curtin, Geraldine Comer, Eugene Ng, Maureen Hillery, Alison Blake.**

The ICO Annual Conference 2018 was held in The Lyrath Hotel, Co Kilkenny, May 16th to 18th. The symposia topics included Neuro-Ophthalmology, Uveitis, The Challenge of Cataract Surgery and The Changing Face and Future of Ophthalmology. CME & Professional Competence.

The ICO continues to administer a Professional Competence Scheme on behalf of the Medical Council and the Committee provides advice in this regard as required. The scheme year runs from May 1 to April 30. ICO members can record their professional competence activity using the web-based PCS ePortfolio which will be reflected in a Statement of Participation issued in May each year.

In addition to completing at least 50 hours of continuing professional development activity per year, each doctor is expected to complete one clinical audit per year. Doctors are required to keep up to date with developments in their field of practice and with clinical guidelines on best practice.

Within the overall requirement of 50 CME credits are the sub categories of external (min 20 points) internal (min 20 points) personal learning (min 5 points). There is an additional category for research and teaching with credits in this category recommended rather than mandatory.

The ICO launched an online member's portal in January 2019 through which our members can register for ICO meetings and events.

## ICO/Novartis Research Bursary

Dr Emily Grennan was announced as the winner of the ICO/Novartis Research Bursary 2018-19 at the 10th Annual Retina Meeting in Adare on September 28th for her research project 'Targeting Ocular Inflammation in Dry Eye Disease with Novel MicroRNA-based Therapeutics'.

The research focusing on ocular inflammation in dry eye disease is being carried out between the Royal Victoria Eye and Ear Hospital, Dublin and the Royal College of Surgeons Ireland as part of Dr Greenan's PhD under the supervision of Professor Conor Murphy, Chair and Professor of Ophthalmology at the RCSI and Dr Joan Ní Gabhann at the Department of Ophthalmology and Molecular and Cellular Therapeutics, RCSI.

We congratulate Dr Greenan on receiving this award and look forward to hearing an update on her study at the meeting in Galway.

## ICO Medals

The winner of the Barbara Knox Medal for Best Paper 2018 was Dr Terence McSwiney for his paper on "Predisposing Risk factors, Clinical and Microbiological Characteristics of Moraxella Keratits".

The winner of the Sir William Wilde Medal 2018 for Best Poster was Dr Diarmaid Hickey for his presentation on the 'Lamina Cribrosa Cell Bioenergetics in Glaucoma: Role of Glycolysis and Glutaminolysis'.

A new medal, the John Blake Medal, has been introduced this year for the best laboratory science-based paper kindly in honour and memory of Ophthalmic Surgeon Mr. John Blake.

## Montgomery Lecture

The 2018 Montgomery Lecture "When Irish Eyes are Smiling" was delivered by Dr Michael Brennan, Past President of the American Academy of Ophthalmology (AAO).

The lecture took place on November 16, 2018 at the Royal College of Surgeons in Ireland and was followed by a formal reception to commemorate the centenary of the founding of the Irish Ophthalmological Society, the forerunner to the ICO, in 1918.

## Mooney Lecture

The 2018 Annual Mooney Lecture was presented by Dr Cynthia Bradford, Professor of Ophthalmology, Dean McGee Eye Institute, Department of Ophthalmology of the University of Oklahoma Health Sciences Center, Oklahoma.

Dr Bradford's lecture entitled "The Challenge of Cataract Surgery – Hard Work to Make it Look Easy" was presented at the 2018 ICO Annual Conference in the Lyrath Hotel, Co Kilkenny.

This year we welcome Professor Nicholas Jones, Consultant Ophthalmologist and Director, Manchester Uveitis Clinic and Honorary Prof. of Ophthalmology, Manchester Academic Health Science Centre, University of Manchester who will deliver the Annual Mooney Lecture on "Old Diseases in the New Century: Déjà Vu in the Uveitis Clinic".

## GDPR

New regulations with respect to data use came into effect last year as per the Data Protection Bill 2018. This act serves to protect all personal data and will apply to all data stored, including patient's medical records and details. The ICO published a guide to GDPR in the summer edition of our newsletter in 2018.

Ms Nicola Bayly, Assistant Commissioner in the Data Protection Commission, will give a presentation on GDPR and data protection in relation to the delivery of medical care including audit and research at the ICO Annual Conference this year in Galway.

# Medical Ophthalmologists Committee Report 2018-2019

*Fiona Kearns, Chairman*

**Committee Members: Catherine McCrann, Garry Treacy, Grace O'Malley, Margaret Morgan, John Traynor, Fatima Hamroush, John Smith, Susan Mullaney, Geraldine Comer, Sacha Hutchinson, Joanne Kearney and Loretta Nolan.**

## Primary Eye Care Service Review

The College continues to impress on the Minister for Health, his Department and the HSE the urgency by which a commitment to the necessary funding is made available in order to implement the recommendations of the Primary Eye care Services Review Group.

The College welcomed the publication of the Scheduled Care Access Plan by the Department of Health in March 2019 and the commitment contained within to focus on ophthalmology through the commencement of community eye care teams in the Dublin area in 2019.

Our goal is to ensure these services are rolled out across the country as per the recommendations in the National Clinical Programme for Ophthalmology Model of Care and the Primary Care Eye Services Review Group Report, and in line with the Government's Sláintecare policy.

## Medical Ophthalmology Contract

The Committee is continuing to engage with the IMO regarding the COP contract negotiations.

The stand-alone training pathway in Medical Ophthalmology commenced in July 2018. The training programme has been developed to specifically address growing demand for medical ophthalmology services and the need to have an integrated model of care between community and acute hospital service.

The re-configured training pathway for medical and surgical ophthalmology in Ireland is distinct from day one of training and the selection process aims to target those interested in medical ophthalmology from the outset.

## Metrics

The development of metrics in community ophthalmology by the HSE commenced in 2015 and is an important aspect of population health as it aims to inform the decision making process with regard to manpower and resources needed to care for patients in the community.

The accumulation and interpretation of statistics in the community has been challenging for clinicians as IT and administrative support is inconsistent. In spite of these difficulties, metrics are a vital part of the evidence which supports our work.

The project is an opportunity to demonstrate the work done in community ophthalmology clinics and to accurately inform decisions on the service

## Medical Ophthalmology Sub-Specialty Training

On September 7th 2018, a workshop on Change Management took place in the Learning Centre at the Royal Victoria Eye and Ear Hospital. Guest speaker, Patricia Blunden from the HSE's Leadership Programme gave a talk on "Understanding Change Management - What Makes Improvement Efforts Successful".

On January 25th an interactive workshop on Clinical Governance was held at the Learning Centre. Maureen Flynn, HSE Lead for Governance and Staff Engagement for Quality gave a presentation on "Our role in leading and improving quality in the health service".

The Medical Ophthalmology series continues to be very well attended.

# Manpower, Education & Research Committee 2018-2019

### *Gerry Fahy, Chairman*

**Committee Members: Conor Murphy, Fiona Kearns, Zubair Idrees, Ian Flitcroft, Donal Brosnahan, John Stokes, Deirdre Townley, Marie Hickey-Dwyer, Yvonne Delaney, Shauna Quinn, Emily Hughes, Christine Bourke, Olya Scannell, Robert Brady, Alison Blake and Maureen Hillery.**

## HST

The Medical Council approved the Ophthalmology HST training programme and recommended the incorporation of additional of assessment during training. This assessment is due to start in May 2019. Recognition of training prior to entry to the HST programme is due to end due to the disappearance of the gap year candidates from the training system. Candidates for final FRCSI in ophthalmology need to have satisfactorily completed all the appraisals in the HST programme prior to sitting the final FRCSI in their final year of training (4th year of training). A temporary increase in the intake of HST members has occurred in order to accommodate the new streamline trainees and the gap year trainees. It is planned that this intake will reduce over the coming years.

## Higher Medical Ophthalmology Programme (HMT)

The newly configured medical ophthalmology training programme was launched in July 2018. It comprises of 3 years of basic training, followed by 2 years of higher medical training. The higher medical training curriculum has been structured to ensure high standard of training in glaucoma, paediatrics and medical retina. Formal assessment will be required for each of the sub-speciality sections prior to completion. A satisfactory level of competence will have to have been achieved in order to be given recognition of satisfactory training. In order to serve as a bridge between the old and new medical ophthalmology training programme a new assessment is mandatory for any trainee wishing to exit from the older medical ophthalmology training programme and enter the specialist registrar. The assessment will take the form of formal evaluation of knowledge in glaucoma, paediatrics and medical retina.

The final date of formal entry onto the specialist register from the old programme is July 1st 2019. From July 2019 entry on the specialist register in ophthalmology will be via two possible routes -

(a) completion of the reconfigured 5 year medical ophthalmology programme (BMT + HMT).

(b) via equivalence route.

## Awards

The Bayer / ICO Clinical Fellowships for 2019 have been awarded to Dr Pathma Ramasamy and Dr Micheál O'Rourke. Dr Ramasamy is undertaking of vitreoretinal fellowship in Bristol Eye Hospital, Dr O'Rourke is undertaking a year long oculoplastic fellowship at Manchester Royal Eye Hospital.

# Ethics Committee Report 2018-2019

*Patricia Quinlan, Chairman*

**Committee members: Patricia McGettrick, Louis Collum, Paddy Condon, Maureen Hillery.**

The Ethics committee met on three occasions over the past year; October 22nd 2018, February 27th 2019 and May 1st 2019

## Patient Safety Licensing Bill and Open Disclosure

The General Scheme of the Patient Safety (Licensing) Bill, approved by Government in December 2017, has been published.

The Bill is focused on ensuring that appropriate governance arrangement are being applied by licensed entities, which will include hospitals but will also incorporate high risk designated activities that take place outside a hospital setting (provision of a safe service for patients and the governance and accountability that underpins that service delivery). HIQA will become the licensing authority and services will need to satisfy them that they meet minimum requirements to provide safe care.

The ICO, through its involvement with the Forum of the Irish Postgraduate Medical Training Bodies, is informing decision makers at the Chief Medical Office and Patient Safety Office on the contents of the Bill.

**The key messages from the Forum are as follows:**

- The Forum fully support the Patient Safety Bill and Mandatory Open Disclosure for Serious Events.

- The Bill as currently drafted requires that Open Disclosure be carried out in the manner prescribed in the Civil Liabilities Act (CLA). It is the view of the Forum that this process is cumbersome, bureaucratic and depersonalises the doctor/patient relationship.

  The Forum expert group suggest that **Mandatory Open Disclosure** be normally carried out in the manner described in the HSE Policy on Open Disclosure. This has the advantage of being more in keeping with what was envisaged in the Madden Commission Report and there are already a large number of staff trained in its application.

  The process prescribed in the CLA should only be required when the healthcare practitioners or providers wish to avail of the protection of the Civil Liabilities Act.

- **List of Reportable Events which will be subject to Mandatory Open Disclosure**
  It is the view of the Forum that the creation of a separate list in addition to the existing HSE Serious Reportable Events (SRE) list would lead to confusion in the system. There should be one list of SRE.

- The HSE SRE list has a governance structure around it which ensures that the list is regularly reviewed and updated as required. Both the list and the governance structure could be adapted and amended as deemed necessary to meet the needs of the PSB and the Department of Health

- **Clinical Audit**
  The Forum recommend that the definition of Clinical Audit for the purposes of the Bill be expanded to specifically include process of care delivery, performance, and clinical outcomes including Patient Reported Outcome Measures and that all clinical audit, completed in accordance with the Medical Council guidance on maintaining professional competence, is provided with FOI exemptions and legal protections.

## Patient Information Leaflets and Patient Consent Forms

Following the publication of the ICO guidelines on the consent process for our members and suite of patient information leaflets, the ICO continues to encourage our members and trainees on the importance of utilising these documents which support informed decision making.

Copies of the leaflets have been circulated to hospital eye departments. The documents are also available to download in PDF format on the ICO website for use in member's practices or patients can be directed to the ICO site. The documents have also been produced in audio and Clear Print format in collaboration with the NCBI.

## ICO Code of Conduct

The ICO continues to provide support and guidance to our members on high standards of professional practice and conduct. The ICO was the first postgraduate medical training body in Ireland to publish a Code of Conduct for our members in 2016.

## Governance Code

At request of Council, the Committee is beginning work on developing a Governance Code for the College. This will be a requirement for charities from 2020.

# Wednesday 15th May

9.00am **Paper Session**
*Chair: Prof Conor Murphy*

HazMat Emergency Readiness in Ophthalmology (HERO)
*C Malone*

Full Thickness Macular Hole Repair: Clinical Features and Outcomes in a Single Centre
*T McSwiney*

Descemet's Membrane Endothelial Keratoplasty: First Irish Prospective Study of Visual Outcomes, Graft Survival and Endothelial Cell Count
*P Stanciu*

**Questions**

Fundus Fluorescein Angiography in Human Subjects Displays Circadian Variation
*A Hopkins*

Patient Involvement in Development of Customised Care Plans for Genetically-confirmed Inherited Retinal Degeneration
*A Long*

Brittle Bones, Blue Sclerae and Stiff Corneas
*E Doolan*

Enhanced Ocular Delivery Using Biocompatible Nanomaterials
*D Kent*

Reduced Oxidative Phosphorylation and Increased Glycolysis (The Warburg Effect) in Glaucoma Lamina Cribrosa Cells
*K Kamel*

Lamina Cribrosa Tissue Stiffness as the Primary Biomechanical Driver of Pathological Glaucomatous Cupping
*A Hopkins*

Pseudoexfoliation Glaucoma – Do Genes or Environment matter more?
*A Greene*

**Questions**

10.30am **ICO/Novartis Eye Research Bursary Winner 2018 - 2019**
Introduction: Dr Alison Blake

**Targeting Ocular Inflammation in Dry Eye Disease with Novel MicroRNA-based Therapeutics**
Dr Emily Greenan
*Clinical Tutor, Ophthalmology*
*PhD student*
*Royal College of Surgeons in Ireland*

10.45am **Coffee**

11.15am **Official Welcome**
Dr Alison Blake
*President, Irish College of Ophthalmologists*

**Presentation of the John Blake Medal for Best Research Paper**

11.30am **Phase 3, Randomized, Double-Masked, Multi-Center Trials of Brolucizumab Versus Aflibercept for Neovascular AMD: 96-week Results from the HAWK and HARRIER Studies**
Mr Mark Cahill
*Consultant Ophthalmic Surgeon, Royal Victoria Eye and Ear Hospital, Dublin*

11.40am **Nutrition and Age-related Macular Degeneration Symposium**
*Co-Chairs: Mr Mark Cahill and Dr Fiona Harney*

**Nutrition for Ophthalmologists and our Patients**
Miss Monique Hope-Ross
*Honorary Consultant Ophthalmic Surgeon at the Birmingham and Midland Eye Centre and Good Hope Hospital, Honorary Senior Clinical Lecturer, Birmingham University* (Ret).

**Cellular Consequences of an Unhealthy Diet-Trafficking Defects in the Retinal Pigment Epithelium**
Dr Arjuna Ratnayaka
*Lecturer in Vision Sciences, University of Southampton.*

**Exploring the Microbiome in Health & Disease**
Dr Sinéad C. Corr, Ph.D
*Assistant Professor in Microbiology, Department of Microbiology, The Moyne Institute of Preventive Medicine, Trinity College Dublin*

1.00pm **Lunch**

2.00pm **European Society of Ophthalmology (SOE) Lecture 2019**
Introduction by Ms Patricia Logan
*SOE Board Member and Consultant Ophthalmic Surgeon, Beaumont Hospital, Dublin*

**Retinopathy of Prematurity**
Ms Claire Hartnett
*Consultant Ophthalmic Surgeon,*
*Temple Street Children's University Hospital, Dublin*

2.30pm **Ocular Emergencies and Trauma Symposium**
*Chair: Mr Gerry Fahy*

**Orbital and Oculoplastic Emergencies Presenting to the Royal Victoria Eye and Ear Hospital**
Ms Rizwana Khan
*Consultant Ophthalmic Orbital, Oculoplastic Surgeon and Consultant in-charge Accident and Emergency Department, Royal Victoria Eye and Ear Hospital, Dublin.*

**The Development of Emergency Ophthalmology as a Sub-Specialty**
Miss Seema Verma
*President of British Emergency Eye Care Association*
*Consultant Ophthalmic Surgeon, Guys and St Thomas' Hospital, London*

# Wednesday 15th May

3.30pm **Coffee**

4.00pm **General Data Protection Regulation and Clinical Practice**
*Introduction: Mr John Doris*

**The GDPR One Year On – a Practical Guide for Compliance**
Nicola Bayly
*Assistant Commissioner, Technology Multinational Supervision Unit, Data Protection Commission*

4.30pm **Paper Session**
*Co-Chairs: Ms Niamh Collins and Ms Caroline Baily*

Serum Eye Drops for Ocular Surface Disease – National Survey of Cornea Specialists in Ireland
*M Rhatigan*

Orbital Radiation for Thyroid Associated Orbitopathy: The Role of Combined Corticosteroids and Orbital Radiation in Preventing Disease Progression
*AM Mongan*

CT Navigation in Orbital Surgery
*R Ellard*

Periocular Cancer Care: A Single Centre Experience
*T McSwiney*

Conjunctival Melanoma: A 10-year Review of Irish Patients
*T Murphy*

Corneal Collagen Crosslinking for Progressive Keratoconus: One-Year Controlled Clinical Trial Analysis
*H Cheema*

**Questions**

# Thursday 16th May

7.45am **Breakfast Symposium** – *Kindly supported by Bayer*
*Chair: Mr Frank Kinsella*

**Management of Neovascular AMD Utilising a Treat and Extend Approach**
Professor Michael Ulbig
*Ludwig Maximilians University Munich; Department of Ophthalmology, Klinikum rechts der Isar, (University Hospital), Technical University of Munich, Munich*

9.00am **Papers Session**
*Chair: Dr Maureen Hillery*

Audit of a Juvenile Idiopathic Arthritis Ophthalmology Screening Service
*G Comer*

ROP Screening in Letterkenny University Hospital – An Analysis of Thirteen Years of Data
*R Gillespie*

Ophthalmia Neonatorum in a Tertiary Referral Children's Hospital: A Retrospective Study
*D Gildea*

The Difficult Exam'- The Use of Oral Midazolam in Children with Special Needs
*G Comer*

Audit of Acute Acquired Esotropia in Adults with Myopia
*C McCloskey*

Periocular Necrotising Fasciitis Management
*M O'Rourke*

**Questions**

9.45am **Paediatrics Symposium**
*Co-Chairs: Dr Maureen Hillery & Dr Stephen Farrell*

**Paediatric Uveitis**
Miss Sarah Chamney
*Consultant Ophthalmic Surgeon, Temple Street Children's University Hospital, Dublin*

**The "Ayes" have it: Ophthalmological Clues to Neurological Diagnosis in Children**
Professor Mary King
*Consultant Paediatric Neurologist, Temple Street Children's University Hospital, Rotunda Hospital and Beaumont Hospital, Dublin; Professor in Paediatrics at University College Dublin, School of Medicine & Medical Science, Ireland*

**Advances in Paediatric Cataract Management**
Professor Chris Lloyd
*Paediatric Consultant Ophthalmologist, Great Ormond Street, London*

11.15am **Coffee**

11.45am **Podium Presentation – 3 Best Posters**

**Rapid Fire Audit**
*Chair: Dr Geraldine Comer*

# Thursday 16th May

A Review of Ophthalmic Radiology Referrals in a Tertiary Centre
*A Smyth*

A Review of the Immunohistochemistry Findings of Patients with Uveal Melanoma Attending the Royal Victoria Eye and Ear Hospital
*A Salih*

National Incidence of Eyelid Cancer in Ireland (2005-2015)
*C Quigley*

Knowledge of Costs of Commonly Utilised Medications and Materials Amongst Irish Ophthalmologists
*B Power*

Establishing a Virtual Glaucoma Clinic
*E Hughes*

**Questions**

12.15pm **Round Table Case Based Discussion**
*Moderator: Miss Marie Hickey Dwyer*
*Facilitators: Mr John Doris & Mr Eugene Ng*

This moderated round table session will provide an opportunity for participants to examine issues as they relate to clinical practice and tap into the expertise in the room. A team of facilitators will help focus the conversations and engage group members in the discussion.

**"Slido"** an audience interaction tool will be used at this session, offering interactive Q&A, live polls and insights into audience views

1.10pm **Presentation by Dr Alison Blake of Sir William Wilde Medal for Best Poster**

1.15pm **Lunch**

2.00pm **Workshops**
*Closed Session for ICO Members*

**1. Practice Review and Audit**
*Facilitated by Dr Maureen Hillery*

Update on ICO National Review on the Visual Acuity Systems being used in the Eye Clinic & discussion on topics for next national audit

**2. Trainee/NCHD Workshop**
*Co Chairs: Ms Niamh Collins and Ms Caroline Baily*

Introduction of a Leadership Intervention to Foster NCHD Professional Development
*R Brady*

# Friday 17th May

9.00am **Irish College of Ophthalmologists Annual General Meeting**
*Chair: Dr Alison Blake*

*Closed Session for ICO Members*

*Dr Alison Blake will address delegates at the end of her term of office and Dr Patricia Quinlan will accept the Presidential Chain of Office.*

9.30am **Paper Session**
*Chair: Dr Patricia Quinlan*

The Therapeutic Effect and Outcome of XEN Gel Stent in Glaucoma
*A Salih*

Seeing the Bigger Picture!
*A Ni Mhealoid*

The Phenotype & Genotype of Usher Syndrome in Ireland
*K Stephensen*

Limited Vitrectomy: A Novel Surgical Technique for the Treatment of Vitreomacular Traction, Sub-internal Limiting Membrane hemorrhages and Tractional Small Macular Holes
*R McGrath*

One Year Visual and Anatomic Outcomes following Vitrectomy for Complications of Diabetic Retinopathy
*K Curtin*

Effectiveness of Ozurdex Implant in Immunosuppressed Patients with Non-Infectious Posterior Segment Intraocular Inflammation
*C Goodchild*

Target 5000: An Update on Progress, Goals and Future Interventions for Patients with Inherited Retinal Degeneration in Ireland
*D Keegan*

**Questions**

# Friday 17th May

10.15am **Five Year Review of Diabetic RetinaScreen**
Mr David Keegan
*Consultant Ophthalmic Surgeon, Mater Misericrodiae University Hospital, Dublin*

Analysis of Non-Attendance of Diabetic Retina Screening Patients at the Diabetic Retinopathy Clinic in University Hospital Limerick
*M Mohamad*

A Quantitative Analysis of a Regional Diabetic Retinal Treatment Centre since the Initiation of the Irish Diabetic Retinal Screening Programme
*E Nugent*

10.30am **Annual Mooney Lecture 2019**

**Old Diseases in the New Century: Déjà Vu in the Uveitis Clinic**
Prof Nicholas Jones
*Consultant Ophthalmologist and Director, Manchester Uveitis Clinic*
*Hon. Professor of Ophthalmology, Manchester Academic Health Science Centre, University of Manchester*

11.15am **Coffee**

11.45am **Presentation by Dr Patricia Quinlan of Barbara Knox Medal for Best Paper**

11.50am **Lean Thinking in Cataract Delivery – an Integrated Care Model**
*Chair & Introduction: Prof Billy Power*

**Lean Cataract Surgery – Does this Mean Missing the Tea Break??**
Mr Paul Mullaney
*Consultant Ophthalmic Surgeon, Sligo University Hospital, Sligo*

**A New Cataract Unit – All you have to do is Build a New Theatre**
Mr Barry Quill
*Consultant Ophthalmic Surgeon, Royal Victoria Eye and Ear Hospital, Dublin*

**Efficiency in Cataract Surgery – Our Experience in an NHS Beacon Site**
Mr Paul Chell
*Consultant Ophthalmic Surgeon, Worcester Royal Hospital, Worcester (Ret)*

1.30pm **Conference concludes**

## Professor Nicholas Jones

**Consultant Ophthalmologist and Clinical Director of Uveitis Service, Manchester Royal Eye Hospital; Honorary Professor of Ophthalmology, Manchester Academic Health Science Centre, University of Manchester.**

Professor Nicholas Jones underwent his undergraduate training at the Universities of St. Andrews and Manchester, and postgraduate training in ophthalmology at Southampton and Manchester, UK.

In 1991 he created the Manchester Uveitis Clinic, now in its 29th year and one of the busiest in the world, which has treated nearly 5,000 patients with uveitis from the North of England, Wales and beyond.

He is the author of two textbooks: "Uveitis: An Illustrated Manual" which won the Royal Society of Medicine Book Prize in 1999, and "Uveitis: Second Edition" in 2012. He has also written a history of the Manchester Royal Eye Hospital for its bicentenary in 2014, numerous book chapters and over 100 peer-reviewed papers.

The Manchester Uveitis Clinic team has a high research output; the main current interests are on the diagnosis and management of sarcoidosis and tuberculosis, on new imaging in uveitis, and on secondary glaucoma.

Professor Jones is an elected member of the International Uveitis Study Group and the American Uveitis Society, is a founder faculty member of the Moorfields and Euretina Uveitis Courses, and is regularly invited to lecture and teach nationally and internationally. He is a member of the Editorial Boards of the journals Ocular Immunology & Inflammation, and Journal of Ophthalmic Inflammation and Infection.

## Professor Chris Lloyd

**Consultant Paediatric Ophthalmologist, Great Ormond Street Hospital for Children, London.**

Professor Chris Lloyd is a Consultant Paediatric Ophthalmologist at Great Ormond Street Hospital for Children in London. He has held an Honorary Chair from the Manchester Academic Health Science Centre, University of Manchester since 2012 and retains Honorary Consultant status at Manchester Royal Eye Hospital.

His training included undergraduate studies at St Bartholomew's Hospital London, SHO and registrar posts at Manchester Royal Eye Hospital and 2 years as a clinical fellow at Great Ormond Street. He returned to Manchester as a senior registrar/lecturer in 1993. He became Manchester's first sub-specialist consultant paediatric ophthalmologist in 1995 and together with his colleagues built up and developed the MREH paediatric eye service into a large tertiary referral and teaching centre. He took up his current post at Great Ormond Street in 2016.

Prof. Lloyd has published over 90 peer reviewed papers, 11 book chapters and co-edited a text book (with Prof Scott Lambert of Stanford University, California) on congenital cataract diagnosis and management.

He regularly lectures nationally and internationally. He received an "Honor award" from AAPOS (the American Association for Paediatric Ophthalmology and Strabismus) in 2017 and serves on the AAPOS ophthalmic genetic task force. He was the UK board member of the European Paediatric Ophthalmology Society from 2012 to 2016.

He has a longstanding clinical and research interest in the diagnosis and management of infantile and childhood cataract and other inherited eye disorders. He has collaborated with

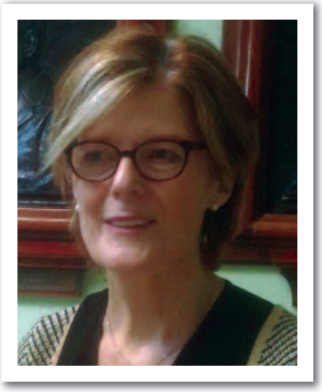
Professor Graeme Black and the ManGen team in the development (and subsequent introduction to the NHS) of a targeted next generation sequencing panel for improving the precision of diagnosis of children with cataract. Over the last 13 years he has organised many teaching workshops at both AAPOS, the AAO (American Academy of Ophthalmology) and the Annual Congress of the Royal College of Ophthalmologists.

He is currently a board member of the British and Irish Paediatric Ophthalmology Association (BIPOSA) and recently stepped down after 5 years as chair of the Paediatric Sub-committee of the Royal College of Ophthalmologists.

## Miss Sarah Chamney

**Consultant Ophthalmologist, Temple Street Children's University Hospital, Mater Misericordiae University Hospital and the National Maternity Hospital, Dublin.**

Miss Sarah Chamney is a Consultant Ophthalmologist based at Children's Health Ireland at Temple Street, the Mater Misericordiae University Hospital and the National Maternity Hospital, Dublin. She is a graduate of Trinity College, Dublin and she completed her specialist ophthalmology training in the Northern Ireland Deanery. She undertook her paediatric ophthalmology fellowship at the Manchester Royal Eye Hospital.



## Professor Mary D. King

**Consultant Paediatric Neurologist, Temple Street Children's University Hospital, Rotunda Hospital and Beaumont Hospital, Dublin.**

Professor Mary D King is a Consultant Paediatric Neurologist at Temple St. Children's University Hospital, Rotunda Hospital and Beaumont Hospital, Dublin and Professor in Paediatrics at University College Dublin, School of Medicine & Medical Science, Ireland.

She has many publications in the field of paediatric neurology and is co-author of "A Handbook of Neurological Investigations in Children" (King & Stephenson, MacKeith Press London, 2009).

Her main areas of research interest are neurogenetics, movement disorders and causation of neonatal encephalopathy and childhood disability.

## Miss Seema Verma

**Consultant Ophthalmic Surgeon, Guys and St Thomas' Hospital, London**
**President of the British Emergency Eye Care Society (BEECS)**

Miss Seema Verma is a Consultant Ophthalmic Surgeon at Guys and St Thomas' Hospital, London and a founding member and President of the British Emergency Eye Care Society (BEECS). Her main areas of interest include acute ophthalmology, cataract and external eye disease. Having graduated in medicine from University College London, she completed her ophthalmic training on the North Thames Rotation which culminated in a corneal fellowship at Moorfields. She also took time out of her training whilst at St Thomas' Hospital to complete her MD in excimer laser with Professor John Marshall.

In 2001 Miss Verma was appointed a consultant at Moorfields Eye Hospital and became the first ophthalmologist in the UK to lead an ophthalmic A&E department. For 15 years she was their Service Director for A&E and General Ophthalmology and developed the role of the Nurse Practitioner and the extended role of the optometrist in delivering acute care in the A&E department. In 2017 she established the optometry delivered Urgent Care Centre at Moorfields.

With the help of like-minded colleagues she co-founded BEECS in October 2013 and strived to establish emergency ophthalmology as a sub-specialty in its own right. In March 2016 the Royal College of Ophthalmologists granted sub-specialty status to Emergency Ophthalmology. Seema continues to champion acute ophthalmology as a sub-specialty by teaching and organising courses nationally and internationally. She is a member of the Scientific Committee at the Royal College of Ophthalmologists.

## Mr Paul Barrington Chell

**Consultant Ophthalmic Surgeon, Worcester Royal Hospital, Worcester (Ret).**

Mr Paul Chell was Clinical Director of Head and Neck Surgery at Worcester Royal Hospital, with a special interest in cataract surgery and patient focused efficient care. He has performed over 17,000 cataract surgeries. The unit was recognized in 2000 by the Department of Health in the UK as a "Beacon site" for efficient cataract surgery. He developed independent eye clinics in the UK renowned for their patient focused efficiency, care and excellence. He also consults widely on efficiency and avoiding "never events" in the UK. In the early 1990's his mathematical models, research and lecturing led to the terms "spherical targeting" and "astigmatic targeting" still widely used in cataract surgery today. He was President of numerous prestigious societies and gave over 100 invited lectures. Paul retired from clinical practice at 50 years of age. He now has a special interest in nutrition and triathlon. He is a Director of an English football club, where he chairs the Performance Enhancement Group.

## Miss Monique Hope-Ross

**Honorary Consultant Ophthalmic Surgeon at the Birmingham and Midland Eye Centre and Good Hope Hospital; Honorary Senior Clinical Lecturer, Birmingham University (Ret).**

Miss Monique Hope-Ross was Clinical Director at Birmingham and Midland Eye Hospital and Heart Of England Hospitals, with a special interest in medical ophthalmology, including diabetes and macular degeneration. She trained in Dublin, Belfast, Birmingham and New York. She introduced new imaging techniques to the UK. She pioneered diabetic eye screening in the UK and was awarded a Fellowship of the Royal College of Physicians. She led in the uptake of anti VEGF therapies, lecturing widely. She has published many scientific publications and book chapters. Monique was President of the Ophthalmic Imaging Society and the Midland Ophthalmological Society. She has delivered over invited 100 lectures. She was Honorary Senior Clinical Lecturer in the University of Birmingham. Her interest in diabetic eye disease lead to an interest in nutrition and wellness. She has studied this extensively and lectured to both clinicians and patients on the subject. She has an interest in sports nutrition and is part of a Performance Enhancement Group in an English football club.

## Dr Arjuna Ratnayaka

**Lecturer in Vision Sciences (School of Medicine), University of Southampton.**

Dr Ratnayaka is a Lecturer in Vision Sciences and brings together expertise in retinal cell biology and neurodegeneration. He is an alumnus of the University of Aberdeen, Imperial Collage London, and the University of Liverpool. This was followed by postdoctoral work at King's College London and the University of Sussex.

His group at the University of Southampton investigates the molecular mechanisms underlying degenerative pathologies in the senescent retina and brain; leading to conditions such as age-related macular degeneration, retinal dystrophies and Alzheimer's disease. His work has described how synaptic vesicles are shared by adjacent synapses, how signalling occurs via extra-synaptic sites and how synaptic plasticity is modulated by neurons. His work in retinal diseases has uncovered how genetic and dietary risk factors lead to pathogenic alterations in cellular trafficking, and how changes in the extracellular matrix contributes to disease. Ongoing projects study the role of misfolding proteins and clearance of aggregating macromolecules in retinal and brain pathologies.

Dr Ratnayaka's work utilises in-vitro and in-vivo models as well as human donor tissues. His research involves collaborations with other scientists, clinicians as well as industrial partners.

Dr Ratnayaka's portfolio also includes teaching in several undergraduate and postgraduate programmes across two Faculties. He is engaged in outreach activities including raising awareness of blinding diseases and dementia through workshops, public lectures and work with patients as well as education in schools.

## Ms Rizwana Khan

**Consultant Ophthalmic Orbital, Oculoplastic Surgeon and Consultant in-charge Accident and Emergency Department, Royal Victoria Eye and Ear Hospital, Dublin.**

Ms Khan completed her ophthalmology training and fellowship in orbits, oculoplastic and neuro-ophthalmology in 2007. She is involved in several research projects in orbits and oculoplastics with special interest in navigation in orbital surgery.

## Mr Paul Mullaney

**Consultant Ophthalmic Surgeon, Sligo University Hospital.**

Mr Paul Mullaney is a Consultant Ophthalmic Surgeon working in Sligo University Hospital. He undertook his initial training in The Royal Victoria Eye and Ear Hospital in Dublin. There followed further training fellowships in the University of Wisconsin and University of Toronto in paediatric ophthalmology. Prior to taking up his post in Sligo he worked in The King Khaled Eye Specialist Hospital in Saudi Arabia and The Worcester Royal Infirmary. The Worcester Royal Infirmary specialised in high volume cataract surgery. Whilst in Sligo he was the Clinical Director of the hospital for 8 years. The Ophthalmology team won the prestigious HSE National Health Service Excellence award in 2016. His main practice areas encompass Cataract surgery and Pediatric Ophthalmology.

## Mr Barry Quill

**Consultant Ophthalmic Surgeon, Royal Victoria Eye and Ear Hospital, Dublin.**

Mr. Barry Quill is a Consultant Ophthalmic Surgeon whose clinical areas of expertise include cataract, refractive, glaucoma and corneal surgery. He completed his residency and specialist registrar training in 2015 through the Royal College of Surgeons, Ireland. He was awarded a fellowship in refractive laser and cataract surgery from the Mater Private Hospital, Dublin and awarded two subsequent fellowships from The Royal Perth Hospital, Australia gaining valuable experience in new novel methods of corneal transplantation and minimally invasive glaucoma surgery.

Mr Quill was appointed as a Consultant Ophthalmic Surgeon in 2017 to the Royal Victoria Eye and Ear Hospital and Clinical Lead for the new cataract unit at the Hospital.

His main research interests are glaucoma, corneal transplantation and eye banking. He received his academic Doctorate from University College, Dublin (2010) for his full-time research in glaucoma eye disease. This body of work has resulted in international and national prizes, awards and publications, and he has lectured worldwide on his findings. He has authored multiple international peer reviewed publications and book chapters.

## Ms Nicola Bayly

**Assistant Commissioner, Multinationals & Technology Unit, Data Protection Commission.**

Ms Nicola Bayly is an Assistant Commissioner in the Data Protection Commission working as a lead investigator in the Multinationals & Technology Unit. As part of this role Nicola scopes issues for statutory inquiry that have come to the attention of the Commission via a complaint or otherwise. Nicola is involved in managing the inquiry process and is currently in charge of a number of different inquiries into the practices of some of the world's leading technology companies on issues as diverse as the extent of a data subject's right of access to "observed" personal data to examining the validity of the lawful bases relied upon by data controllers in their processing of personal data.

Nicola is a solicitor with experience in advising private and regulatory clients with regard to data protection compliance from her time spent in firm.

## Ms Claire Hartnett

**Consultant Paediatric Ophthalmic Surgeon, Temple Street Children's University Hospital, Dublin.**

Ms Claire Hartnett is a Consultant Paediatric Ophthalmic Surgeon at the Children's University Hospital, Temple Street. She undertook her fellowship training at Great Ormond Street Hospital, London and The Royal Hospital London.

## Dr Emily Greenan

**Clinical Tutor, Ophthalmology; PhD student, Royal College of Surgeons in Ireland.**

Dr Emily Grennan was announced the winner of the ICO/Novartis Eye Research Bursary 2018 at the Annual Adare Retinal Meeting in Limerick on September 28, 2018 for her research project entitled 'Targeting Ocular Inflammation in Dry Eye Disease with Novel MicroRNA-based Therapeutics'.

Dr Grennan's research focusing on ocular inflammation in dry eye disease is being carried out between the Royal Victoria Eye and Ear Hospital, Dublin and the Royal College of Surgeons in Ireland as part of Dr Greenan's PhD under the supervision of Professor Conor Murphy, Chair and Professor of Ophthalmology at the RCSI and Dr Joan Ní Gabhann at the Department of Ophthalmology and Molecular and Cellular Therapeutics, RCSI.

Dr Greenan will give an update on her research at the ICO Annual Conference in Galway.

## Dr Sinéad C. Corr

**Assistant Professor in Microbiology; Group Leader, Host-Microbe Interface and Gut Immunity, Department of Microbiology, The Moyne Institute of Preventive Medicine, Trinity College Dublin.**

Dr Sinéad Corr qualified with a BSc Microbiology from University College Cork in 2002 obtained a PhD in Molecular Microbiology at the Alimentary Pharmabiotic Centre, under the supervision of Prof. Colin Hill (2007), investigating the interaction of the food borne pathogen Listeria monocytogenes with the gastrointestinal epithelium and the therapeutic potential of probiotics to treat intestinal infection.

Dr Corr subsequently undertook a post doctorate position as part of a collaboration between GlaxoSmithKline and the Alimentary Pharmabiotic Centre, under the mentorship of Prof. Fergus Shanahan, investigating novel therapeutics for the treatment of IBD. In 2008, she joined the lab of Prof. Luke O'Neill at the School of Biochemistry and Immunology, Trinity College Dublin, were she further investigated the role of innate signalling pathways in intestinal infection and IBD.

In 2012, Dr Corr was awarded a Starting Investigator Research Grant from Science Foundation Ireland, to investigate the role of miRNA's in the regulation of gut homeostasis or inflammatory disease. She was appointed Assistant Professor in Microbiology at Trinity College Dublin, and established the HostMicrobe Interface & Gut Immunity lab in 2015. Employing molecular based approaches and elaborate in vivo models and clinical analyses, the Corr research group aims to unravel the molecular mechanisms underpinning the crosstalk between the intestinal immune system and the gut microbiota in disease associations, in particular microbiome-associated disorders like IBD. The influence of the microbiota on health and disease, and the potential to harness it as a therapeutic strategy, is a research focus.

## Professor Michael Ulbig

**Ludwig Maximilians University Munich; Department of Ophthalmology, School of Medicine, Klinikum rechts der Isar, (University Hospital), Technical University of Munich.**

Prof. Dr. med. Ulbig has a major interest in clinical studies and retinal vascular diseases. His clinical subspecialty is medical retina, including the treatment and diagnosis of diabetic retinopathy, age-related macular degeneration, and retinal vein occlusions. Prof. Ulbig is a Lecturer at Ludwig Maximilians University in Munich, the "Academy der Augenärzte Deutschlands (AAD)", DOG basic science course at the International University in Venice. Prof. Ulbig has authored more than 180 pubmed listed papers.

# Prize Winners and Honorary Lectures

The ICO awards a number of annual prizes including the Sir William Wilde Medal for best poster presentation and the Barbara Knox Medal for best paper presentation. In 2018-2019 two bursaries were awarded, an eye research bursary supported by Novartis and a clinical fellowship supported by Bayer.

A travel and education bursary,supported by Scope Ophthalmics will be awarded for the best submission at the Annual Conference.

Each year the College invites two distinguished ophthalmologists to give honorary lectures; the Montgomery Lecture and the Mooney Lecture.

## ICO/Novartis Eye Research Bursary 2018

Dr Emily Grennan was announced the winner of the ICO/Novartis Eye Research Bursary 2018 at the Annual Adare Retinal Meeting in Limerick on September 28th, 2018 for her research project entitled 'Targeting Ocular Inflammation in Dry Eye Disease with Novel MicroRNA-based Therapeutics'.

The annual bursary is an unrestricted educational grant awarded to a doctor who wishes to undertake a research project or specific training in the field of ophthalmology. The bursary has been instrumental in facilitating eye doctors in Ireland to undertake pioneering research into potential cures and treatments for sight-threatening conditions.

Dr Grennan's research focusing on ocular inflammation in dry eye disease is being carried out between the Royal Victoria Eye and Ear Hospital, Dublin and the Royal College of Surgeons in Ireland as part of Dr Greenan's PhD under the supervision of Professor Conor Murphy, Chair and Professor of Ophthalmology at the RCSI and Dr Joan Ní Gabhann at the Department of Ophthalmology and Molecular and Cellular Therapeutics, RCSI.

## ICO Medal Winners 2018

The winner of the Barbara Knox Medal for Best Paper 2018 was Dr Terence McSwiney for his paper on 'Predisposing Risk factors, Clinical and Microbiological Characteristics of Moraxella Keratits'.

The study was a retrospective review of all patients who were diagnosed with Moraxella keratitis between November 2012 and December 2017 at the Royal Victoria Eye and Ear Hospital, Dublin, Ireland. The study used the MALDI-TOF method of microbiological identification to perform Moraxella sub-species identification. The objective of the study was to determine the epidemiology, clinical findings on presentation, predisposing risk factors and microbiological spectrum, management, and treatment outcomes of Moraxella keratitis in a single centre.

The winner of the Sir William Wilde Medal 2018 for Best Poster was Dr Diarmaid Hickey for his presentation on the 'Lamina Cribrosa Cell Bioenergetics in Glaucoma: Role of Glycolysis and Glutaminolysis'.

The purpose of the research was to investigate the expression of markers (MCT1 and GLS2) associated with an enhanced glycolysis and glutaminolysis phenotype. The results showed that the PCR transcription level of both MCT1 and GLS2 was significantly elevated in GLC (39.14 ± 3.17 fold change in gene expression) versus normal LC cells (NLC) (31.34 ± 2. 91), ($n = 3$, $P < 0.05$) for MCT1 and (35.69 ± 3.15) versus NLC (17.63 ± 2.16) ($n = 3$, $P < 0.02$) for GLS2. This was confirmed at the protein expression level, as western immunoblotting analysis showed that the expression of both MCT1 and GLS2 was significantly elevated in GLC (9.41 ± 1.29 a.u) versus NLC (6.04 ± 1.23 a.u), ($n = 3$, $P < 0.05$) for MCT1 and (8.67 ± 1.23 a.u) versus NLC (4.95 ± .0.98 a.u) ($n = 3$, $P < 0.05$) for GLS2.

A new medal, the John Blake Medal, has been introduced this year for the best laboratory science-based paper in honour and memory of Ophthalmic Surgeon Mr. John Blake.

## Annual Mooney Lecture 2018

The Annual Mooney Lecture 2018 was presented by Dr Cynthia Bradford, Professor of Ophthalmology, Dean McGee Eye Institute, Department of Ophthalmology of the University of Oklahoma Health Sciences Center, Oklahoma.

Dr Bradford's lecture entitled "The Challenge of Cataract Surgery – Hard Work to Make it Look Easy" was delivered at the 2018 ICO Annual Conference in the Lyrath Hotel, Co Kilkenny.

This year we welcome Professor Nicholas Jones, Consultant Ophthalmologist and Director, Manchester Uveitis Clinic and Honorary Prof. of Ophthalmology, Manchester Academic Health Science Centre, University of Manchester who will deliver the Annual Mooney Lecture entitled "Old Diseases in the New Century: Déjà Vu in the Uveitis Clinic".

## Annual Montgomery Lecture 2018

The 2018 Montgomery Lecture entitled 'When Irish Eyes are Smiling' was delivered by Dr. Michael Brennan, Past President of the American Academy of Ophthalmology.

The lecture took place on November 16th 2018 at the Royal College of Surgeons in Ireland and was followed by a formal reception to commemorate the centenary of the founding of the Irish Ophthalmological Society, the forerunner to the ICO, in 1918.

## Bayer/ICO Clinical Fellowship in Ophthalmology 2018/19

The Bayer-ICO Clinical Fellowship has selected two Ophthalmologists for joint award in 2019. These are Dr. Pathma Ramasamy and Dr. Micheál O'Rourke.

Dr Ramasamy is undertaking a Vitreo Retinal Fellowship in Bristol Eye Hospital. The fellowship is in a tertiary referral centre and provides advanced sub-specialty training in the surgical management of vitreoretinal disorders.

Dr O'Rourke is undertaking a year-long fellowship at the Manchester Royal Eye Hospital in oculoplastics and orbital surgery. This fellowship gives high intensity training in all aspects with multi-disciplinary team collaboration with other specialties.

The College very much appreciates the support of Bayer to enable our trainees undertake these important training opportunities.

A full list of the past Honorary lectures and ICO medal winners is available on the ICO website www.eyedoctors.ie

***Thank you to all our sponsors and supporters, inparticular those who have supported prizes, research and educational bursaries***

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# Paper Session
## Wednesday 15th May – morning

## *HazMat Emergency Readiness in Ophthalmology (HERO)*

**Malone C, Chetty S.**
**Sligo University Hospital.**

**Objectives:**
Hazardous Material (HazMat) incidents range from chemical plant accidents to biological warfare and terrorism. The 2018 Salisbury Novichok nerve agent attack in the UK highlighted the small but significant risk of chemical weapons. The Irish Government's Department of Defence 2017 National Risk Assessment noted HazMat incidents as "moderate-likelihood, high-impact threats". Early effects of these agents include eye complaints such as miosis, epiphora, conjunctival irritation, photophobia, eye pain, and blepharospasm. Late effects include severe dry eye, corneal ulceration, and corneal scarring. We are not aware of any previous research on HazMat in ophthalmology. This survey of ophthalmologists in Ireland aims to assess awareness of HazMat and to gauge interest in formal training.

**Methods:**
We circulated an anonymous questionnaire to all clinicians registered with the Irish College of Ophthalmologists, the national ophthalmology training body in Ireland. We asked participants about their experiences of HazMat events, their confidence in treating victims, and their interest in undertaking formal training. We also collected data on career stage and type of clinical practice.

**Results:**
We received 51 replies from a pool of approximately 245 clinicians. 88% had never treated a HazMat victim and 82% rated themselves as Not At All Confident when treating such patients. 68% were unfamiliar with the 4 levels of personal protective equipment involved in HazMat care delivery. 81% of respondents worked at units providing emergency eye care. 46% were in basic or higher specialist training, with the remaining 54% either in fellowship programmes or working as consultants. 93% were in public practice and 46% were based in Dublin. Just 4% had received HazMat training but 40% were Interested or Very Interested in pursuing a formal HazMat course. 83% felt that every ophthalmologist should have online basic training, e.g. Basic HazMat Life Support.

**Conclusions:**
HazMat exposure is rare but potentially lethal for both victims and treating clinicians. The majority of respondents work in units which provide emergency eye care but 96% have no HazMat training and 80% either have no local contingency plan or are unaware of it. The results of this national survey suggest that there is a gap in ophthalmology training which could expose clinicians to contamination and could hinder clinical care of HazMat victims.

## *Full Thickness Macular Hole Repair: Clinical Features and Outcomes in a Single Centre*

**McSwiney T, Ali Shah SF, Akram MA, Doris J.**
**University Hospital Waterford.**

**Objectives:**
To describe the demographics, clinical features and treatment outcomes of macular hole surgery in a single centre.

**Methods:**
A retrospective review of all patients diagnosed with a full thickness macular hole between February 2015 and January 2019 at Waterford University Hospital, Waterford, Ireland was performed. Macular hole size was graded by three dimensions: macular hole inner opening(MHIO), minimum linear dimension(MLD) and base diameter(BD).

**Results:**
Sixty-three cases of primary macular hole repair surgery were identified. Mean age at surgery was 70.42 years (range 48-87 years) with an average time from presentation to surgery of 40.97 days (range 5 – 146 days). Average MHIO, MLD and BD at presentation were 731um (range 174 – 1258), 418um (range 96 – 797) and 923um (range 41 – 1862) respectively. Primary success rate was 80.96%, which was defined as anatomical macular hole closure on SD-OCT within three months of surgery. Mean presenting and final LogMAR VA were 0.8075 ± 0.245 and 0.551 ± 0.314 respectively. Five patients who did not have successful anatomical closure of macular hole underwent further surgery, of which two patients had successful anatomical closure of macular hole. There was a significant difference in macular hole closure rates and visual acuity outcome between MLD of less than or greater than 400um (<0.05 and <0.001 respectively).

**Conclusions:**
In this series of patients from Ireland, macular holes were notable for their severity of visual acuity on presentation. We showed that, using MLD as a guide, macular hole closure rates were significantly better when MLD was less than 400um. These patients also had significantly better visual outcome. We have demonstrated the value of classification of macular hole using MLD prior to surgical intervention. This gives both the surgeon and patient more accurate information on prognosis.

## *Descemet's Membrane Endothelial Keratoplasty: First Irish Prospective Study of Visual Outcomes, Graft Survival and Endothelial Cell Count*

**Stanciu P, Tuwir I.**
**University Hospital Limerick.**

**Objectives:**
First time experience with Descemet's membrane endothelial keratoplasty (DMEK) graft in Ireland. To assess outcomes in DMEK grafted patients at more than 6 months after the surgery and to compare the results with previously reported studies.

**Methods:**
A prospective study on eyes that underwent DMEK and were evaluated at more than 6 months post-op. Measurements included best corrected visual acuity and endothelial cell count.

**Results:**
In progress

**Conclusions:**
DMEK is a good option in treating Fuchs' endothelial dystrophy due to its fast visual rehabilitation with few complications and easy follow-up and management regimen. DMEK is challenging to perform as the graft is fragile and difficult to maneuver but due to its encouraging outcomes it is becoming the first option among the corneal specialists.

## *Fundus Fluorescein Angiography in Human Subjects Displays Circadian Variation*

**Hopkins A[1,2], Hudson N[1], Doyle S[3], Cahill M[2], Campbell M[1].**
**[1]Smurfit Institute of Genetics, Trinity College Dublin, Dublin, [2]Royal Victoria Eye and Ear Hospital, Dublin.**
**[3]School of Medicine, Trinity College Dublin.**

**Objectives:**
The relationship between the circadian clock, retinal inner blood-retina barrier (iBRB) permeability, and their possible role in retinal pathology is unknown. We performed quantitative FFA in healthy human subjects aged 18 – 30 years old, in the morning and evening to assess for any changes in retinal vascular integrity.

**Methods:**
Twenty three healthy human volunteers aged 18 to 30 were recruited, and informed consent was obtained from all participants. Fundus colour photography and FFA were performed at a defined time in the morning and again in the evening with a minimum of 48 hours between each investigation. The chronotype of each person was determined using the Munich

chronotype questionnaire. Volunteers were excluded if they had any pre-defined medical history as outlined in our ethical approval documentation. Sodium fluorescein (500 mcg), followed by a 5mL flush of 0.9% sodium chloride, was injected via a peripheral cannulation site. FFA images of the posterior pole were captured every 15 s from completion of the infusion to 10 min. Fundal images were independently reviewed by a consultant ophthalmologist and Image +J analysis was used for quantification of FFA images.

**Results:**
Based on the Early Treatment Diabetic Retinopathy Study grid the macula was divided into 3 regions for analysis, these were, the central fovea, inner macula and outer macula. Fluorescein signal was evident and more prolonged in the evening compared to the morning in the same subject and this was significantly increased in all macular regions analysed (n = 15 subjects, ***P < 0.001).

**Conclusions:**
We have shown that there is a significant increase and more prolonged fluorescein signal in the evening compared to the morning in healthy volunteers. This indicates a systemically injected tracer molecule in human subjects undergoes a potential size-selective passive diffusion from the inner retinal vasculature to the retinal parenchyma with diffusion towards the outer retina and RPE. An inner retina derived supply of systemically derived components to the photoreceptor outer segments and RPE has not been described previously and may represent a critically important physiological process central to the development of a range of retinopathies including age-related macular degeneration (AMD).

## *Patient Involvement in Development of Customised Care Plans for Genetically-confirmed Inherited Retinal Degeneration*

**Long A[1], Stephenson K[1,2], Zhu J[1], Dockery A[3], Silvestri G[4], Kenna P[4,5], Laura Brady L[6], O'Byrne J[2], Turner J[2], Farrar GJ[3], Keegan D[1,2]**

**[1]Mater Misercordiae University Hospital, Dublin, Retina Research Group, [2]Mater Misercordiae University Hospital, Dublin, [3]Trinity College Dublin, [4]Belfast Health & Social Care Trust, [5]Royal Victoria Eye and Ear Hospital, Dublin, [6]Fighting Blindness Ireland.**

**Objectives:**
Inherited Retinal Dystrophies (IRD) are a leading cause of visual loss in the working-age population. This clinically and genetically heterogenous group of disorders requires tailored management and personalized action plans at each review. There is often a lack of awareness amongst patients and professionals of all the resources, supports and therapies potentially available to them. Modern clinical management has patient involvement in decision-making and a collaborative method of communicating available options must be considered.

**Methods:**
Sample care plans were created for Stargardts Disease, USH1B and X-Linked Retinoschisis (the most commonly detected genotypes from our IRD cohort (Mater Hospital Target 5000 centre). A review of the genotypic result including variant analysis (with geneticist and genetic counsellor) was conducted along with a documentation of phenotypic status including co-morbidities (by an ophthalmologist). A literature review relevant to genotypes and best available interventions (including supports) was conducted, with a judgement on level of evidence. This draft was subject to further review, discussion and change by focus groups comprising patients, patient relatives, advocates, geneticists, genetic counsellors, clinicians and scientists. An iterative process was followed and multiple drafts were created.

**Results:**
A template format was created which provides the phenotype (imaging and functional data with report) and genotype (distinguishing known and unknown variants) following appropriate genetic counselling. The relevant current recognised treatments of the condition and co-morbidities are highlighted. Where no active treatment is available this is indicated. Supports (co-ordinated by our Eye Clinic Liaison Officer- ECLO) are recommended. A list of the relevant pre-clinical and clinical studies (including trials) are made available. Natural history graphs were deemed inappropriate to include except by special request.

**Conclusions:**
This format optimises communication between the ophthalmic healthcare team and the patients affected by IRDs. Enhancement of this care plan format by ophthalmologists, geneticists and patients affected by IRD has been done. Some

aspects of these conditions can be treated alike from one patient to the next (e.g. cataract) or cystoid macular oedema. The primary retinal pathology must be addressed on an individual case by case basis. Inclusion of published natural history data was deemed too sensitive to include routinely. Disease-modifying treatments are in their nascent stages, however this format can attempt to provide transparent information in an era of overwhelming and often conflicting data. It should help manage patient expectations in a clear unambiguous manner while informing on the hope for upcoming therapies. The digital and accessible formats are in development.

## *Brittle Bones, Blue Sclerae and Stiff Corneas*

**Doolan E, Silke E, O'Brien C.**

**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Osteogenesis Imperfecta (OI) is a group of inherited disorders characterized by bone fragility, with the well-known ocular finding of 'blue sclera'. Dominantly inherited mutations in the COL1A1 gene are known causes of OI, and have more recently been implicated in different forms of glaucoma. Our first objective was to elucidate the genetic cause of OI and glaucoma in a family we encountered in clinical practice. Our second was to study the corneal biomechanical properties of this family.

**Methods:**
Eight subjects from a family affected by Osteogenesis Imperfecta (OI) Type 1 underwent genetic testing. The proband underwent sequencing of genomic DNA for a panel of genes associated with autosomal dominant OI. The remainder underwent carrier testing in the COL1A1 gene. These subjects included both affected (6) and unaffected (2) family members from two generations. They all underwent complete eye examinations with special attention paid to corneal biomechanics including central corneal thickness (CCT) and corneal hysteresis (CH).

**Results:**
The family members affected with OI were heterozygous for a pathogenic c.1821+1G>A splice site mutation in intron 26 of the COL1A1 gene. Two of the subjects affected were diagnosed with POAG at ages 40 and 45. All six subjects affected with OI had significantly thinner CCT and lower CH than normal.

**Conclusions:**
We identified a known mutation in COL1A1 in individuals with OI type 1. The subjects with this mutation also either had POAG or had corneal properties which predisposed them to development of POAG. Thus, some mutations in COL1A1 may be causative for OI and POAG.

## *Enhanced Ocular Delivery Using Biocompatible Nanomaterials*

**[1]Kent D, [2]Behl B, [2]Kuman S, [2]O'Reilly N, [2]McLoughlin P, [2]O'Donovan O, [2]Fitzhenry L.**

**[1]The Vision Clinic, Kilkenny, [2]Department of Science, Waterford Institute of Technology.**

**Objectives:**
Dry eye disease affects an estimated 350 million people worldwide and the efficacy of conventional topical treatments can be hugely variable. The use of biocompatible nanomaterials is one approach that could enhance topical efficacy. This study focuses on the synthesis, characterisation and evaluation of lipid-based nanoformulations developed to improve therapeutic delivery using eye drops.

**Methods:**
Two lipid-based nanoformulations were developed for the treatment of dry eye: (a) cholesterol-based nanostructed lipid carriers (NLCs) and (b) a cholesterol-based liposomal-microemulsions (LMEs) formulation. Both were used to encapsulate dexamethasone. Preparation methods at lab (probe sonication) and pilot scale (high-pressure homogenisation) were

compared. Nanomaterials were initially characterised for their encapsulation efficiency, drug release, size and zeta potential. Suitable formulations were further tested for cytotoxicity, cell adhesion and ex-vivo corneal penetration. The stability of the most successful formulations was carried out over a 6-month period at 5°C and 25°C (60% Relative Humidity).

**Results:**
Nanomaterials prepared at a size range of 20-30 nm at the pilot scale demonstrated a reduction from 50 nm and 150 nm at lab scale preparation for LMEs and NLCs respectively. Drug encapsulation ranged from 95-99% with release rates for the LMEs of 60% in 12 hours and 0.3% in 12 hours for NLCs. All materials demonstrated excellent cytotoxicity profiles. The prepared nanomaterials also displayed mucoadhesive as well as barrier penetrating properties. The optimal formulations demonstrated an increase in porcine corneal drug concentration 50% greater than a commercial dexamethasone formulation.

**Conclusions:**
Lipid-based nonomaterial formulations prepared from biocompatible materials displayed properties that have the potential to enhance conventional eye drop formulations for the treatment of dry eye disease. The synthesized nanomaterials demonstrated high drug loading capability, controlled drug release and excellent cytotoxicity profiles with suitable stability over a 6-month period. Formulation of a pilot scale batch suggested the potential to produce these formulations on an industrial scale.

## *Reduced Oxidative Phosphorylation and Increased Glycolysis (The Warburg Effect) in Glaucoma Lamina Cribrosa Cells*

**Kamel K, Irnaten M, Zhdanov A, Papkovsk D, O'Brien C.**

**Mater Misericordiae University Hospital, Dublin, University College Dublin, University College Cork.**

**Objectives:**
Lamina Cribrosa is the main site of damage in glaucomatous optic neuropathy. We have previously shown that glaucoma lamina cribrosa (GLC) cells have an increased profibrotic gene expression and altered mitochondrial function in the form of reduced mitochondrial membrane potential when compared to normal lamina cribrosa (NLC) cells. Here we demonstrate a more detailed systematic bioenergetic assessment of these activated myofibroblasts contributing to optic disc cupping in glaucoma.

**Methods:**
GLC cells from three donors and NLC cells from three age-matched controls were assessed using VICTOR X4 PerkinElmer plate reader with different phosphorescent and luminescent probes. Three measurements were assessed: ATP production, Oxygen Consumption Rate (OCR) and Extracellular Acidification (ECA). These measurements were performed in triplicates and were normalized to total protein biomass.

**Results:**
GLC cells produced significantly less ATP than NLC cells (set at 100 a.u.) at baseline (85.99 ± 1.73 a.u. versus 100 a.u. respectively, n=3, $p<0.05$). The difference reaches >20% when mitochondria are stressed using galactose instead of glucose to prevent glycolysis. (84.56 ± 7.58 a.u. versus 108.38 ± 17.55 a.u. respectively, n=3, $p<0.05$). GLC cells showed diminished basal oxygen consumption compared to NLC cells (1.99±0.80 versus 7.73±1.9 nmole/min*mg protein respectively $p<0.05$) with less mitochondrial reserve capacity when uncoupled with Carbonyl cyanide-4-phynylhydrazone (FCCP) (4.94±0.6 versus 13.28±1.28 nmole/min*mg protein respectively $p<0.05$). Finally, GLC cells showed more lactic acid contribution in ECA compared to NLC cells (85.97±3.71% versus 63.97±9.34% respectively $p<0.05$), suggesting increased anaerobic glycolysis and decreased oxidative phosphorylation (OXPHOS) in GLC cells.

**Conclusions:**
GLC cells show evidence of mitochondrial dysfunction including lower OXPHOS and higher anaerobic glycolysis compared to NLC (Warburg effect). Better understanding of mitochondrial function in glaucoma may help the development of new therapeutics.

# *Lamina Cribrosa Tissue Stiffness as the Primary Biomechanical Driver of Pathological Glaucomatous Cupping*

**Hopkins A, Murphy R, Irnaten M, O'Brien C.**

**Catherine McAuley Centre, School of Medicine, University College Dublin.**

**Objectives:**
The primary biomechanical driver of pathological glaucomatous cupping remains unknown, finite element modelling indicates stress and strain play important roles. We utilised previously published biomechanical data and currently unpublished results from experimental three-dimensional (3D) contraction assays to assess whether normal and glaucoma lamina cribrosa (LC) cells respond differently in support of our stiffness driven paradigm.

**Methods:**
We propose three stages which account for glaucomatous change occurring at variable levels of translaminar pressure (TLP). TLP induces a strain on the LC and beyond a critical level of strain the stiffness rises steeply provoking cellular responses. Integrin mediated mechanotransduction allows for early/acute and chronic/profibrotic response to elevated stiffness. These responses involve early mechanoprotective cellular contraction. We conducted 3D collagen gel contraction studies to assess for differences in normal or glaucomatous LC cells.

**Results:**
In our paradigm the first stage relates to short-term elevation of TLP. The second two stages show progression to a chronic positive feedback loop of increasing stiffness and persistent profibrotic gene activation. The short-term response involves cellular contraction to mechanically reduce the strain which in turn reduces tissue stiffness. The collagen gel contraction assay showed that both normal and glaucoma LC cells contracted the collagen gel but in normal LC cells this was significantly ($P<0.05$) greater (3.37 ± 0.38 mm) compared to glaucoma LC cells (2.73 ± 0.26 mm) after 48h incubation. In rationalising the chronic profibrotic response to increased TLP, we reviewed the optic nerve head (ONH) biomechanical determinants with a focus on the LC biological structure and explored the role of integrin mechanotransduction.

**Conclusions:**
Our three stages are: 1) In response to TLP-induced elevated stiffness, there is a contractile and ECM response which reduces strain and therefore stiffness. 2) With prolonged cellular activation, the ECM response leads to fibrosis and increased baseline tissue stiffness with an associated reduction in/ failure of the protective contractility, as supported by our data. 3) Continuing fibrosis with increasing stiffness induces a feed-forward cycle of further ECM production. Repetition of cycles of increased strain (posterior deflection of the ONH) and stiffness (profibrotic ECM deposition) fixes the ONH in this deflected position. This incremental process leads to pathological cupping of the ONH. Blocking sensation of stiffness at a cellular level may offer a therapeutic target effective in preventing further neuropathy.

# *Pseudoexfoliation Glaucoma – Do Genes or Environment matter more?*

**Greene A[1], Eivers S[1], Dervan E[2], O'Brien C[1,2], Wallace D[1].**

**[1]Clinical Research Centre, School of Medicine, University College Dublin, Mater Misericordiae University Hospital, Dublin, [2]Ophthalmology Department, Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Lysyl oxidase like 1 (LOXL1) catalyzes collagen and elastin crosslinking and plays an important role in the disease pathology associated with glaucoma. Single nucleotide polymorphisms (SNPs) within the LOXL1 gene are associated with pseudoexfoliation syndrome (PXF) and pseudoexfoliation glaucoma (PXFG). These SNPs are present in 50-80% of the general population, suggesting environmental factors also play a role in disease development and progression. The objective of this study was to investigate LOXL1 levels in human tenons fibroblasts (HTFs) and aqueous humour samples (AqH) from PXF, PXFG and cataract control (CAT) donors and to establish if there was an association with genotype (SNP analysis), epigenetic regulation (DNA methylation) or environmental factors such as hypoxia, oxidative stress, UV exposure and caffeine intake.

**Methods:**
Following approval from the Mater Misericordiae University Hospital IRB, PXF, PXFG and CAT patients were recruited. Blood samples were collected for genotyping high-risk LOXL1 gene haplotypes (rs1048661 and rs3825942). HTFs were propagated from Subconjunctival Tenons capsules isolated during surgery and AqH samples were also collected. LOXL1 expression was measured by qPCR and Western Blot and LOXL1 activity by ELISA. To investigate environmental influence on LOXL1 expression, CAT HTFs were cultured under hypoxic (1%O2) and oxidative stress conditions (200μM hydrogen peroxide). Epigenetic analysis was determined by global DNA methylation and qPCR of methylation-associated enzymes (DNMT1 and 3A). 0.3μM of 5-azacytidine (5-aza) was used to inhibit these enzymes. Environmental factors (UV exposure and caffeine intake) were recorded in a study specific RedCap™ database.

**Results:**
Increased high-risk LOXL1 gene haplotypes and decreased protective variants were observed in PXFG compared with CAT. Expression and activity of LOXL1 were decreased in PXFG HTFs compared to CAT ($p<0.01$). These data were replicated in CAT HTFs cultured under hypoxic ($p<0.05$) and oxidative stress conditions ($P<0.01$). Global DNA methylation and DNMT1 and 3A expression was increased in PXFG compared to CAT ($p<0.05$). Inhibition of these enzymes in PXFG HTFs using 5-aza restored LOXL1 expression ($P<0.050$).

**Conclusions:**
A combination of genetic factors (SNPs), epigenetic factors (DNA methylation) and environmental factors (hypoxia, oxidative stress, UV exposure and caffeine intake) contribute to LOXL1 expression in PXFG. LOXL1 genotyping may offer means of screening for risk of disease progression and epigenetic modifiers such as 5-azacytidine may represent a future therapeutic approach for PXFG.

## *Phase 3, Randomized, Double-Masked, Multi-Center Trials of Brolucizumab Versus Aflibercept for Neovascular AMD: 96-week Results from the HAWK and HARRIER Studies*

**Cahill M[8], Dugel P[1], Jaffe G[2], Schmidt-Erfurth U[3], Ogura Y[4], Koh A[5], Weissgerber G[6], Gedif K[6], Holz FG[7].**

**[1]Retinal Consultants of Arizona, Phoenix, Arizona; USC Roski Eye Institute, Keck School of Medicine, University of Southern California, Los Angeles, California; [2]Duke University Eye Center, Durham, NC, USA; [3]Department of Ophthalmology, Medical University of Vienna, Austria; [4]Department of Ophthalmology and Visual Science, Nagoya City University Graduate School of Medical Sciences, Japan; [5]Eye & Retina Surgeons Clinic, Camden Medical Centre, Singapore; [6]Novartis Pharma AG, Basel, Switzerland; [7]Department of Ophthalmology, University of Bonn, Germany; [8]Research Foundation, Royal Victoria Eye & Ear Hospital, Dublin.**

**Objectives:**
This is an encore of the AAO 2018 submission and the presenting author (Mr. Mark Cahill- HARRIER investigator) is presenting on behalf of the HAWK & HARRIER study investigators. Ninety-six-week (w) results from two prospective studies evaluating the efficacy and safety of brolucizumab vs aflibercept for AMD.

**Methods:**
Patients were randomized 1:1:1 to brolucizumab 3/6 mg or aflibercept 2 mg (HAWK) or 1:1 to brolucizumab 6 mg or aflibercept 2 mg (HARRIER). After the loading phase, brolucizumab patients received q12w dosing with an option to adjust to q8w at predefined disease activity assessment visits; aflibercept was dosed q8w.

**Results:**
Brolucizumab was non-inferior to aflibercept in mean BCVA change from baseline at 48w (primary endpoint) with superiority in key anatomical outcomes. Visual and anatomical improvements were sustained with brolucizumab over 96w with a significant proportion of patients remaining on a q12w dosing interval. Overall ocular and non-ocular adverse event rates of brolucizumab were comparable to aflibercept over 96w.

**Conclusions:**
The visual and anatomical improvements were sustained with brolucizumab over 96 w.

# Paper Session
## Wednesday 15th May – afternoon

## *Serum Eye Drops for Ocular Surface Disease – National survey of Cornea Specialists in Ireland*

**Rhatigan M, Murphy C.**
**Royal Victoria Eye and Ear Hospital, Dublin.**

**Objectives:**
To review the use of serum eye drops (SED) for the treatment of ocular surface disease in Ireland and to assess the need for an improved access to this therapy.

**Methods:**
A confidential survey was emailed to consultant ophthalmologists providing subspecialty care in cornea. Descriptive statistics on indications for serum drops, production and accessibility are reported.

**Results:**
**Background and Indications**: Six out of thirteen corneal specialists completed the survey, 67% of respondents practicing at a University Hospital and 33% in private practice. Indications for SED treatment were severe refractory ocular surface disease (100%), neurotrophic keratitis (67%), persistent epithelial defects (67%), severe chemical injury (67%), refractory recurrent corneal erosion syndrome (16%), and post refractive surgery dry eye (16%). The number of patients treated per department over twelve months ranged from 1 to 30 with a median of 11.
**Production and treatment duration**: In all cases serum drops were produced by the National laboratory at the Galway blood and tissue establishment (GBTE) and half (50%) of respondents had prescribed allogeneic SEDs for patients unable to donate blood. Duration of SED treatment ranged from 3 -12 months with a median of 6.6 months and frequency varied from QDS to 2 hourly depending on severity and treatment response.
**Access:** Sixty percent of respondents strongly agreed that access restricted them from prescribing SEDs mainly due to financial and logistical barriers, particularly in private practice. All respondents agreed or strongly agreed that SEDs are a treatment option for refractory ocular surface disease and they would increasingly use SEDs in their practice if they were more easily accessible.

**Conclusions:**
Although most cornea specialists agree that serum drops are indicated in several refractory ocular surface disorders this study highlights variability in treatment practice and barriers to access. Increasing the number or staffing of laboratories producing SEDs would improve access and National evidence based guidelines for SED prescribing would be helpful to standardize patient care.

## *Orbital Radiation for Thyroid Associated Orbitopathy: The Role of Combined Corticosteroids and Orbital Radiation in Preventing Disease Progression*

**Mongan AM[1], Lyons C[1], Billfalk-Kelly A[2], Gilham C[2], Khan R[1].**
**[1]Royal Victoria Eye and Ear Hospital, Dublin, [2]St Luke's Hospital, Dublin.**

**Objectives:**
Thyroid associated orbitopathy (TAO) is an immumomediated disorder with potentially sight-threatening sequelae, however there is no consensus regarding the most efficacious treatment protocol. This study presents our experience of treating mild to moderate TAO with corticosteroids in the first instance, proceeding to orbital radiotherapy if patients demonstrate a good response to corticosteroid therapy.

**Methods:**
Retrospective analysis of all patients with TAO treated by systemic corticosteroid therapy, followed by orbital radiotherapy by a single surgeon between 2008 and 2018. Primary outcome measures were time to quiescence (quiescence defined as Clinical Activity Score (CAS) <4/10), need for surgical orbital decompression post radiotherapy, and need for strabismic / lid surgery post radiotherapy.

**Results:**
A total of 43 patients, mostly female (n=27 (51%)), median age 54 years (range 25-72) were treated with orbital radiation therapy (20 Gy over 10 fractions) during this ten-year period. Of these, 53% (n=23) were smokers. Median follow-up was 18 months (range 3 days – 8.9 years). All patients achieved quiescence, at a median time of 67 days. Of note, 12 patients (28%) required systemic immunosuppressant medication to achieve quiescence, all of whom had been on steroid-sparing immunosuppressant medication prior to radiotherapy treatment. Only two patients (5%) required surgical orbital decompression post radiation therapy; four (9%) required strabismic surgery; seven (16%) required lid procedures. No patient suffered adverse effects from the radiation therapy. Of note, raised intraocular pressure (IOP) was a persistent feature associated with TAO; 13 patients (30%) required topical therapy (median two drops) for raised IOP. Smoking status, gender, time to radiation treatment and intravenous steroid therapy were not associated with worse outcomes following radiation therapy.

**Conclusions:**
Sequential systemic corticosteroids and orbital radiation therapy is an effective treatment for a select cohort of patients with mild to moderate TAO, reducing the need for orbital decompression and shortening the duration of disease activity.

## *CT Navigation in Orbital Surgery*

### Ellard E, Khan R.

**Royal Victoria Eye and Ear Hospital, Dublin.**

**Objectives:**
To illustrate the benefit of computed tomography (CT) as a navigational tool in orbital surgery. It is commonly used in neurosurgery but not in ophthalmic surgeries.

**Methods:**
Three cases of orbital masses and one orbital floor fracture extending to the apex are outlined, in which CT navigation was used as an intra-operative aid. Pre-operative CT scans with small (<1mm) cuts were taken. An emitter that created a low-energy electromagnetic field was placed under the patients' heads intra-operatively. Sterile instruments containing sensors were used to correlate anatomical position with an onscreen location on the CT images in three planes.

**Results:**
All cases resulted in successful surgeries, without intra-operative complications. Optic nerve function was maintained in all cases.

**Conclusions:**
CT Navigation is a helpful aid in orbital surgery, which allows the surgeon to locate a mass, clarify their position intraoperatively, assess the extent of further resection that can be safely performed and avoid structures that may result in significant morbidity.

## *Periocular Cancer Care: A Single Centre Experience*

### McSwiney T, McCloskey C, Ali Shah S, Higgins G.

**University Hospital Waterford.**

**Objectives:**
To describe the demographics, diagnosis and treatment outcomes of periocular cancer care in a single centre and single surgeon service.

**Methods:**
A retrospective review of all patients diagnosed and treated for periocular cancer over a two-year period between 1st January 2017 and 31st December 2018 at Waterford University Hospital, Waterford, Ireland was performed. Single procedures with direct closures, two stage procedures and Mohs micrographic(Mohs) surgeries were identified.

**Results:**
Two-hundred and sixty-two surgical procedures were identified. Mean age at surgery was 71 years (range, 41 – 93). 57% of patients were male. Surgical procedures included direct closure (144, 68%), two stage procedure (50,24%) and reconstruction surgery following Mohs surgery (18, 8%). Basal cell carcinoma (128, 66%), squamous cell carcinoma (23,12%), lentigo maligna (10,5%), cutaneous melanoma (3,1%) and orbital lymphoma (2, 1%) were the most common neoplastic conditions identified. The most common location for BCC was lower lid (51, 40%), medial canthus (25,20%) and cheek (19, 15%) respectively. The most common site for SCC was forehead (15, 65%), cheek (5, 22%) and lower lid (3, 13%) respectively. Re-excision due tumour present at excised tissue margins was required in 9 cases (5%). One case (0.5%) of recurrence was identified following initial excision with clear margins.

**Conclusions:**
In this large series of patients from Ireland, periocular cancer was notable for the prominence of basal cell type with predilection for lower lid. It also highlighted the success of one procedure techniques with direct closure, in those cases with clinically evident margins, by the low rate of need for re-excision of margins.

## *Conjunctival Melanoma: A 10-year Review of Irish Patients*

### Murphy T, Horgan N.
**Royal Victoria Eye and Ear Hospital, Dublin.**

**Objectives:**
To provide an overview of patient presentation, outcomes and treatment protocol for conjunctival malignant melanoma (CMM) in the national tertiary level referral and treatment centre.

**Methods:**
A retrospective review was conducted of all patients who tested biopsy positive for CMM in RVEEH from January 2007-December 2018. Information regarding these patients' epidemiology, presentation, pathogenesis, histology, treatment and outcomes and follow-up was extracted and underwent statistical analysis.

**Results:**
Thirty-seven patients tested biopsy positive for conjunctival melanoma from 2007-2018. 82% of patients presented with a CMM on their bulbar conjunctiva, with 45% of patients having limbal involvement. 6% of patient presented with CMM on the plica semilunaris, caruncle and/or fornices. 29% of patients that were biopsy positive for CMM had an underlying diagnosis of PAM (primary acquired melanosis with atypia) and 12% had an underlying diagnosis of conjunctival naevus. All patients underwent primary wide local excisional biopsy with aseptic "no-touch technique". Double freeze-thaw cryotherapy was applied to the conjunctival margins in this cohort. 45% of patients underwent alcohol corneal epithelial debridement. An amniotic membrane graft was utilized to assist closure in 24% of patients. Mitomycin C was utilized as a post treatment adjunctive therapy in 96% of patients. 83% of patients experienced complete resolution, 24% experienced local recurrence, 3% of patients experienced local invasion or metastasis.

**Conclusions:**
Conjunctival melanoma is an uncommon but potentially devastating tumor that may invade the local tissues of the eye, spread systemically through lymphatic drainage and hematogenous spread, and recur after extensive treatment. Despite its severity, the rarity of available cases has limited the evidence for diagnosis and management. This review will provide an overview of the epidemiology, presentation, diagnosis, management, and surveillance of conjunctival melanoma in Ireland.

# *Corneal Collagen Crosslinking for Progressive Keratoconus: One-Year Controlled Clinical Trial Analysis*

**Cheema H, Khattak A, Nakhli F.**

**Royal College of Surgeons in Ireland, Dhahran Eye Specialist Hospital, Saudi Arabia.**

**Objectives:**
To determine the short-term efficacy of corneal collagen crosslinking (CXL) treatment in patients with progressive Keratoconus (KCN) in comparison with no treatment.

**Methods:**
His controlled clinical trial study was carried out at a tertiary eye hospital, Eastern Province, Saudi Arabia. A prospective controlled clinical study of patients being treated for Keratoconus at a tertiary eye care hospital in the Eastern province of Saudi Arabia. 51 eyes of 43 patients with progressive KCN who received corneal collagen crosslinking (treatment group) and 50 eyes of 34 patients with KCN and no treatment (control group) were included in our study. A one year clinical data were collected preoperatively as well as at 1, 3, 6 and 12 months postoperatively for the treatment group patients. A baseline and 1 year clinical data were collected for the control group patients. The short-term efficacy of the treatment in preventing progression of KCN in comparison with no treatment was analysed at one year.

**Results:**
At one year after crosslinking there was significant flattening of the average keratometry by 0.61 D ($p = 0.001$) [95% CI: 0.25, 0.97] compared to 0.40 D ($p = 0.210$) steepening in the control group; difference between treatment and control was 1.01 D ($p = 0.006$) [95%CI: 0.29, 1.72]. Pachymetry in treatment group thinned by 20.21 µm ($p < 0.0001$) [95% CI: 12.77, 27.66] compared to 0.32 µm ($p = 0.912$) in the control group. Visual acuity remained stable at the preoperative level of 20/30 ($p = 0.397$) in the treatment group and 20/40 ($p = 0.553$) in the control group at one year.

**Conclusions:**
Corneal CXL is an effective treatment for halting the progression of KCN as shown by reduced keratometry and stability of vision.

# Paper Session
## Thursday 16th May – morning

## *Audit of a Juvenile Idiopathic Arthritis Ophthalmology Screening Service*

**McBride G, Comer G.**
**University Hospital Galway.**

**Objectives:**
To compare current University Hospital Galway (UHG) clinical practice against the Irish National Centre for Paedatric Rheumatology (NCPR) screening guidelines for uveitis in children with JIA. To describe the demographics of the children attending the UHG service.

**Methods:**
Retrospective case note review of children who attended the UHG Ophthalmology JIA screening clinic from January 2018 to March 2019.

**Results:**
A total of 27 children with JIA attend the UHG service, 19 female (70.4%) and 8 male (29.6%). The subtypes of arthritis are Poly-articular 12 (44.4%), Oligo-articular 10 (37%), Trisomy 21 arthritis 3 (11.1%) and Psoratic arthritis 2 (7.4%). The ANA status is positive 8 (29.6%), negative 11 (40.7%), and undocumented in UHG notes in 8 (29.6%). The age range when arthritis symptoms commenced was 2 to 12 years, with 16 (59.3%) children presenting aged under 4 years. There have been 293 appointments, 159 (54.3%) of the appointments were in the dedicated JIA Screening clinic delivered by the medical Ophthalmologist. The dedicated clinic commenced in October 2016 on foot of the NCPR guidelines. The range of number of visits per child in this audit ranged from 1 to 47 visits. 3 female children with > 20 visits are aged 9 to 10 years, they were all were diagnosed with JIA before 40 months of age, 2 of these children had a history of 1 episode of unilateral silent uveitis. The child with 47 visits is a 13 year old female who underwent treatment for bilateral anterior uveitis. Against the key standards of care set out in the NCPR guidelines we achieved initial screening examination within 6 weeks in 13 children (59.1%). We achieved initial examination within 12 weeks in 19 children (86.4%). 3 children waited more than 12 weeks, with the longest waiting 28 weeks for initial ophthalmology screening. 5 children were pre-existing ophthalmology patients due to refractive error and strabismus. Against the criterion that all symptomatic patients or those with suspected synechaie should be seen within 1 week, we did not have any cases to compare against. All referrals to UHG to date have been for routine screening. Against the criterion that difficult examinations should have an urgent EUA, we did not have any cases to compare against. All children at UHG have been successfully examined in the Ophthalmology OPD. Against the criterion that arrangements should be in place for rebooking missed appointments and a system of contacting parents following missed appointments- UHG has only had 1 child (3.7%) with more than 2 DNAs. UHG introduced a monthly JIA Ophthalmology screening clinic delivered by a medical Ophthalmologist and supported by a Senior Orthoptist without a restriction to the number of bookable appointments to ensure availability of appointments. The audit found that 2 children (7.4%) were lost to follow up (review appointments not arranged). Both children were re-referred by the Paediatric Rheumatologist in Crumlin Childrens' Hospital. 1 male child had 24 months between eye appointments and 1 female child had 9 months between eye appointments. Other observations from audit- 2 children were found to have myopia and were prescribed glasses and 8 children (29.7%) had documented developmental delay. There are 4 children (14.8%) aged 13-19 years who are currently attending for yearly reviews due to other concerns. There have been 3 cases of uveitis among the UHG JIA population. 1 child with bilateral anterior uveitis was treated by the Consultant Ophthalmic Surgeon for 44 months. There have been 2 cases with unilateral uveitis detected and successfully treated by the medical Ophthalmologist; both children ceased treatment within 8 weeks. The limitation of this audit is information was only available if the child had attended either a paediatric ophthalmology clinic or JIA screening clinic, general/main ophthalmology OPD clinic and the uveitis clinic patients were not included. Information for children discharged pre December 2017 were not included as patient details are unknown to authors.

**Conclusions:**
This audit has demonstrated a successfully delivered clinical service. A UK study which reviewed 10 paediatric rheumatology centers found only 26% achieved initial eye screening within 6 weeks whilst UHG have achieved this in 59.1% of cases. Referrals addressed directly to the medical Ophthalmologist may help to achieve the 100% target set by NCPR guidelines. By having a dedicated specialized clinic delivered by a medical Ophthalmologist allows for optimum clinical care which can be protocol driven.

## *Retinopathy of Prematurity Screening in Letterkenny University Hospital – An Analysis of Thirteen Years of Data*

**Gillespie R, Kearney J.**

**Letterkenny University Hospital, Donegal.**

**Objectives:**
To look at the numbers of babies selected for retinopathy of prematurity (ROP) screening in Letterkenny University Hospital between 2006 and 2018; To ascertain the number of positive cases amongst those screened; To identify the total number of visits by the ophthalmologist to the paediatrics unit and the total number of visits by babies to the ophthalmology outpatient clinic in Letterkenny University Hospital.

**Methods:**
Data between 2006 and 2013 was analysed, looking at which of the selection criteria for screening was met (either birth weight <1.5kg, gestational age < 30 weeks, or both), stage and zone of ROP on first screening and at discharge, number of times each baby was seen in paediatrics unit and number of times each baby was seen in outpatient clinic, whether or not each baby had 'plus' disease, whether or not each baby was referred to a tertiary centre.

**Results:**
In total 136 babies were selected for screening for retinopathy of prematurity by the Letterkenny University Hospital ophthalmology service between 2006 and 2018, making for a total of 288 visits by an ophthalmologist to the paediatrics unit and 75 visits by a baby to the ophthalmology outpatient clinic.
Of the 136 babies screened, 23 were found to have retinopathy of prematurity. Of those 23, 5 were identified as having 'plus' disease and all 23 were low stage retinopathy which resolved with close monitoring, requiring no further intervention on discharge. 6 babies were referred to the ophthalmology departments of Our Lady's Children's Hospital Crumlin and Temple Street Children's Hospital for a second opinion.

**Conclusions:**
The retinopathy of prematurity (ROP) screening programme in Letterkenny University Hospital has been successful in identifying babies at risk of ROP and has found ROP in 17% of babies screened between 2006 and 2018. Discussion point: the potential for remote screening in peripheral centres in Ireland.

## *Ophthalmia Neonatorum in a Tertiary Referral Children's Hospital: A Retrospective Study.*

**Gildea D, Goetz R, Chamney S.**

**Temple Street Children's University Hospital, Dublin.**

**Objectives:**
Ophthalmia neonatorum (ON), or neonatal conjunctivitis, is defined as mucopurulent conjunctivitis occurring in the first month of life. It requires prompt treatment to prevent potentially sight-threatening and systemic complications. The purpose of this study was to examine the aetiology and management of cases of ON presenting to a tertiary referral children's hospital over a 5-year period.

**Methods:**
The microbiological eye swab data of all neonates presenting to Temple Street Children's University Hospital between the 1st January 2013 and the 3rd September 2018 was analysed. The medical records of all patients with positive eye swab results were then retrospectively reviewed. Documentation of mucopurulent discharge and conjunctival erythema was required to define cases as ON.

**Results:**
157 neonates had positive eye swab results over the study period. 54 cases were defined as ON. Of these, the primary causative organism was identified as chlamydia trachomatis in 20.4%, staphylococcus aureus in 18.5%, haemophilus influenzae in 14.8%, coagulase negative staphylococcus in 7.4%, moraxella catarrhalis in 7.4%, streptococcus pneumoniae in 5.6%, escherischia coli in 3.7%, klebsiella pneumoniae in 1.9%, pseudomonas aeruginosa in 1.9% and commensals in 18.5%. The investigation and management of patients varied. Testing for chlamydia trachomatis and neisseria gonorrhoeae was not performed in 29.6%. Macrolide antibiotic therapy, either systemic or topical was used in 38.9%.

**Conclusions:**
The results are in keeping with previous aetiological studies of ON in the developed world. Chlamydia trachomatis was the most common organism identified, responsible for 1 in 5 patients. A number of shortcomings were noted in the management of suspected cases. As a result, the hospital's protocol for the investigation and treatment of ON is under review will be introduced to the emergency and ophthalmology departments.

## *'The Difficult Exam' – The Use of Oral Midazolam in Children with Special Needs*

**McBride G, Comer G.**
**University Hospital Galway.**

**Objectives:**
To determine the efficacy and safety of oral Midazolam as an adjunct to refraction and fundus examination in children who were not amenable to examination in the ophthalmology OPD.

**Methods:**
The clinical notes of 12 children who underwent examination under sedation between December 2017 and March 2019 were reviewed. Sedation was administered at 0.5 mg per kg. The ability to fully examine the child and adverse events were recorded as primary outcomes.

**Results:**
12 children aged between 3 and 8 years (mean age 5 years 3 months) received oral Midazolam (0.5mg/kg) in either blackcurrant or apple juice. The dosage was calculated based on the child's weight, however the maximum dosage is 15mg (as per agreed 2018 protocol between Ophthalmology and Paediatrics departments). The 3 children who weighed more than 30kg were administered the maximum dose 15mg. Oral Midazolam was administered 30 minutes prior to instillation of Cyclopentolate 1% and 1 hour prior to examination and refraction. All children were also under the care of a UHG Paediatrician for developmental delay. 5 children had Autism. In 2 cases general systemic examination and blood tests were facilitated on same day as eye examination whilst child was still under the effects of Midazolam.

No local or general adverse reaction was experienced by any of the 12 children. The onset of sedation was rapid and permitted adequate ocular examination in all cases. All children were admitted and discharged from the hospital within 5 hours.

**Conclusions:**
This non-invasive method of sedation has been successfully used by UHG Ophthalmology department for children who would otherwise require general anesthesia. The environment of the out-patients paediatrics treatment room is a calm, child-friendly and well equipped space for children with special needs requiring an Ophthalmology assessment. Midazolam has a maximal effect within 60 minutes, with an onset of sedation within 10-30 minutes. Midazolam can be easily reversed with Flumazenil (0.02 to 0.04 mg/kg). No child in this case series required Flumazenil. This new service delivered by the Medical Ophthalmologist has reduced the need for valuable theatre slots, in-patient bed use and Consultant Ophthalmic Surgeon time in 12 cases. Non theatre examination reduces general anesthesia risks and is overall cost-effective.

## *Audit of Acute Acquired Esotropia in Adults with Myopia*

**McCloskey C, McCann A, McParland D, Stokes J.**
**University Hospital Waterford.**

**Objectives:**
Bielschowsky in 1922 described patients with acute onset concomitant esotropia associated with myopia. Consistent features were myopia of 5 dioptres or less, esotropia at distance but maintained fusion at near and no evidence of lateral rectus weakness. These criteria have since been redefined to include higher levels of myopia and constant deviations at both near and distance fixations. Bielschowsky's theory was that uncorrected myopes hold print excessively close to the eyes thus resulting in an inability to maintain a balance between the converging and diverging forces of the eye and invoking an

increased tone in the medial rectus. (1) With the rise of smartphone technology in today's society, the possibility of increased near work may be associated with this condition which was previously thought to be a rare phenomenon. (2) Our aim is to describe the clinical characteristics of adult onset esotropia in association with myopia that have recently presented to our centre.

**Methods:**
Retrospective chart review of patients who developed esotropia in adulthood in association with myopia.

**Results:**
Eight patients, five females, with a mean age 36 years (range 19 to 69) presented with progressive insidious diplopia. All patients had a mild to moderate degree of myopia and had no history of previous strabismus surgery. The mean pre-operative near deviation was 40.7 prism dioptres and the mean pre-operative distance deviation was 39.3 prism dioptres. All patients had radiological investigations to rule out a neurological cause. All patients underwent bilateral medial rectus recessions with an adjustable suture following prism adaptation.

**Conclusions:**
Following surgery, all patients were symptom free of diplopia. This is possibly an increasing presentation we will see in our clinics with increasing rates of myopia worldwide as well as advancing technologies mounting our near work usage.

**References:**
1) *Hoyt, C. and Good, W. (1995). Acute onset concomitant esotropia: when is it a sign of serious neurological disease? British Journal of Ophthalmology, 79(5), pp.498-501.*
2) *Zheng, K., Han, T., Han, Y. and Qu, X. (2018). Acquired distance esotropia associated with myopia in the young adult. BMC Ophthalmology, 18(1).*

## *Periocular Necrotising Fasciitis Management*

**O'Rourke M, Rostron E, Cook A, Dharmasena A, Gannon P.**
**Manchester Royal Eye Hospital, Manchester University NHS Foundation Trust.**

**Objectives:**
Necrotising fasciitis is a serious bacterial infection which spreads rapidly along fascial planes with high morbidity and mortality. The reported incidence is 0.24 per 1,000,000 per annum in the UK. We report the increasing incidence of periocular necrotising fasciitis at the Manchester Royal Eye Hospital (MREH) in the last 12 months describing clinical findings and management in all 6 cases.

**Methods:**
This is a retrospective series of necrotising fasciitis presenting to MREH from February 2018 to February 2019. The suspected clinical diagnosis was confirmed by histopathology in all 6 cases. We report patient demographics, risk factors, management and outcomes.

**Results:**
The mean age was 43.2 years (SD 16.3) with 5 males and 1 female. Immune compromise was the most obvious pre-disposing factor in the setting of excess alcohol intake, recreational drug use, homelessness, malnutrition, poor self-care, mental health illness, diabetes and pharmacological immunosuppression. Onset of symptoms was rapid with 5 patients requiring ITU admission and emergency surgical debridement. The mean number of procedures was 4.3 (SD 1.9) including debridement with some patients still undergoing complex reconstructions. Group A β haemolytic streptococcus was identified in 5 cases and staphylococcus in 1. All patients suffered secondary facial nerve palsy. There were no mortalities with vision loss in 1 patient. Reconstructive techniques will be illustratively described.

**Conclusions:**
The incidence of periocular necrotizing fasciitis at MREH is comparatively high. We report good outcomes following early recognition in susceptible immune compromised patients with prompt ITU care and debridement followed by later reconstruction in collaboration with maxilla-facial surgery. We have designed a local management guideline based on our years' experience to improve patient care.

# Paper Session
## Thursday 16th May – morning

## *A Review of Ophthalmic Radiology Referrals in a Tertiary Centre*

**Smyth A, Woods B, O'Leary C, Morris J, Goetz R, O'Neill E, Connell P.**
**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Radiological imaging is a key component in the investigation of a wide range of potential pathologies that may present to the ophthalmology department. However, limited access to the appropriate imaging modality in a timely manner can lead to increased wait times and a resultant increase in patient anxiety. Furthermore, it often may become necessary to admit patients to hospital to ensure that they have their scan performed in an urgent fashion. The purpose of this project was to ascertain what the wait time was for scans ordered by the ophthalmology department. In addition, we aimed to assess the indication, outcome and appropriateness of urgently requested radiology imaging.

**Methods:**
A retrospective review of radiology scans ordered by the ophthalmology department in a single tertiary hospital that were completed within a 30-month period from January 2016 to June 2018. MRI wait times were compared between scans that utilized the bimonthly dedicated ophthalmology MRI slots and those that did not.

**Results:**
266 MRI scans were completed from January 2016 to June 2018. 61 scans (40.4%) utilized the bimonthly protected ophthalmology MRI slot. Median wait time for MRI scans was 90.1 days for outpatient scans (n=151; range: 0.1-518.1 days); 1.12 days for inpatient scans (n=95; range: 0-13.5 days); and 1.4 days for emergency scans (n=20; range: 0.1-6.6 days). When the dedicated ophthalmology slot was used the median wait time was reduced to 46.1 days versus 178.8 days when this was excluded from outpatient scan analysis. 122 MRI scans were positive for having pathology (46.9% pick-up rate). A further 50 MRI scans (18.8%) demonstrated incidental findings. 580 CT scans were completed within this same time period. 349 CT scans were ordered either from eye casualty or on inpatients. Median wait time for outpatient CTs was 28.6 days (n=231; range: 0-399.8) and 0.6 days for inpatient CTs (n=64; range: 0–6.8). All scans ordered from the eye emergency department were performed on the same day (n=285). 38 inpatient CT scans were positive for pathology giving a pick up rate of 59.4%. 117 CT scans ordered from the eye emergency department were positive for pathology (41.0%). A further 5.5% of scans demonstrated incidental pathology, the majority of which did not require any further work-up.

**Conclusions:**
Delayed scans result in increased anxiety and costs. The introduction of a dedicated ophthalmology MRI slot has reduced wait times in our centre. This has the potential for cost-saving benefits in terms of reducing inpatient admissions. In addition, this study has demonstrated an average pathology pick-up rate of 46.9% and 50.2% for MRI and CT scans ordered through the ophthalmology department, respectively.

## *A Review of the Immunohistochemistry Findings of Patients with Uveal Melanoma Attending the Royal Victoria Eye and Ear Hospital*

**Salih A, Ni Mhealoid A, O'Neill V, Kennedy S, Horgan N.**
**Royal Victoria Eye and Ear Hospital, Dublin.**

**Objectives:**
To describe the demography of patients with uveal melanoma; To assess the correlation between BAP1 immunostaining and monosomy 3 as evaluated by FISH (fluorescent in-situ hybridization); To evaluate the yield of fine needle aspiration biopsy (FNAB) for uveal melanoma.

**Methods:**
This is a retrospective study of all of patients with established uveal melanoma attending the ocular oncology service in RVEEH between 1/1/2016 and 31/12/2018. All patients diagnosed with uveal melanoma during that time were included. FNAB and histopathology results in patients who underwent brachytherapy and enucleation respectively were collected. The data was then analyzed using SPSS.

**Results:**
The total number of eyes in the study period were 39. The mean patient age was 56.5 years old (min 29 and max 79). Males represented 51.3% while females were 48.7%. 20.5% underwent enucleation and 79.5% underwent plaque radiotherapy. FNAB yielded sufficient material for genetic analysis in 79.5% while 20.5% showed insufficient material for diagnosis. 23% of specimens were BAP1 +ve. BAP1 immunohistochemistry showed good correlation with disomy 3 on FISH testing.

**Conclusions:**
Immunohistochemistry is useful for the evaluation of BAP1 status in the setting of uveal melanoma. As a surrogate marker for chromosome 3 status it is a useful alternative to more expensive gene expression profile testing for the purpose of risk stratification in these patients.

## *National Incidence of Eyelid Cancer in Ireland (2005-2015)*

**Quigley C[1], Deady S[2], Hughes E[1], McElnea E[3], Lina Z[4], Chetty S[1]**

**[1]Sligo University Hospital, [2]National Cancer Registry Ireland, Cork, [3]Royal Victorian Eye and Ear Hospital, Melbourne, Australia, [4]Department of Public Health & Primary Care, Trinity College Dublin.**

**Objectives:**
We report on the incidence of cutaneous eyelid tumours in Ireland over the 11-year period from 2005 to 2015, we identify associations between demographic factors and cutaneous eyelid tumour risk.

**Methods:**
Skin cancers, including basal cell carcinoma (BCC), squamous cell carcinoma (SCC), melanoma, and other cancers, located on the eyelid or canthus according to ICD-10 coding, as registered by the National Cancer Registry of Ireland (NCRI), were captured from the period 2005 to 2015. Age standardised rates (ASR) were calculated according to the European Standard Population (2013). Longitudinal data analysis using linear regression, and associations with age and sex were evaluated with the statistics program R.

**Results:**
There were 4,824 patients diagnosed with eyelid BCC during the study period, the ASR in men and women was mean 15.87 and 13.49 per 100,00 respectively. The relative risk for eyelid BCC in men compared with women was 1.18, age was associated with incidence. There were 528 patients diagnosed with SCC., the ASR of eyelid SCC in men and women was 2.10 and 1.39 per 100,000 respectively, and increased in women annually ($\beta$= 0.07, p=0.0005). The relative risk for eyelid SCC in men compared with women was 1.51, and age was exponentially associated with SCC. Melanoma and other eyelid tumours were uncommon-50 and 55 cases respectively.

**Conclusions:**
Incidence of both BCC and SCC increases with age and male sex. The incidence of eyelid SCC is increasing in women, and under age 50, eyelid BCC is more common in women than men.

## *Knowledge of Costs of Commonly Utilised Medications and Materials Amongst Irish Ophthalmologists*

**Power B.**

**Sligo University Hospital.**

**Objectives:**
To ascertain and analyse the knowledge levels of the hospital and over the counter costs of medications and surgical materials in ophthalmologists.

**Methods:**
An online survey was carried out. Ophthalmologists were split into three groups based on seniority – SHOs, Registrars/SPRs and Consultants/COPs. Respondents were asked to estimate the costs of items which were split into 4 different categories – hospital costs medications, anti-VEGF medications and surgical materials, and over the counter costs of several medications.

**Results:**
Knowledge levels were generally poor with very wide variability and some estimates many multiples off true costs. The majority of respondents (66%) described their knowledge of costs as limited or very limited yet 62% felt that the costs of items should factor in the decision making process to prescribe or use them "as much as patient safety allows" or "always".

**Conclusions:**
Knowledge levels of costs were poor and very variable. A brief healthcare economic training module during BST or HST programs could result in more cost effective utilisation of medications and surgical materials.

## *Establishing a Virtual Glaucoma Clinic*

**Hughes E, Liston C, O'Connor J, Doyle A.**

**Royal Victoria Eye and Ear Hospital, Dublin.**

**Objectives:**
Virtual clinics provide a unique opportunity to expand ophthalmology outpatient service capacity. The establishment of these services presents challenges from a staffing, administrative, equipment and governance point of view. A virtual glaucoma service commenced in November 2018 in RVEEH. Patients attend a nurse-led visit (health questionnaire, vision, pressure measurement, stereoscopic disc photo and fields where requested by the doctor), after which all data is reviewed by a consultant glaucoma surgeon and the plan communicated to the patient by mail.

**Methods:**
The process of establishing the clinic was reviewed. The throughput of all Virtual Glaucoma Clinics from December 2018 to January 2019 was reviewed. Rates of attendance, discharge, and onward referral to doctor led clinic were reviewed using electronic patient record. Patient satisfaction with the service was measured by means of telephone survey.

**Results:**
The steps taken to establish the service are presented. 147 patients were seen across 20 sessions. The ocular pathology varied: primary open angle glaucoma (35%), ocular hypertension (29%), glaucoma suspects (18%), other (18%). The average time to review of the patient visit by a consultant was 15 days. Non-attendance rate was 6%. The rate of discharge from clinic was 4%. 12% of patients required referral back to a doctor led clinic, the reasons for which are delineated (reduced vision, field defect suspicious for neurological cause, new disc haemorrhage etc). Patient satisfaction with the service is also presented (telephone survey results).

**Conclusions:**
It is expected that virtual glaucoma clinics will positively impact the waiting list for an outpatient glaucoma clinic appointment. Non-attendance rates were comparable with other outpatient services. No adverse events were recorded in the period of the review.

# Paper Session
## Friday 17th May – morning

## *The Therapeutic Effect and Outcome of XEN Gel Stent in Glaucoma*

**Salih A, Murtagh P, Kamel K, Dervan E.**
**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
To evaluate the effectiveness and safety of an ab interno subconjunctival gelatin implant (Xen implant) in the treatment of patients with medically uncontrolled primary open angle or pseudoexfoliation glaucoma in the Mater Misericordiae University Hospital

**Methods:**
Prospective, non randomized, 2year study in a single tertiary referral centre operated on by a single consultant surgeon. Baseline characteristics were recorded including presenting intraocular pressure (IOP), number and type of medications, type of glaucoma and disease stage. Patients underwent surgery with (phaco +implant) or without (implant alone) phacoemulsification. Changes in mean IOP and medication count at months 12 (primary outcomes) and 24, clinical success rate (eyes [%] achieving ≥ 20% IOP reduction from baseline on the same or fewer medications without glaucoma-related secondary surgical intervention), intraoperative complications, and postoperative adverse events were assessed.

**Results:**
The cohort included 37 eyes of 33 patients. 73% of our patients had POAG while the remaining 23% had PXF glaucoma. Mean age was 71.2 years with a range of 44-86yrs. Mean pre-op IOP was 22.5mmHg, range (17-40 mmHg). 15% were phakic, 46% were pseudophakic and 39% underwent a combined surgery (phaco-implant) procedure. Mean medicated baseline IOP was reduced form 22.5mg to 13.1mmHg and number of medications was lowered from 3 to 0.07. 26% required bleb reneedling. The clinical success rate at 12 months is 86%. 16% of eyes required more than one intraoperative attempts at Xen placement. 13% developed mild intraoperative hyphaema, all which resolved spontaneously. There was no sight threatening complications.

**Conclusions:**
XEN45 Gel Stents has IOP lowering potential with complete omission of topical medications in the short term. It is a relatively safer procedure when compared to trabeculectomy in terms of side effects and post-operative surgical intervention. More than a quarter of patients may require revision of surgery with high overall success rate. Studies with longer mean follow up are required for better assessment of long term outcome.

## *Seeing the Bigger Picture!*

**Ní Mhéalóid A, Byrne C, Logan P.**
**Beaumont Hospital, Dublin.**

**Objectives:**
To describe and present a video of a case of oculopalatal myoclonus.

**Case Report:**
A 66 year old lady with a history of multiple intracranial cavernomas (pontine, frontal, temporal horn) first presented to the eye department in Beaumont Hospital in July 2018 with a complete left horizontal gaze palsy secondary to a left pontine haemorrhage. Right visual acuity (RVA) was 6/12 and left visual acuity (LVA) was 6/24, pinholing to 6/9, she had full Octopus visual fields. No intervention was required at the time. She represented 6 months later with intractable oscillopsia, worsening dizziness and balance issues. RVA and LVA were 6/24 respectively with no improvement on pinhole (NIPH). She had large amplitude nystagmoid movements with the fast phase downbeating, a bilateral horizontal gaze palsy (right complete, left partial) and a right lower motor neuron 7th cranial nerve palsy. Of note, she also had involuntary palatal movements which were synchronous with her eye movements. She underwent a neurosurgical resection of the recurrent haemorrhage of the pontine cavernoma 3 days later but developed resultant complete paraplegia from the neck down requiring intubation and mechanical ventilation for three days. She was reviewed by orthoptics at the bedside 9 days later. She was unable to fixate

centrally, downbeat nystagmus was still present and she had a worse bilateral horizontal gaze palsy. No intervention for her ocular signs and symptoms was possible.

**Discussion:**
Oculopalatal myoclonus is normally as a result of a cerebrovascular accident of the posterior circulation disrupting the dentato-rubro-thalamic tract resulting in secondary inferior olivary nucleus hypertrophy (IONH)1 However, it does not usually become manifest until several months or even years later. 2 It is characterised by rhythmic pendular vertical eye movements (2-3Hz) associated with synchronous contraction of the soft palate producing intractable oscillopsia. 3,4Pharmacological and surgical interventions and the use of Botulinum toxin injections have not proven to be overly successful in managing this condition.

**Conclusions:**
The neuro-ophthalmologist should always look in the mouth!

**References:**

1) *https://eyewiki.aao.org/Oculopalatal_Tremor;*
2) *Matsuo F, Ajax ET. Palatal myoclonus and denervation supersensitivity in the central nervous system. Ann Neurol1979;5:72–8;*
3) *Leigh RJ, Zee DS. The neurology of eye movements. 3rd ed. New York: Oxford University Press, 1999. 4)Talks SJ, Elston JS. Oculopalatal myoclonus: eye movement studies, MRI findings and the difficulty of treatment. Eye 1997;11:19–24.*


## *The Phenotype & Genotype of Usher Syndrome in Ireland*


### Stephensen K[1], Dockery A[2], Wynne N[3], Duignan E[3], Silvestri G[4], Farrar G[2], Kenna P[2,3], Keegan D[1].

**[1]Mater Misericordiae University Hospital, Dublin, [2]Trinity College Dublin, [3]Royal Victoria Eye & Ear Hospital, Dublin, [4]Belfast Health & Social Care Trust.**


**Objectives:**
Usher Syndrome (USH) is the most common syndromic retinitis pigmentsoa (RP) manifesting with dual sensory impairments of deafness and blindness. Three subtypes are described based on the timing, severity and progression of hearing loss and the presence or absence of vestibular function. Fourteen genes have been implicated in USH (USH1: 9, USH2: 3, USH3: 2). Herein, we describe the first comprehensive phenotype & genotype analysis of Usher Syndrome in Ireland.

**Methods:**
Patients in Ireland & Northern Ireland with inherited retinal degenerations (IRDs) were invited to participate in the Irish national IRD phenotyping & genotyping study (Target 5000). This investigated affected patients clinically and genetically looking at 256 IRD-implicated genes via a next generation sequencing approach. A comprehensive history clarified the nature of visual, hearing and vestibular symptoms. USH subtype was determined by clinical and genetic characteristics. An assessment of clinical features was analysed between the groups.

**Results:**
Fifty-eight patients with an USH phenotype from 56 pedigrees were recruited across the 3 clinical sites. Mean age was 42.65y with 58.97% male subjects. Overall prevalence of USH was 1.53:100 000. A diagnosis of USH1 was present in 35% and USH2 in 65% with no confirmed cases of USH3. Where possible, these outcomes were consistent with genotype, a genetic diagnosis being confirmed in 89.7% of cases. Genotype was confirmed in 84.6% of USH1 and 92.3% of USH2 cases with MYO7A (76.9%) and USH2A (69.2%) being the most frequent genes respectively. Novel variants were detected including the largest USH1C homozygous deletion yet reported. Deafness was congenital in 61%, <5y in 33% and 6 – 10y in 6%. Vestibular imbalance was poorly reported. Visual acuity was mean 0.49 AND 0.48 LogMAR for right and left eyes respectively. Cystoid macular oedema was present in 22% of eyes. The lens status was 33.3% pseudophakic, 41.6% non-visually significant posterior sub capsular cataract, and 25% no clinically detectable cataract.

**Conclusions:**
The Irish diaspora has far-reaching influence on the genetic landscape of the western world. Up to 10% of the American, Canadian, New Zealand, Australian and UK populations claim Irish heritage. Determining the genetic aetiology of inherited retinal degenerations in Ireland is highly relevant, both for the patients described herein and globally. The lack of any cases of USH3 in this cohort is consistent with population data from UK USH studies, with clusters of USH3 prevalent in isolated areas internationally (e.g. rural Scandanavia, Ashkenazi Jews). Usher Syndrome is a devastating diagnosis with dual sensory impairments, thus confirming genotype early on confers useful prognostic data and allows assessment of novel therapeutic avenues (e.g. MYO7A gene therapy).

# *Limited Vitrectomy: A Novel Surgical Technique for the Treatment of Vitreomacular Traction, Sub-internal Limiting Membrane hemorrhages and Tractional Small Macular Holes.*

**McGrath R[1], Ankamah E[2], Ng E[2,3]**

**[1]Royal Victoria Eye & Ear Hospital, Dublin, [2]Waterford Institute of Technology, [3]Institute of Eye Surgery, Whitfield Clinic, Waterford.**

**Objectives:**
Traditional vitrectomy involves removal of all vitreous gel. We describe a technique of limited pre-macular vitrectomy as a minimally-invasive treatment of perifoveal pathologies such as VMT, sub-ILM hemorrhages, and tractional small macular holes.

**Methods:**
The vitreous immediately anterior to the fovea was stained with triamcinolone. 27G vitrector was used to circumscribe the tractional gel. A tag of vitreous was left attached to the fovea. A PVD was not induced.

**Results:**
28 patients underwent limited vitrectomy for VMT (mean age 77). Mean VA improved from 0.3 logMAR pre-op (range 0.0-0.8) to 0.21 (range 0.0-0.7) by 2 weeks and 0.15 (range 0.0-0.4) at last follow-up (median 13 months). Incidental retinal tear was found in 1 patient. The case was converted to full vitrectomy, retinopexy and tamponade. 1 patient required subsequent YAG vitreolysis for symptomatic floaters. 2 patients (69&76y/o) underwent limited vitrectomy for full-thickness-macular-hole. Case 1 remained closed at 10 months with VA improving from 0.7 to 0.1. Case 2 remained closed at 12 months with attached vitreous at the disc. VA improved from 0.3 to 0.1. Neither patient developed cataract at last follow-up. 2 patients (52&58y/o) underwent limited vitrectomy for sub-ILM hemorrhage. ILM peel was followed by lavage of blood. Case 1 improved from 0.6 logMAR to 0.3 on day 1 and 0.1 by 2 weeks. Case 2 improved from 1.0 to 0.3 on day 1 and 0.0 by 2 weeks. Neither developed any PVD or cataract at last follow-up.

**Conclusions:**
Limited vitrectomy was associated with quicker visual recovery than full vitrectomy. As PVD was not induced, intra-operative retinal tear rate was far lower than published rates for traditional vitrectomy. Limited vitrectomy can be a safe and effective option to treat perifoveal pathologies while reducing the rates of iatrogenic tears and cataract.

# *One Year Visual and Anatomic Outcomes following Vitrectomy for Complications of Diabetic Retinopathy*

**Curtin K, Mohamed H, O'Connell E.**

**Cork University Hospital.**

**Objectives:**
To evaluate visual outcomes following vitrectomy for complications of diabetic retinopathy in Cork University Hospital (CUH) over a one-year period and to benchmark these findings with international standards.

**Methods:**
A retrospective case series review of patients who underwent vitrectomy from January 2017 to December 2017 in CUH because of diabetes-related complications. Data collected included baseline demographics, pre and post op best-corrected visual acuity, indication for the vitrectomy, complications, outcome, and duration of follow-up

**Results:**
Vitrectomy was required in 19 eyes of 15 patients during this period. There were 9 patients with type I diabetes and 6 with type II, with a mean duration of diabetes of 26 and 21 years, respectively. The reason for vitrectomy included non-clearing vitreous haemorrhage (NCVH) in 10 eyes, tractional retinal detachment in 7 eyes and epiretinal membrane in 2 eyes.

Mean pre-operative visual acuity (VA) was 0.84 logMAR, with 3 eyes detecting hand movements (HMs), and 4 eyes counting fingers (CFs). At 1-year follow-up, mean VA was 0.42 logMAR, with one eye remaining at CF's. Criteria for success was defined as an improvement in VA of at least 0.3 logMAR units (three ETDRS lines) or a final visual acuity of greater than or equal to 0.3 logMAR. In all, a primary success rate of 79% was recorded at 12 months and 42% had a final VA of greater than or equal to 6/12.

**Conclusions:**
Visual outcome has improved significantly compared with the previously reported Diabetic Vitrectomy Study. This review provides further support for early vitrectomy and informs our ability to advise patients on prognosis and surgical outcomes.

## *Effectiveness of Ozurdex Implant in Immunosuppressed Patients with Non-Infectious Posterior Segment Intraocular Inflammation*

**Goodchild C, Lee J, Kilmartin D, Murphy C.**

**Royal Victoria Eye and Ear Hospital, Dublin, Royal College of Surgeons in Ireland, Dublin.**

**Objectives:**
To investigate the effectiveness of dexamethasone implant (Ozurdex) in patients with non-infectious posterior segment intraocular inflammation (PSII) who are on systemic immunosuppressant.

**Methods:**
This was a non-comparative, retrospective study conducted at the Royal Victoria Eye and Ear Hospital. The study included patients with non-infectious uveitis treated with Ozurdex from October 2013 to March 2018. Indications for Ozurdex implant were cystoid macular oedema (CMO), vitritis or both. All data was collected into excel and statistical analysis was done on Stata 15.1.

**Results:**
The study had 37 patients, 43 eyes and 79 inserts. The mean amount of injections received by a patient is 2.14±1.80 injections, 93% of patients were on systemic immunosuppressant. The mean logMAR BCVA at baseline is 0.65± 0.53 which significantly improved to 0.47± 0.46, 0.42± 0.31, 0.49± 0.52, 0.50± 0.58 [1,3,6 and 9 months respectively (all $p<0.05$)]. Mean CFT was 474.5±187.4 at baseline, improving to 307.0±64.82, 346.6±120, 369.6±141.9, 392.2±180 58 [1,3,6 and 9 months respectively (all $p<0.001$)]. Baseline BIO score was 1.81±0.96, which improved to 0.69±0.86, 0.68±0.87, 1.00±1.05, 1.15±0.92 [1,3,6 and 9 months respectively (all $p<0.01$)]. Post Ozurdex implant, raise in IOP was transient and 15% of additional patients needed IOP lowering drops. There was 18.60% new pseudophakic patients, 11.63% of patients with new cataract and 13.95% had worsening of their cataract post implant.

**Conclusions:**
The results of our study showed similar outcomes when compared to other international studies including the HURON study. However, our study had a much higher rate of immunosuppressed patients. This indicates that immunosuppression does not reduce the amount of Ozurdex needed to treat per patient and may not contribute to the effectiveness of Ozurdex.

# *Target 5000: An Update on Progress, Goals and Future Interventions for Patients with Inherited Retinal Degeneration in Ireland*

**Keegan D, Stephenson K, Zhu J, Wynne N, Dockery A, Silvestri G, Kenna P, Brady L, O'Byrne J, Turner J, Farrar G.**

**Mater Misericordiae University Hospital, Dublin, University College Dublin, Trinity College Dublin, Belfast Health & Social Care Trust, Royal Victoria Eye and Ear Hospital, Dublin, Fighting Blindness Ireland.**

**Objectives:**
To detail the total number of patients recruited to Target 5000 across all sites (to Dec 2018). Categorise the patients' retinal dystrophies. To illustrate the impact of the new care pathway for patients with inherited retinal degeneration.

**Methods:**
To audit the 3 target 5000 sites (Royal Victoria Eye and Ear Hospital, Belfast Trust, Mater Hospital) for recruitment, patient follow up, phenotyping, genotyping (at laboratory and accredited test level) The number of IRD associated genes on the Next Generation Sequencing (NGS) capture panel was 254)
Outline the pathway now in place to manage patients (accredited genotyping, clinical geneticist oversight, genetic counsellor, eye clinic liaison officer (ECLO) and care plan development).

**Results:**
The number of individuals (affected and unaffected) recruited across three sites was 2,080. The total number of cases uploaded onto (the electronic register (Distiller) was 874. The total number of patient's samples that have undergone Next Generation Sequencing (incl. 16 re-analysed in 2018) was 940. The total number of outstanding samples requiring NGS was 263. Research grade positive results clinically validated (n=240). Patients seen at Clinical Genetic Counselling Programme Clinics (24). Patients that have been seen and assessed by the ECLO (48).

**Conclusions:**
We have been able to establish a "best in class" inherited retinal degeneration service in Ireland via collaboration and implementation of evidence based pathways. An electronic register is now established. These will lead to an accurate assessment of the number of patients affected. It will facilitate appropriate management of patients' needs (with respect to visual function and co-morbidities). It will facilitate access to novel therapies and clinical trials. An overview of the service and referral pathways will be presented.

# *Five Year Review of Diabetic RetinaScreen*

**Keegan D.**

**RetinaScreen, National Screening Service, HSE, Mater Misericordiae University Hospital, Dublin, University College Dublin.**

**Objectives:**
To provide an update and overview of the Diabetic Retinopathy National Screening Programme (RetinaScreen).

**Methods:**
A retrospective review of round 1 to round 5 (2018) of the Irish Diabetic RetinaScreen (DRS) programme. The retinopathy and maculopathy (R and M) grading system was employed. There is a single electronic patient management system in place (Optomize) to cover screening and treatment arms of the programme. Screening results were analysed and are reported here. Additional Initiatives will be reported.

**Results:**
Growth of the national register is ongoing and now contains patients. The eligible cohort (for attendance at screening) is now 167,929 (58% male; 42% female). Overall, 61.7% (103,687 of 167,929) had a screen and final grade in 2018. Uptake has generally increased year on year since the programme began. There are 14,497 in our treatment centres thus overall coverage by DRS is 70.4%. Of those patients with referable retinopathy 4312 (4.15%), 3265 (3.15%) were routine and 1047 (1.00%) were urgent. 3295 (3.18%) of cases had referable non-diabetic eye disease (NDED). Total routine referrals were 6.56%. There were 271 (0.3%) un-gradable cases. We will present trend data for first 5 rounds of screening.

**Conclusions:**
This is the updated national record of the extent of diabetic retinal disease in the Irish population. It highlights the changes in uptake, spectrum of disease and referral patterns. Screening uptake has increased from 62,951 (46.8%) in round 1 (2013/14) to 103,687 (61.7%) in round 5 (2018). Total referrals have reduced from (13.62% to 7.33%) or (13.2% to 4.15% excluding NDED). We have referred nearly all prevalent proliferative disease (PDR referrals were 2.87% in round 1 and 1.0% in round 5). We continue to see high rates of NDED. This data will provide a valuable benchmark to continue to plan and optimize management and therapy. As data from treatment centres is now accessible we can report on activity and clinical outcomes.

## *Analysis of Non-Attendance of Diabetic Retina Screening Patients at the Diabetic Retinopathy Clinic in University Hospital Limerick*

**Mohamed M, Hickey-Dwyer M.**
**University Hospital Limerick.**

**Objectives:**
To measure the percentage of non-attendees and to determine their demographics, clinical characteristics, and geographic distributions. To identify the reasons for non-attendance.

**Methods:**
Optomize ® software was used to identify characteristics of people who failed to attend the DRC following referral from diabetic retina screening (DRS). Verbal consent was obtained from each patient after sending a letter and on-phone questionnaire was filled.

**Results:**
In the 12-month period the percentage of non-attendant patients was 13.9 % (n=137); most were male 66.4 %. Non-attendant patients had a mean age of 65.8 years. The majority of the non-attendees (48.9%) lived in County Limerick. 57.7% of patients did not attend their DRC once while 42.3 % did not attend on two occasions. Most DRS referrals (71.5 %, n=98) were due to diabetic eye disease. Sixty nine patients (50.4 %) who did not attend (DNA) their DRC were attending other ophthalmologists' clinics in Limerick Hospital. From the remaining 68 non-attendees; nine patients (6.6%) had passed away. Only 57.6 % (N=34) of the remaining non attendees agreed to answer the phone to enquire about their non-attendance reasons. The most common reason for non-attendance was Hospitalization/illness (20.6 %, N=7). Approximately nine percent of patients were unable to reach the hospital due to lack of assistance and 3 % couldn't see the appointment letter/text due to visual impairment.

**Conclusions:**
This audit showed an attendance rate to DRC of 86.1 % in a one year period.

## *A Quantitative Analysis of a Regional Diabetic Retinal Treatment Centre Since the Initiation of the Irish Diabetic Retinal Screening Programme.*

**Nugent E, O'Halloran O, Townley, D.**
**University Hospital Galway.**

**Objectives:**
The study's aim was to assess referral rates, attendance rates and treatment types required of diabetic patients at a regional treatment centre and to compare these figures to predictions set out by the national screening programme since its initiation.

**Methods:**
A service audit was carried out using information from daily attendance lists along with the electronic Optomize diabetic treatment software. Data is added weekly to a Microsoft Xcel document by a single user to reduce inter rate reliability. Data regarding referrals, various treatment types and attendance over a three-year period was extracted and analysed, allowing

comparisons and future predictions to be made. The audit has been ongoing since the initation of the diabetic retinal screening programme in 2015 and this will be the first presentation of the data.

**Results:**
Activity of the diabetic retinal treatment clinic in the outpatients' department has increased by 21% since 2016. Currently the treatment centre is receiving 786 new referrals per year an increase of 7.8% from the previous year. Urgent referrals are seen within a 14-day period and non-urgent on average are reviewed 105 days from referral being received. A total of 2019 patients are currently contained under review or receiving treatment on the optimize database of this regional treatment centre.

**Conclusions:**
It was expected that the number of new referrals being received would reduce after a 2-year period due to an initial backlog. This data shows that the ongoing number of new referrals has in fact increased over the last three years, with a further increase expected in 2019. The data indicates that there is an ongoing increase in number of patients being referred to the service. This coupled with the current level of review patients who require ongoing monitoring and treatment of active diabetic retinopathy suggests that there is a requirement for additional services each year to meet demands. Plans are in place in the form of virtual and surveillance screening to reduce the burden of activity at present. With the start of surveilience screaning due to commence we will be able to again review these figures and establish how effective the surveillance screening is in reducing clinic numbers.

# Poster Presentations
## ICO Annual Conference 2019

## *Atypical Presentations of Ocular Metastasis*

**Shaffi R, O'Connell E.**
**Cork University Hospital.**

**Objectives:**
Ocular metastasis often goes unrecognized as most of the patients never get to pass by an ophthalmologist. Much of the evidence regarding incidence of ocular metastasis is an autopsy based data where the presence of metastasis is detected microscopically. We aim to present two cases with unusual ocular presentations; each had therapeutic and diagnostic biopsies. They both had histopathological diagnosis of ocular metastatic variant of their primary tumors; one of the cases was initially thought to be a primary eye tumor, however after a full oncology workup, it turned out to be the extracranial extension of its primary tumor in CNS.

**Methods:**
A 61year old Polish gentleman with vague visual symptoms was reviewed at the diabetic eye clinic CUH as a routine checkup when he was noted to have bilateral atypical vitritis. MRI brain identified a suspicious lesion in cerebellum. Vitreous biopsy, obtained through a right pars plana vitrectomy revealed a B-cell lymphoid neoplasm. A complete work up including PET scan revealed Primary CNS lymphoma with ocular involvement and intra-thoracic disease, an overall poor prognosis. An 81year old Irish lady, barely diagnosed Renal Cell Carcinoma with pulmonary and bony metastasis, undergoing radiation therapy, was referred to the eye Casualty Services CUH by the Radiation Oncologist for a large pedunculated friable lesion arising from the tarsal conjunctiva of the left lower lid mimicking a pyogenic granuloma. Excision biopsy of the lesion revealed a metastatic clear cell carcinoma, appearance and immunophenotype supportive of derivation from a primary tumor of kidney. Unfortunately, the patient passed away within six months of this diagnosis. RIP.

**Conclusions:**
Detection of ocular metastasis should prompt an immediate referral to an oncologist. Ophthalmic diagnosis and management for suspected metastatic lesions plays a vital role in ensuring a better quality of life. Treatment of such cases requires a multi-disciplinary approach.

## *Subconjuctival Hemorrhage Following Intravitreal Anti-VEGF Injections*

**Mohamed M, Tuwir, I.**
**University Hospital Limerick.**

**Objectives:**
To evaluate the effects of instillation of Iopidine (Apraclonidine) 1% eye drop before IVI on the percentages of sub conjunctival hemorrhage, degree of Peri-IVI pain, Post- Post-IVI intraocular pressure. To measure patient factors and medication effects on the development of subconjunctival hemorrhage.

**Methods:**
Two groups were identified; 20 patients Iopidine group and 20 non-Iopidine group. Verbal consent was obtained from each patient. Lopidine single use 1% was instilled about 30 – 60 minutes prior to IVI. All the intravitreal procedures were performed in University Hospital Limerick Eye Theater and they were done by single doctor who used the same technique for both groups. Peri-IVI pain was measured using numeric rating scale (NRS). Patients were assessed 30 – 60 minutes after the injection to measure Intraocular Pressure and to evaluate presence or absence of Subconjuctival hemorrhage (Same slit lamp and Goldman applanation tonometry were used for all patients).

**Results:**
A percentage of 52.5 % of all injected patients were male. The most common age group of patients was 70-79 years of age (42.5%). The most common injected eye was the left eye 52.5 %. The most common used intravitreal medication is Bevacizumab (Avastin) 40 %. A total number of 17 patients (42.5 %) developed subconjuctival hemorrhage post-IVI [Seven patients Iopidine group (N=7/20-35%) and ten patients Non-Iopidine group (N=10/20-50%), P value>0.05, 0.3]. Half of the patients had no pain during their procedure; 85 % of them were from the Iopidine group (P value < 0.001). Most of Post-IVI measurements were ranged 10 - 21 for both groups [The lowest reading taken IOP<10 was from the Iopidine group (N=5) and highest >21 taken from the non Iopidine group (N=1), p value 0.03]. Anticoagulant medications were associated with 70% of total Subconjunctival hemorrhage [Iopidine group (N=4/7- 57%)/ Non-Iopidine group (N=8/10 - 80%) - P value 0.04].

**Conclusions:**
Lopidine 1% eye drop instilled 30 minutes prior to IVI has no statistical effect on the percentage of Post-IVI subconjunctival hemorrhage. However it had dramatic effect on the degree of Peri-IVI pain and Post-IVI IOP.

## *Acute Comitant Myopic Esotropia – Botox vs Squint Surgery*

### Chen S.
**The Galway Clinic, Galway.**

**Objectives:**
This uncommon disorder of acute comitant myopic esotropia (ACME) was first described in 1864. Its management has been limited to prismatic or surgical modalities despite the introduction of Botulinum toxin (Botox). This is the first and only report describing the use of Botox and also the largest reported series (save one from mainland China). We describe our experience with Botox and other interventions and discuss the rationale for its choice as a first line agent.

**Methods:**
Retrospective review yielded 13 cases that satisfied the inclusion criteria of ACME. Neuropathology and Myopic strabismus cases were excluded by MRI where necessary.

Participants were offered a range of treatments including no treatment, alteration of spectacle prescription, Botox, or surgery. The effect of intervention was measured and follow-up course detailed.

**Results:**
Eight cases were treated with Botox (2 required eventual surgical treatment), 3 were treated exclusively with strabismus surgery, one was treated with prisms and one with spectacle update only. There was no significant difference between groups treated with Botox or surgery either in terms of the pre-treatment squint angle (p=0.74) or the reduction in squint (p=0.81). There was no significant difference between distance and near angle magnitude before intervention. Mean reduction of squint angle was 33D (SD16) for Botox (p=0.0004) and 30 D (SD 15) for surgery (p=0.01). Mean follow up was 359 days (13-1786 d) for Botox and 293 days (11-602 d) for surgery. All patients were diplopia-free at the end of intervention and at least 4 patients achieved a high level of stereoacuity after realignment. The patients that required eventual surgical intervention after Botox also received excellent and stable alignment.

**Conclusions:**
Botox significantly improves the course of this condition without biasing the results of future strabismus surgery. A small number of cases can be managed by optical manipulation alone. The pathophysiology of this disorder is ill-understood and previously espoused theories do not have the support of a significant evidence base. We propose a methodology for future investigation of this disorder that should help elucidate its pathophysiology and thereby direct its management.

## *Retinopathy Changes Since Onset of the Diabetic Retinopathy Screening Service in University Hospital, Galway*

**Townley D, O'Halloran O.**

**University Hospital Galway.**

**Objectives:**
To compare the patients initial and most recent retinopathy grading, maculopathy grading and visions for the first 500 patients attending the Diabetic retinopathy screening service in University Hospital Galway.

**Methods:**
Every patient encounter for the Diabetic retinopathy treatment programme is recorded on the software Optimize. Data was extracted from this software and then analysed using Microsoft Excel. Comparisons were made between the patients initial and most recent retinopathy grading, maculopathy grading and visions.

**Results:**
From those that were graded over the past year almost one third had increased by one retina grade, with 6% increasing by 2 retinal grade. The average vision remained unchanged and there was no increase in the number of eyes where the vision was recorded as NPL.

## *An Audit of iStent Usage and Outcomes in the Royal Victoria Eye & Ear Hospital*

**McGrath R, Doyle A.**

**Royal Victoria Eye & Ear Hospital, Dublin.**

**Objectives:**
The iStent is a minimally invasive glaucoma surgical device which offers an alternative means to control IOP in mild to moderate glaucoma, in patients for whom drops are ineffective or not tolerated, or where additional IOP control is required. They can be combined with phacoemulsification in phakic patients and are associated with less complications and faster recovery than traditional glaucoma surgery. This series describes our initial experience with this device at RVEEH.

**Methods:**
Data was collected on all patients in whom iStents were inserted in RVEEH. Pre and post-operative vision, IOP and glaucoma medications used were recorded.

**Results:**
16 patients underwent iStent insertion in RVEEH since March 2017. 15 were first generation iStents and one was a second generation iStent Inject. The average patient age was 78 years. 56% were female. The most common indication was POAG (68.75%). 15/16 surgeries were combined with phacoemulsification. Mean length of follow up was 8 months. Mean IOP improved from 25.4 to 16.3 at last follow up (35.8% reduction). Mean number of IOP lowering medications decreased from 2.1 to 1.6. 4 patients were completely medication free. 3 attempted iStent insertions were unsuccessful due to bleeding, iris prolapse or the stent not holding position. 2 patients required a subsequent trabeculectomy.

**Conclusions:**
Our initial experience with iStents has been encouraging in terms of efficacy and safety. They may be a viable alternative to drops or traditional surgery in select patients. There is a learning curve associated with their usage but overall the complication rate is low apart from temporary post-operative steroid induced rise in intraocular pressure in some patients.

## *Severe Female Carrier Phenotype in an Irish Pedigree with Novel Massive Deletion in the CHM Gene*

**Zhu J[1], Stephenson K[1], Dockery A[2], Wynne N[3], Farrar G[2]; Kenna P[2,3], Silvestri G[4], Keegan D[1].**

**[1]Mater Retinal Research Group, Mater Misericordiae University Hospital, Dublin. [2]The School of Genetics & Microbiology, Trinity College Dublin, [3]The Research Foundation, Royal Victoria Eye and Ear Hospital, Dublin, [4]Belfast Health and Social Care Trust.**

**Objectives:**
Choroideraemia is a X-Linked recessive condition with progressive atrophy of the choriocapillaris, retinal pigment epithelium and photoreceptors. Affected males show early onset progressive disease, while female carriers typically show mild signs, no symptoms nor progression. Here we describe a family with a novel deletion in the CHM gene in which female carriers manifest extensive progressive chorioretinal degeneration.

**Methods:**
As part of the Irish national inherited retinal disease registry, patients with inherited conditions and unaffected family members are recruited. Detailed phenotyping was carried out. All patients were genotyped via a panel based next generation sequencing approach targeting 258 genes.

**Results:**
All subjects were found to have massive deletion of the entire CHM gene (Xq21.2) extending 20kb up and downstream (hemizygous in affected males and heterozygous in carrier females). Both affected males showed extensive pathognomonic chorioretinal atrophy. The phenotype for two obligate carrier daughters varied: daughter 1 showed radial pigmentation at the RPE level and scattered choroidal atrophy, whereas daughter 2 showed more marked reactive pigmentation and extensive symmetrical atrophy of the choroid and outer retina. The manifestations were apparent both anatomically and functionally.

**Conclusions:**
In this family, all females were more severely affected than expected with advanced signs of chorioretinal degeneration and progressive visual decline. This is likely due to a combination of skewed X inactivation (lyonization) and the severity of CHM gene deletion. This is relevant in the management in this pedigree as females should not be labelled simply as carriers, but as having a mild phenotype of choroideraemia.

## *The Efficacy of Switching to Intravitreal Aflibercept for Persistent Diabetic Macular Oedema Refractory to Ranibizumab*

**Hazirah N, Coakley D.**

**University College Cork, Cork University Hospital.**

**Objectives:**
To evaluate the short-term visual and anatomical outcomes of patients with persistent diabetic macular oedema (DMO) who were converted from ranibizumab to aflibercept.

**Methods:**
From February 2014 to November 2018, we identified 27 patients (28 eyes) with DMO who had central macular thickness (CMT) > 300 µm despite receiving at least three intravitreal ranibizumab injections and subsequently treated with aflibercept. Changes in CMT, best corrected visual acuity (BCVA), and number of aflibercept injections were retrieved from the clinical charts.

**Results:**
Out of a total of twenty eight eyes, 27 eyes (96.4%) displayed a reduction in CMT and 18 eyes (64.3%) had a visual gain following aflibercept injections. Patients received a mean of 3.50 ranibizumab injections prior to treatment conversion, followed by a mean of 3.82 aflibercept injections. The mean visual acuity prior to conversion was 0.50 ± 0.22 logMAR. The mean visual acuity significantly improved to 0.35 ± 0.29 logMAR, corresponding to a mean gain of 0.15 ± 0.23 logMAR ($p = 0.02$). The mean CMT prior to conversion was 403.96 ± 64.48 µm. The mean CMT significantly improved to 313.68 ± 65.84 µm, corresponding to a mean CMT reduction of 90.29 ± 61.71 µm ($p < 0.001$).

**Conclusions:**
Patients who were previously unresponsive to ranibizumab injections had a significant reduction in diabetic macular oedema and displayed visual improvement after being switched to aflibercept injections.

# *Development of a Core Outcome Set for Age-Related Macular Degeneration Interventions*

## Krezel A, Hogg R, Lohfeld L, Azuara-Blanco A.

**Centre for Public Health, Queen's University Belfast, Institute of Clinical Sciences, Royal Victoria Hospital, Belfast.**

**Objectives:**
Trials on interventions for age-related macular degeneration (AMD) have used a variety of outcome measures which makes difficult, if not impossible, to summarize evidence and guide clinicians and policy makers. The Core Outcome Measures for Effectiveness Trials (COMET) initiative encourages the identification of disease-specific core outcome sets (COS) for trials. The aim of this work was to create a COS or the minimum group of outcomes to be consistently reported in AMD effectiveness trials, with specific reference to geographic atrophy (GA).

**Methods:**
A mixed-methods study was carried out to identify AMD-related COS. It was based on the systematic reviews of the relevant literature, qualitative study with patients, their families and service providers, two distinct Delphi exercises with patients and AMD experts. The AMD-COS that was suggested by this body of work was developed by combining evidence from all above studies.

**Results:**
The core outcome domains and specific instruments were identified for GA trials. This includes: anatomical outcomes such as assessment of outer retinal layers measured by optic coherence tomography (OCT) and lesion size measured by OCT and fundus autofluorescence (FAF), functional outcomes (reading speed measured by Minnesota low vision reading (MNREAD) test or Radner reading charts, near and distance visual acuity (VA) measured by Early Treatment Diabetic Retinopathy Study (ETDRS) charts, low luminance VA measured by ETDRS with/ without a density filter), patient reported outcome measures (The Macular Disease-Dependent Quality of Life, the Impact of Vision Impairment questionnaire or the National Eye Institute Visual Function Questionnaire), measures of real-world ability/performance, treatment satisfaction and safety.

**Conclusions:**
The proposed set of core outcomes that are defined here contribute to better design of AMD and GA trials, facilitate comparison and synthesis of research findings, and support evidence-based decision-making for patients with AMD and in particular, patients with GA.

# *TGF-ß Induces NOX4 and Fibrotic Genes in Trabecular Meshwork Cells: Role in Glaucoma*

## Goetz R, O'Brien C, Irnaten M.

**University College Dublin, Catherine McAuley Research Centre, Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Glaucoma is the leading cause of irreversible blindness, affecting up to 60 million people. Elevated intraocular pressure (IOP) is the most significant risk factor for the development and progression of glaucoma and is mainly due to decreased outflow of aqueous humour at the level of the trabecular meshwork (TM). The pro-inflammatory cytokine, transforming growth factor-Beta (TGF-β), which is implicated in fibrosis, has been found at increased concentrations in the aqueous humour in glaucomatous eyes. Features of pathological fibrosis include activation of myofibroblasts and deposition of extracellular matrix (ECM). We therefore aimed to see what effect TGF-β has on TM cells with regards to markers of myofibroblast activation and ECM production. NADPH – oxidases (NOXs), specifically NOX4, have been implicated in ECM synthesis and myofibroblast differentiation in the fibrosis of various organ systems. We therefore wanted to determine what role NOX4 plays in TGF-β induced fibrosis in glaucoma.

**Methods:**
Primary and transformed normal, human trabecular meshwork cells were cultured and treated with recombinant transforming growth factor-β1. Expression of α-SMA, Collagen 1α1 and NOX4 was measured using real time quantitative PCR with and without treatment with the NOX1/4 inhibitor, GKT137831.

**Results:**
Our results show that TGF-β significantly increased markers of myofibroblasts and ECM production in normal TM cells. We demonstrated that NOX4 expression in normal TM cells is significantly increased in the presence of TGF-β. We also demonstrated that when NOX4 is inhibited with the NOX1/4 inhibitor, GKT137831, the result is decreased markers of myofibroblasts and ECM synthesis in normal TM cells.

**Conclusions:**
These results provide evidence for the important, pro-fibrotic role of NOX4 in TGF-β induced fibrosis in glaucoma. Our results indicate that targeting fibrosis via NOX4 inhibition with GKT137831 may prove to be a novel therapeutic approach to treating glaucoma.

## *An Audit of Diabetic Retinopathy Screening in Pregnant Women with Insulin Dependent Diabetes Mellitus*

**Doolan E, Nahar R, Harney F, Townley D.**
**University Hospital Galway.**

**Objectives:**
To Audit our diabetic retina screening service in pregnant women with insulin dependent diabetes mellitus (IDDM) from 2017-2018.
To assess the potential for minimizing outpatient clinic burden while meeting the recommended screening standards through the use of virtual clinics where appropriate.

**Methods:**
Data was collected from the Endocrinology-led Diabetic Clinic at UCHG on all pregnancies in women with IDDM in 2017 and 2018. There were 86 in total from Galway, Mayo and Donegal. Their online and paper charts were reviewed and attendances/interactions with the Diabetic Eye Clinic (including any treatments) noted.

**Results:**
Some pending but standards largely being adhered to. Indeed, most patients are seen too frequently. Virtual clinics may be appropriate for first trimester screening using images from pre-existing DRS visits where these are available.

**Conclusions:**
To simplify approach pregnant women should be examined in each of the three trimesters of pregnancy and this is comfortably within recommended guidelines. Virtual clinic can decrease burden on OPD where pre-existing retinal images are available.

## *Beware of the Kitty Cat!*

**Ní Mhéalóid A, Logan P.**
**Beaumont Hospital, Dublin.**

**Objectives:**
To describe the presentation and management of a case of Bartonella neuroretinitis

**Case Report:**
A 37 year old lady presented to the emergency department in Beaumont Hospital with a 5 week history of left sided frontal non-traumatic headache associated with left retro- orbital pain, unrelieved by paracetamol. She complained of blurred vision in her left eye for 6 days along with flu-like symptoms consisting of a fever and loss of appetite. Her medical and social histories were non-contributory. On examination, her GCS was 15/15, right visual acuity (RVA) was 6/4, left visual acuity (LVA) was 6/36 and she had a left relative afferent pupillary defect. A mild left vitritis was present and she had focal inflammation of the optic nerve and peripapillary retina and macular exudation. Octopus visual fields revealed a left enlarged blind spot involving central fixation. She was initially treated empirically by the neurological and microbiology teams with intravenous Vancomycin,

Ceftriaxone, Metronidazole and Acyclovir. CSF analysis showed elevated protein at 65mg/dL (range: 15-45), decreased glucose at 2.3mmol/L (range: 2.5-4.4), elevated leukocytes at 164/ul (range: 0-5), negative viral PCR and negative flow cytometry. An autoimmune screen, paraneoplastic screen, viral screen (Hepatitis B/C, HIV, CMV, EBV HSV, VZV), and blood and urine cultures were negative. She also tested negative for syphilis, lyme, toxoplasmosis, toxocara, Brucella and TB but her serum Bartonella henseale IgG titre was elevated at 1:640 (normal <320). Chest X-ray and CT Brain were normal. MRI Brain showed enhancement of the left optic nerve. On further questioning of the patient, it was revealed that she had two cats at home, aged 8 years and 5 months respectively. On confirmation of the diagnosis, she was treated with Rifampicin and Doxycycline for 6 weeks along with a 3 day's course of IV Methyprednisolone followed by a tapering dose of oral Prednisolone over a 6 week period.

**Discussion:**
Neuroretinitis is characterised by an inflammation of the optic disc vasculature with exudation of fluid into the peripapillary retina. 1 The classic macular star pattern is caused by penetration of the lipid-rich component of the exudate into the outer plexiform layer. 1 Aetiology can be infectious, vascular (NAION, DM 2 papillopathy, HTN), infiltrative (sarcoid, leukaemia) or mechanical (vitreopapillary traction). 2 Cat scratch disease (CSD) is a self-limiting disease in immunocompetent patients. B. henselae is a Gram-negative aerobic, fastidious, intracellular bacillus. It is transmitted to humans through a cat scratch, cat bite, cat saliva, or cat flea bite. Typical presentation is that of fever and lymphadenopathy with neuroretinitis only affecting 1-2% of patients with the condition. 3 Treatment is with antibiotics and corticosteroids.

**Conclusions:**
Ocular bartonellosis is a rare manifestation of cat scratch disease, and neuroretinitis is the typical presentation.

**References:**
1) *https://eyewiki.aao.org/Neuroretinitis;*
2) *https://eyewiki.aao.org/Bartonella_Neuroretinitis_(Grand_Rounds); 3)Raihan AR, Zunaina E, Wan-Hazabbah WH, Adil H, Lakana-Kumar T. Neuroretinitis in ocular bartonellosis: a case series. Clin Ophthalmol. 2014;8:1459-66. Published 2014 Aug 5. doi:10.2147/OPTH.S63667*

## *Case Report: Rare Case of Proptosis and Loss of Vision*

**Mohamed M, Chetty S.**
**Sligo University Hospital.**

**Objectives:**
To report an unusual case of acute proptosis with loss of vision

**Methods:**
A case report: 85 year old lady presented to emergency department with acute proptosis for a few hours along with loss of vision. Ophthalmology consult was sought. Her past medical history includes hypertension and Aspirin use. No history of trauma. On examination vision was HM, she had a 5 mm left proptosis with complete ophthalmoplegia, subconjunctival hemorrhage 360 degrees with chemosis, central corneal abrasion and positive RAPD with normal optic disc. Urgent CT scan done (will be included in poster): showed 36x 26 mm in size. Frontal sinus mucocoele extending into the orbit. In the following morning she underwent orbital exploration and sinus drainage under GA

**Results:**
Day 1 post-op, vision was 6/18 with no protosis, and normal pupil reaction. Surgical drain was removed the following day. At 2 weeks review vision improved to 6/9 and she had normal ocular motility.

**Conclusions:**
Sinus mucoceles are epithelial lined cavities containing sterile mucus which develop as the result of an outflow obstruction of a sinus ostium. They most commonly originate from the frontal and ethmoidal sinuses and can erode through neighboring structures such as the orbital walls. Due to the large variety of symptoms on presentation, up to 47% of patients can be misdiagnosed on initial presentation with a delay of diagnosis for up to 53 weeks. [Tailor R, et.al] Our patient was diagnosed and underwent surgical intervention within 24 hours. The largest published study on paranasal sinus mucocoeles identified 133 mucoceles over 24 year period (1987 to 2011). [Scangas GA, et.al] It's important to be aware of this rare but sight-threatening condition.

# *Improvement of Visual Acuity Based on Optical Coherence Tomography Patterns Following Intravitreal Bevacizumab Treatment in Patients with Diabetic Macular Edema*

## Cheema H, Al Habash A, Al-Askar E.

**Royal College of Surgeons in Ireland, Dhahran Eye Specialist Hospital, Saudi Arabia.**

**Objectives:**
To report the visual outcome based on various patterns of optical coherence tomography (OCT) morphology in diabetic macular edema (DME), following treatment with anti-VEGF intravitreal bevacizumab (IVB) injection.

**Methods:**
Sixty-seven consecutive subjects with centre involving DME underwent intravitreal injection of Bevacizumab (1.25 mg/0.05 mL) in this retrospective, comparative, non randomized study. The DME was classified into one of four categories: focal, diffuse, focal cystoid and neurosensory detachment based on OCT. Best corrected visual acuity (BCVA), macular appearance, and OCT findings were used to decide whether the subject should have a repeat injection of intravitreal bevacizumab. Outcome measures were a change in mean BCVA (Snellen converted to logMAR) and central macular thickness (CMT) in each group during the six month follow-up period.

**Results:**
The mean BCVA improved to logMAR 0.23 at final follow-up from a baseline of 0.32 logMAR (P=0.040) in the focal group, logMAR 0.80 at final follow-up from a baseline of 0.82 logMAR (P=0.838) in the diffuse group, worsened to logMAR 0.53 at final follow-up from a baseline of 0.43 logMAR (P=0.276) in the focal cystoid group, and improved to logMAR 0.79 at final follow-up from a baseline of 0.93 logMAR (P=0.490) in the neurosensory detachment group. The mean CMT before treatment were 298.8±25.03 µm in the focal group, 310.8±40.6 µm in the diffuse group, 397.15±31.05 µm in the focal cystoid group and 401.03±75.1 µm in the neurosensory detachment group. A mean of 2.05 (range: 1-5) injections in the focal group, 1.32 (range: 1-2) in the diffuse group, 2.6 (range: 1-6) in the focal cystoid group and 2.6 (range: 1-6) in the neurosensory detachment group were performed during the six month follow-up period. Following intravitreal bevacizumab treatment, vision improved, remained unchanged or worsened in 11, 7 and 2 subjects in focal group; 11, 9 and 8 in diffuse group; 0, 2 and 4 in focal cystoid group and 5, 5 and 3 subjects respectively in neurosensory detachment group.

**Conclusions:**
OCT morpholgy patterns in DME may predict the effects of intravitreal bevacizumab treatment, and patients with focal DME are most likely to benefit from the improvement of visual acuity from this treatment.

# *Rare Solitary Fibrous Tumor of Lacrimal Sac in Young Patient*

## Huang J, Kennedy S, Lee P.

**St. Vincent's University Hospital, Dublin.**

**Background:**
Solitary fibrous tumour is a rare spindle cell neoplasm that commonly arises in the pleura. We report a rare case with this neoplasm occurring in the lacrimal sac, so far to our knowledge there had only been two cases reported in the literatures.

**Methods:**
A right solitary fibrous tumour was surgically excised from a 39 years old female, and then analysed by light microscopy. Immunohistochemical studies were performed using antibodies to CD34, S100, MelanA, HMB45, AE 1/3, and CD68.

**Results:**
Immunohistochemical studies showed strong and diffuse CD34 expression from the lesion cells, and these lesion cells are negative for S100, MelanA, HMB45, and AE 1/3. CD68 was found in intratumoural inflammatory cells.

**Conclusions:**
Immunohistochemical findings support the diagnosis of solitary fibrous tumour, complete excision took place in order to prevent the local recurrence. According to literatures orbital solitary fibrous tumour generally develops in fifth to seventh decades of life, and there had only been two cases found in lacrimal sac so far.

# *Elucidating the Role of the Hippo Pathway in the Development of Open Angle Glaucoma.*

**Morris J[1], Murphy R[1], Irnaten M[1], O'Brien C[1,2]**

**[1]Institute of Ophthalmology, Mater Misericordiae University Hospital, Dublin, [2]Clinical Research Centre, University College Dublin, School of Medicine, Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Augmented production of extracellular matrix (ECM) genes in the lamina cribrosa (LC) is associated with LC dysfunction in glaucoma. We have previously shown that glaucomatous LC cells have an enhanced profibrotic gene expression levels. The HIPPO pathway plays a central role in regulating tissue growth and has been implicated in pathological fibrosis. We examine the role of a recently identified mechanotransducing kinase, Serine/threonine-protein kinase 38-like (STK38L), in the HIPPO pathway of the LC cell in health and disease.

**Methods:**
GFAP-negative LC cells from both glaucomatous and non-glaucomatous human donors (n=3) were cultured until passage 8, before using quantitative Real Time Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) to measure the expression of STK38L. Immunohistochemistry was used to further examine its subcellular localization.
**Results:**
STK38L expression is significantly increased in LC cells of glaucomatous individuals compared to non-glaucomatous individuals. ($p<0.05$)

**Conclusions:**
This data further implicates the HIPPO pathway as a key regulatory pathway in glaucoma. Furthermore, mechanotransduction in the LC cell via the HIPPO pathway could provide a novel therapeutic target for the prevention of maladaptive, fibrotic remodeling at the lamina cribrosa in patients with glaucoma.

# *Epithelial Inclusion Cyst of the Orbit after an Evisceration: The Use of Trichloroacetic Acid (20%)*

**Gallagher D, Fulcher T.**

**Department of Ophthalmology, Mater Misericordiae University Hospital, Dublin.**

**Introduction:**
Epithelial inclusion cysts are complications occurring in anophthalmic sockets which may cause local discomfort and difficulty fitting an ocular prosthesis on the anterior surface of the socket. The traditional approach to treatment involves surgical resection. This case report discusses intralesional injection of trichloroacetic acid as a treatment option.

**Case:**
A 27-year-old female underwent evisceration of the left eye following a perforating eye injury in March 2015. Two months later she required an implant exchange after an episode of exposure. She achieved good cosmetic outcome after an artificial eye was fitted. Over the last 9 months she developed a worsening esotropia and hypodeviation of the artificial eye which became cosmetically unacceptable. The patients received a 1ml intralesional injection of 20% trichloroacetic acid.

**Methods:**
The patient was sitting at the slit lamp for the procedure. This was an aseptic technique. 0.5% proxymethacaine was instilled three times over a 5-minute interval. The cyst was cannulated, and contents aspirated with a 24G cannula on a 2ml syringe. A new syringe containing 1ml of 20% trichloroacetic acid was injected into the cyst for 30 seconds. The contents were then aspirated, and the cavity was flushed with balanced salt solution on three occasions. [Video]

**Conclusions:**
The procedure was well tolerated, there was no recurrence of the cyst at six weeks post procedure and cosmesis with the artificial eye is excellent. There was mild discomfort during the injection of trichloroacetic acid. This is a simple, safe and effectiveprocedure to treat epithelial inclusion cysts without the need for surgical intervention.

# An Audit of Outcomes from the Administration of Tissue Plasminogen Activator in Patients with Submacular Haemorrhages

## Gallagher G, Dooley I.

**Mater Misericordiae University Hospital, Dublin.**

**Background:**
Subretinal haemorrhages are most commonly associated with choroidal neovascular membranes (CNVM) and their size and duration are strong prognostic factors for visual outcome. The aim of this audit was to evaluate outcomes of direct injection of submacular Tissue Plasminogen Activator (t-PA) into these lesions during pars plana vitrectomy (PPV).

**Methods:**
All patients presenting to the Mater Misericordiae Hospital from Nov 16'- Oct 18' with large subretinal haemorrhages who underwent this treatment were included for review. All seven patients underwent complete PPV and injection of 0.4ml (48 µg) subretinal t-PA, partial fluid-air exchange, 1 hour face up supine positioning postoperatively, followed by upright positioning overnight. The use of adjuvants, such as subretinal air, expansile gas or anti-VEGF, was based on individual cases. Pre-operative and post-operative evaluations included visual acuities and slit lamp examinations.

**Results:**
All patients within the study showed improvement or stabilisation of their vision. 42.8% of patients had total clearing of the macular haemorrhage and the remainder had sub-total clearance. One patient developed a total hyphema and subsequent chronic retinal detachment but maintained pre-operative visual acuity with an oil tamponade. 57.1% of patients continued to need intravitreal anti-VEGF for the treatment of CNVM.

**Conclusions:**
The submacular surgery trial (SST, published in 2004) found no significant improvement in visual acuity over observation alone and had a significant complication rate. Given the severity of this condition and the treatment challenges, current techniques offer remarkable improvements in anatomical and visual outcomes than described in the SST.

# A Case Series of the Use of ILUVIEN Implant

## Shikin N, Murphy T, Maguire M.

**Sligo University Hospital.**

**Objectives:**
To evaluate the efficacy of a long-acting intravitreal fluocinoloneacetonide (FAC, tradename ILUVIEN implant) in chronic cystoid macular edema(CMO). We report 2 cases in which ILUVIEN was used for different indications, the first being CMO secondary to Panuveitis and CMO secondary to Retinitis Pigmentosa.

**Methods:**
Two patients who were treated with ILUVIEN implant were reviewed with serial visual acuities (BCVA) and optical coherence tomography (OCT) scans.

**Results:**
The right eye of both patients who were treated with ILUVIEN implant showed great improvement. Both patients showed little response to previous intravitreal steroid injections/inserts. The patients have been followed up for 8 months currently and have no recurrence of CMO as yet.

**Conclusions:**
The sustained delivery of fluocinolone acetonide implant significantly improved BCVA in both patients with CMO. This correlates with studies shown that FAC provides substantial visual benefit for up to 3 years and would provide an option for patients who do not respond to other therapy.

## *Isolated Orbital Glioependymal Cyst in an Infant – Case Report*

**Sirang Z, Jeeva I.**
**University Hospital Galway.**

**Objectives:**
To report first case of isolated orbital glio- ependymal cyst in an anatomically normal eye in an infant.

**Methods:**
It's a case of 2 months old infant with unilateral progressive proptosis since birth. MRI orbits with contrast showed right sided extraocular retro-orbital well-defined cystic lesion, 22x17 mm in size, hyperintense on T2 and hypointense on T1 weighted images. Ultrasound guided drainage was no successful and complete excision of the cyst was done and sent for histopathology.

**Results:**
The histopathology report showed it to be glio-ependymal cyst.

**Conclusions:**
Glioependymal cyst, also known as neuroglial or neuroepithelial cysts, are thought to arise from ectopic rests of primitive neuroglial tissue. Cases with orbital gliopendymal cyst in association with coloboma and microophthalmia have been reported in the literature. This is the first case of isolated orbital glio-ependymal cyst.

## *Acute Macular Neuro Retinopathy*

**Abdel Rahman M, Canning P, Whyte A, Idrees Z, Connell E.**
**Cork University Hospital.**

**Objectives:**
Optical coherence tomography (OCT). It is a noninvasive imaging technique that offers high resolution, cross sectional images of the retina, the optic nerve head and retinal nerve fiber layer. This paper /poster discusses the use of Enface imaging to diagnose retinal neuropathy.

**Methods:**
3 cases were presented with acute visual disturbance over the period of the last 2 years Retinal Oct shows disturbance at level of photo receptors.

**Results:**
Enface imaging showed the typical oval lesion near the IS/OS junction.

**Conclusions:**
OCT new technologies improved the understanding, monitoring progression and response to various treatment modalities in retinal diseases. More updates in both hardware and software technologies are needed to help in the diagnosis of retinal diseases in better details.

## *Congenital Dural Ecstasies of the Optic Nerve Sheath*

**Abdel Rahman M, Idrees Z, Curtin K.**
**Cork University Hospital.**

**Case Series Report:**
Optic nerve dural ecstasies is a rare disorder that is considered as one of the causes of optic nerve sheath dilatation. It happens as a result of the accumulation of CSF around the optic nerve where there is no other associated pathology.

**Objectives:**
It is diagnosed by MRI studies and can follow benign or sometimes an unfavorable course.

**Methods:**
We are presenting 5 cases who were mostly referred from opticians for confirming optic nerve swelling, drusen or reduced visual acuity.

**Results:**
B scan can provisionally diagnose optic nerve ecstasies which should be confirmed by using MRI.

**Conclusions:**
Optic nerve ecstasies should be confirmed by MRI, patient should be observed as surgical intervention could be required if progressive optic nerve dysfunction is noticed.

## *A Rare Case of Bilateral Optic Disc Pit in a Myopic Female*

**Akram M, McSwiney T, Ali Shah S, Cosgrave E.**
**University Hospital Waterford.**

**Objectives:**
We describe the ocular manifestation, associations and appropriate investigations of bilateral optic disc pits.

**Methods:**
A case report of a 55 years old women with bilateral optic disc pit

**Results:**
A 55 years old myopic patient presented to the eye casualty department, referred by her optician with bilateral optic disc anomalies and reduced vision. She had no previous ocular surgery or eye symptoms. On clinical examination, there was evidence of optic disc pits inferotemporally in both eyes associated with adjacent retinal pallor. We present and describe the anatomy and OCT findings of this case and discuss the differential diagnoses, appropriate investigations and management plan.

**Conclusions:**
Optic Disc pits are usually sporadic and unilateral finding. This case is unusual because of its bilateral presentation. So far serial observations have shown a stable clinical appearance and our patient maintains excellent acuity.

## *Multi-centre Diabetic RetinaScreen Diabetic Retinopathy Referrals and Treatment Outcomes*

**Pandey R[1,2], Keegan D[1,2].**

**[1]University College Dublin, [2]Retina Research Group, Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
We will present data regarding Diabetic RetinaScreen (DRS) referral patterns and treatment outcomes of patients referred. This is the first in a series of reports aiming to study interventions (laser, injections, and surgery) and visual outcomes of patients with diabetic retinopathy and maculopathy being treated in Ireland. This data will help us compare outcomes of patients presenting with center-involving clinically significant macular oedema (CI-CSMO) and/or proliferative retinopathy with other national populations.

**Methods:**
We conducted a retrospective analysis of RetinaScreen patients screened and referred to treatment. Specifically, demographics, retinopathy grade, treatment history, visual acuity and OCT data were recorded. Visual acuity was converted into LogMAR scale for analysis. Acuity changes are reported in Early Treatment Diabetic Retinopathy Study (ETDRS) letter scale.

**Results:**
Data from over 8200 patient referrals were analyzed. 1000 patients contributed 1484 eyes for this analysis. 578 eyes received laser treatment for proliferative diabetic retinopathy (PDR), with Type 1 DM patients representing a majority of the patients. 241 patient-eyes were treated for CI-CSMO, starting treatment at mean baseline VA of 6/18 Snellen for a mean (range) -0.3(-115 - +65) letter loss. 191 eyes were treated with focal laser for non-CI-CSMO. 474 eyes received both laser and injections for treatment of maculopathy and retinopathy.

**Conclusions:**
DRS screening activity has year-on-year increased the number of referrals to every treatment center in Ireland. T1 diabetes patients are predominantly treated for proliferative retinopathy, while T2 diabetes patients represent the majority of patients being treated for diabetic maculopathy. Visual outcome of anti-VEGF treated maculopathy patients is still lagging behind other real-world reports.

## *Shocking Convergence – Unusual Ocular Manifestation Post Low Voltage Electric Shock*

**Nugent E, Townley D.**

**University Hospital Galway.**

**Objectives:**
The poster will present an unusual case of a 38-year-old male, who presented with unusual ocular manifestations post low voltage electric shock (240volts) lasting 4-5 seconds entering via his Right hand. The patient was hospitalized and presented as an outpatient 1 month post electric shock complaining of binocular diplopia at near.

**Methods:**
This case report will retrospectively analyse the patients record and review the current literature in relation to ocular manifestations post electric shock. Visible changes in Hess charting and convergence will also be analysed and presented in the poster.

**Results:**
Patient demonstrated clear extra ocular muscle weakness bilaterally in both inferior obliques and superior recti along with mild left lateral rectus weakness. Horizontal diplopia was also demonstratable in, dextroversions and elevation. Although some fusion was present in primary position, the patient was unable to demonstrate stereopsis and further more showed defective convergence below 15cm.

**Conclusions:**
Although a wide range of ocular manifestations have been documented in the literature post electric shock, with cataract being the most common in 5%- 20% of cases (Chakraborti et al 2015). There is little mention however of the effect electric shock has on extraocular muscles. This poster will present the potential effect of low voltage electric shock these muscles at 7 weeks and 14 weeks post electrocution with convergence insufficiency being the primary issue.

**References:**
*Chakraborti C, Mazumder, S (2015) 'Electrical Injury and Ocular Complications: A Case Report, Pak J Ophthalmology, Vol. 31 No. 1. Available at; http://www.pjo.com.pk/31/1/11.%20CR%20Chandana%20Chakraborti%20Final.pdf (Accessed; 25 March 2019).*

## *Introduction of a Leadership Intervention to Foster Non Consultant Hospital Doctor Professional Development*

**Brady R, Keegan D.**
**Mater Misericordiae University Hospital, Dublin.**

**Introduction:**
Professional development is a fundamental component of both the medical and surgical ophthalmology training schemes. Vertical learning aspects include patient factors and skills training, whilst standalone elements include clinical audits and basic science research. NCHDs are also introduced to personal development training like mindfulness, management and reliance training. With a diverse range of tasks to complete and learning resources, we often look to those in the years ahead for advice, research ideas and encouragement. Sometimes, before changeover, an audit may be incomplete or there may be 'failure to close the loop'. Moreover, successful projects in one unit may have a missed opportunity to be trialed in others. There exists a potential to engage with other trainees to carry out more, and a better quality of, audit and research. Furthermore, sub-specialties encounter rare clinical signs which are of interest to all, and those trainees involved in research have up-to-date knowledge which could be shared. In consideration of these opportunities, it was proposed to introduce an NCHD-led training intervention that would encourage the exchange of research, clinical skills, and audits within our ophthalmology unit.

**Methods:**
Ophthalmology trainees were invited to participate in an end of year 'symposium'. This would be an educational evening comprising several small presentations and a keynote talk. Participants were invited to contribute brief, ten minute, presentations focusing on basic science, recent audit, and clinical skills. The evening was concluded by a closing survey of participants and a prize giving ceremony before a dinner function.

**Results:**
A total of eight NCHDs spoke at the event and our head of department delivered an overview on the running of the department - reflecting on the previous six months and goals for the future six months. Talks included, but were not limited to, tutorials and videos of clinical examinations, management innovations, and basic science / audit ongoing in the department. Participants rated the event very highly and 100% were in favor of follow up events in future. 91% strongly enjoyed the symposium. 82% strongly felt it was beneficial to exchange ideas to colleagues in this setting. A total of 100% considered it a useful event to run. Similarly, 100% enjoyed the diverse range of subjects covered.

**Conclusion:**
An NCHD-led 'end of rotation' event was a very well received intervention designed to encourage NCHD to interact with their peers such as to discussion of current research topics, innovations, and on-going audits. The event provided the potential to close audit loops, re-audit, and also disseminate successful projects to other units. Importantly, it also gave others the opportunity to observe some interesting clinical signs and improve their understanding of management of given conditions.

# *Intraocular Lens Selection in Cataract Surgery*

## Hegazy E, Mongan AM, O'Connell E.

**Cork University Hospital.**

**Objectives:**
SRK/T (Sanders/Retzlaff/Kraff) is one of the most widely studied intra ocular lens (IOL) formulas readily available currently. The arrival of fifth generation formulas and AI derived IOL prediction algorithms may supersede the widely used third generation IOL formulas. The aim of this study was to assess the accuracy of the SRK/T formula for uncomplicated cataract surgery and compare to the literature.

**Methods:**
A prospective, single center study was performed. Preoperative clinical and biometric data was collected on patients undergoing uncomplicated cataract surgery. Spherical equivalent was measured on auto-refraction at the four-week postoperative review. Primary outcome measures were deviation from predicted refractive outcome expressed as a spherical equivalent, and proportion of patients achieving target refraction within 0.5 Dioptres (D).

**Results:**
During this time period 127 consecutive patients underwent uncomplicated phacoemulsification and intraocular lens insertion. Consultants performed 55 (43%) cases, NCHDs performed 71 cases (56%), and in one case surgeon grade was not documented. Overall mean error was 0.5066D (SD=0.4086), median error was 0.41D. There was no difference in error between cases performed by NCHDs compared to consultants, (Consultant mean error=0.5169, SD=0.4318, median error 0.45D; NCHD mean error=0.498D, SD=0.392 median error=0.39D, p=0.6029 groups analysed using Mann Whitney U test). Overall 58% of patients (n=74) refraction within 0.5D of target refraction. When we looked specifically at average eyes (AL>22.0mm, <24.6mm, ΔK<3D), mean error was 0.4462D (SD=0.3236, median error=0.38D), and 67% patients achieved target refraction within 0.5D of predicted.

**Conclusions:**
Our results show that SRK/T performs well, particularly in average eyes. It is imperative to continue auditing our results to ensure optimal patient outcomes, particularly as other formulas are refined and improved over time.

# *Cryopexy for Retinal Tears*

## Cummings B, Idrees Z.

**Cork University Hospital, South Infirmary Victoria University Hospital, Cork.**

**Objectives:**
To follow up all patients who underwent primary cryopexy (with or without indirect laser) for retinal tears over the past two-year period and identify rates of successful treatment, as well as the frequency of complications and the requirements for additional treatments.

**Methods:**
Theatre records from March 2017 to March 2019 were analysed to identify all primary cryopexy procedures performed during this interval. The indications for, and outcomes of, all cryopexies were determined by review of the patients' medical records.

**Results:**
Approximately 60 primary cryopexy procedures were carried out in the SIVUH
Between 2017-2019 for the treatment of retinal tears, out of which ~58 [final number to be confirmed] did not require further intervention.

**Conclusions:**
Primary cryopexy is a useful intervention for retinal tears, especially those occurring in an anterior part of the retina. Primary cryopexy with or without additional indirect laser is a safe and effective treatment and was successful in preventing progression to retinal detachment in most cases.

## What Travel Burden do Intravitreal Injections Place on Patients in the West of Ireland?

**O'Regan S, Townley D.**

**University Hospital Galway.**

**Objectives:**
The advent of intravitreal treatments have revolutionised the treatment of medical retinal conditions. However, these regimens typically involve repeated monthly injections, and are limited to specialist centres throughout Ireland. This places a significant treatment burden on many elderly patients, many of whom must travel long distances to avail of intravitreal treatments. This study is the first to examine the travel burden that eye injections place on patients attending for intravitreal treatments in the West of Ireland.

**Methods:**
We examined the treatments logs of 100 consecutive patients attending for intravitreal injections over a 2 week period in July 2018. We collected demographic data, and then calculated the distance from the patient's home address to the intravitreal treatment room in University Hospital Galway. The off peak travel time was then calculated using google maps.

**Results:**
The mean age of patients attending for intravitreal injections was 68.8 +/- 17.1 years (males=61, females=39). The average distance travelled to the injection centre was 55.7 +/- 43.3km one-way. Journey times were 54.4 mins +/- 35.6 mins one-way per injection. .

**Conclusions:**
Intravitreal injections place a significant travel burden on vulnerable elderly patients. No supports exist to facilitate travel for patients to attend University Hospital Galway to avail of sight saving intravitreal treatments. We will propose that provisions should be in place to assist patients to attend for treatments.

## Visual Field Frequency and Glaucoma Progression – An Audit from the Mater Misericordiae University Hospital

**Greene A, O'Brien C.**

**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Preserving visual function is the aim of glaucoma management. Visual field assessment represents the main measurement of visual function and disease progression. NICE guidelines recommend visual field assessments at between 1-6 month intervals in patients showing disease progression and every 6-12 months in patients with no progression detected, but a high clinical risk. The objective of this audit was to establish the frequency of routine fields in the glaucoma OPD and to establish if there was an association with clinical progression.

**Methods:**
716 visual field examinations were performed at the Mater Misericordiae University Hospital between 1/1/19 and 23/3/19. Of these, 272 were for glaucoma. Referrals from Eye casualty were excluded. Information about the patient's gender, age at testing, test reliability and visual field loss was obtained. Progression analysis (% VFI change/year) was calculated using Zeiss Glaucoma Forum™. The average of number of tests/year since first presentation was also calculated.

**Results:**
The median rate of testing frequency was 1.29 tests/year. Rapid progression (≥1.5%VFI loss/year) was seen more frequently in older patients and male patients, though this was not statistically significant. Rapid disease progression was associated with a higher MD at testing ($P<0.05$). Stable non-progressing eyes had a higher testing frequency ($P<0.002$).

**Conclusions:**
Increasing the frequency of visual field testing leads to earlier detection of glaucoma progression and improved visual outcomes for patients. Stratification of patients based of risk of rapid disease progression may be useful in establishing a protocol for testing frequency.

## *A Retrospective Study on the Blood Pressure of Patients with Diabetic Macular Oedema Receiving Anti-VEGF and intravitreal Corticosteroid Therapy*

**Hanrahan G, Townley D.**

**University Hospital Galway.**

**Objectives:**
With the introduction of vascular endothelial growth factor VEGF antagonists and intravitreal corticosteroids we have vastly increased the therapeutic options for diabetic maculopathy. However, it would be significantly to our advantage to identify those patients who respond well to the treatment from those in whom the treatment is less effective. The purpose of the present study was to test the hypothesis that blood pressure can predict the effect of anti-VEGF and corticosteroid treatment on diabetic maculopathy.

**Methods:**
In 49 eyes from 49 patients with diabetic macular edema, statistical analysis was used to investigate the predictive value of blood pressure together with age, diabetes type, visual acuity (VA), and central macular thickness (CMT) before treatment as explanatory factors for VA and CMT after the use of anti-VEGF injections and intravitreal corticosteroids.

**Results:**
Whilst out results are still pending; we hope to find a correlation between blood pressure and central macular thickness & visual acuity in patients with diabetic macular oedema.

**Conclusions:**
Pending. If blood pressure is seen as useful predictor for CMT and visual acuity, patient education and lifestyle modification efforts can be reinforced earlier in patient treatment pathways.

## *A Retinal Rarity*

**Woods B, O'Regan A, Marks S, Higgins M, Connell P.**

**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Solitary intraocular metastasis from any cancer primary to the eye is an uncommon occurrence with the majority of cases isolated to the uveal tract. This case report documents the extremely rare case of a retinal metastasis in a patient previously treated for small cell lung cancer and highlights the difficulties in establishing a definitive diagnosis in such cases.

**Methods:**
A 66 YO lady presented to eye casualty with a 3/12 history of rapidly deteriorating vision in her right eye associated with a right-sided frontal headache. 4/12 previously she had completed chemoradiotherapy for limited small cell lung cancer. On examination VA was HM on the right with 2+ cells and an intraocular pressure of 50mmHg. Rubeosis iridis with posterior synechiae was evident. Fundal exam revealed a large white raised lesion with surface haemorrhage and extensive subretinal exudation involving the macula and temporal periphery.

**Results:**
Her IOP, refractory to medication, was managed with cyclodiode. Routine bloods and uveitis screen were unremarkable. Two vitreous samples were negative. B-scan ultrasonography revealed a mass at the posterior aspect of the globe with no choroidal excavation. Optic disc hyperfluorescence with subretinal leakage was seen on FFA. Ms RT went on to have a MRI that revealed nodular thickening of the lateral aspect of the posterior chamber of right globe. LP was non-contributory. Subretinal biopsy revealed small cells with scant cytoplasm and mixed apoptotic cells, positive for cytokeratin and chromogranin providing diagnostic confirmation that this was a metastatic deposit of small-cell lung cancer. CT-TAP staging showed no recurrence or other metastases. She was referred to radiation oncology and placed on a tapering course of oral steroids. Her metastasis responded well to radiotherapy and at her most recent visit she was much more comfortable with well-controlled IOP and no signs of recurrence.

**Conclusions:**
Retinal metastases are exceedingly rare with only a few case reports in the literature. Thus, it is no surprise that they tend to represent a diagnostic challenge. This case highlights the importance of considering malignancy in a non-resolving retinal lesion despite treatment. Data continues to be limited on how to best manage retinal metastases and what role screening has.

# *Non-attendance Rates at Intravitreal Injection Clinics in the Mater Misericordiae University Hospital, Dublin over a 4 Month Period*

**Woods B, Gallagher D, Smyth A, O'Regan A, Gildea J, Keegan D, Dooley I, Connell P.**

**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Intravitreal (IVT) injections are one of the most commonly performed ophthalmic procedures in Ireland. With an aging population and an increasing demand for injection treatments there is a need to ensure that the service is working as optimally as possible. One of the greatest wastes within the provision of IVT therapies are slots taken up by patients who fail to attend their appointment. These wasted slots result in inefficiencies and delays in the delivery of timely treatment. The purpose of this audit was to ascertain what the rate of non-attendance is within MMUH IVT clinics and whether this varies between a Diabetic Retina Treatment (DRT) and non-DRT cohort.

**Methods:**
Non-attendance rates were monitored prospectively in IVT injection clinics from November 2018 until March 2019.

**Results:**
In total, 1480 injections were performed within the main injection suite in MMUH from November 2018 to March 2019. 169 non-attendances were recorded during this period. 82 clinics documented non-attendance numbers. 1396 injections were performed in clinics where data was available regarding non-attendance. The overall rate of non-attendance was found to be 10.3%. DRT injection clinics had a higher non-attendance rate than non-DRT clinics (16.1% Vs 8.6%; $p = 0.006$). 71 clinics recorded add-on rates. The mean add-on rate within clinics during this period was 2.8%.

**Conclusions:**
As the population ages and demand for injection services grow it is important to optimize service provision. In our study overall non-attendance rate was found to be 10.3%. DRT injection clinics had a higher non-attendance rate than non-DRT clinics (16.1% Vs 8.6%). High rates of non-attendance can indirectly result in increased waiting list times as well as having cost implications due to inefficiencies in terms of wasted administrative, nursing and medical resources.

# *A Case of Neurotrophic Keratitis*

**Smyth A, Woods B, Fulcher T.**

**Mater Misericordiae University Hospital, Dublin.**

**Objectives:**
Introduction: A 48-year old gentleman was referred from his GP with a 1-week history of a painless right red eye, blurred vision for 1 month and pain over his right scalp and forehead. Along with this, he reported new onset decreased hearing in his right ear.

**Methods:**
Exam: On slit lamp examination, a corneal epithelial defect was visualised, along with central corneal thinning and stromal infiltrate and vascularisation. Corneal scrapes were taken and the patient was commenced on antibiotic eye drops for treatment of microbial keratitis. Further clinical exam yielded a right relative afferent pupillary defect, complete ptosis and ophthalmoplegia. The right cornea was insensitive to touch. The skin dermatomes supplied by the ophthalmic and maxillary nerves were hypoesthetic and a right sided lower motor neuron facial nerve palsy was also present.

**Results:**
Of note, the patient reported he had been diagnosed with an intracranial lesion 1 year prior, but had failed to attend further follow-up. Neuro-imaging revealed a right cavernous sinus lesion, exerting mass effect on the paracavernous structures. The corneal ulcer was treated with antibiotic drops and a Prokera graft was placed. He was subsequently transferred to Beaumont Hospital where he underwent a transclival biopsy for tissue sampling.

**Conclusions:**
This case highlights the importance of neuroanatomical considerations and treatment options when faced with a neurotrophic keratitis.

## *Reconstruction of the Upper Eyelid Following Excision of Basal Cell Carcinoma – a Case Report*

**Rhatigan M, Huang J, Lee P.**

**St. Vincent's University Hospital, Dublin.**

**Objectives:**
To describe a reconstructive technique of both anterior and posterior lamella of the upper eyelid following excision of basal cell carcinoma.

**Methods:**
We describe the case of an 86-year-old gentleman who was referred from plastic surgery with an enlarging right upper lid lesion clinically highly suspicious for a basal cell carcinoma. A full thickness excision of the lesion was performed with 2 mm margin. He underwent immediate reconstruction which required both anterior and posterior lamella reconstruction. In order to reconstruct the posterior lamella a tarsal conjunctival flap was formed from the ipsilateral adjacent tarsal plate ensuring 4mm tarsal margin remained for lid stability. In addition, a periosteal flap was elevated medially and sutured to the tarsal flap and a lateral cantholysis performed to allow full closer. In order to reconstruct the anterior lamella a glabellar flap was formed to cover the superior defect. A full thickness skin graft from the contralateral upper lid was used to cover the inferior defect and the tarsal flap.

**Results:**
Histopathology showed a fully excised nodular basal cell carcinoma with clear margins. At two months postoperatively an excellent functional result was achieved with no lagophthalmos, a healthy ocular surface, good cosmesis and no clinical evidence of recurrence.

**Conclusions:**
The upper eyelid is a structure that requires careful consideration during reconstruction, with attention to functional lid closure paramount because of its role in protecting the cornea. The reconstruction technique should be customised to the individual patient The reconstructive technique described here provides an option for full thickness upper lid defects with greater than two thirds lid loss with excellent postoperative outcome.

## *Surgical Correction of Paediatric Ptosis using Mullers Muscle – Conjunctival Resection with Putterman Ptosis Clamp*

**Rhatigan M, Lee P.**

**Hermitage Medical Clinic, Dublin.**

**Objectives:**
The primary aim in management of paediatric ptosis is preservation of visual function, with cosmesis as secondary. Surgical necessity, timing and choice of procedure are determined by the degree of ptosis, the risk of deprivation amblyopia and the psychological impact on the child. Delayed surgery, is preferred for mild to moderate ptosis without significant refractive error or risk of amblyopia. One of the main challenges in paediatric ptosis is predictability of outcome as intraoperative adjustment and use of adjustable sutures are not feasible in a paediatric. The primary objective of this study was to determine clinical and patient reported outcomes of Mullers Muscle - Conjunctival Resection with Putterman Ptosis Clamp in three paediatric patients.

**Methods:**
We report on three cases of paediatric ptosis who underwent ptosis surgery MCR with a Putterman clamp. All surgery was performed by one surgeon (PL), consultant ophthalmic and oculoplastic surgeon. Inclusion criteria were paediatric ptosis with good levator function and positive response to topical phenylephrine 2.5% test. Indication for surgery was to improve cosmesis. Surgical technique detailed in presentation.

**Results:**
In all 3 cases lids were successfully corrected with one operation. At three-month post-operative follow up lid height was within 1mm in all 3 cases with improved contour, patient and parent satisfaction and no complications.

**Conclusions:**
MCR with Putterman clamp offers a valuable alternative treatment modality for mild to moderate paediatric ptosis with good levator function, adding to the surgical armamentarium for paediatric ptosis.

## *A Case Series of Orbital Subperiosteal Haematomas*

**Ellard R, Murphy T, Khan R.**
**Royal Victoria Eye & Ear Hospital, Dublin.**

**Objectives:**
To outline the rare pathology, non-traumatic orbital subperiosteal haematoma.

**Methods:**
A series of three cases of orbital subperiosteal haematomas are described.

**Results:**
All three were related to increased intracerebral venous congestion. Two cases were associated with valsalva maneuver during childbirth. A third was related to a steep intra-operative Trendelenburg position during varicose vein laser ablation surgery. Clinical signs included proptosis, eyelid oedema and ecchymosis and extra ocular motility restriction. Diagnosis was confirmed with CT/MRI imaging. There was no optic nerve compression in any of the three cases, therefore decompression was not required. The patients underwent regular observation and had complete resolution.

**Conclusions:**
Orbital subperiosteal haematoma is caused by rupture of diploic veins between the periosteum and the bony orbit. Non-traumatic cases are rare. The diagnosis is based on clinical findings and confirmatory imaging. Prompt intervention should be considered where there are neurological signs or optic nerve compression.

# IRISH COLLEGE OF OPHTHALMOLOGISTS

The Irish College of Ophthalmologists (ICO) is the training and professional body for eye doctors in Ireland. The ICO is recognised by the Medical Council as the only post graduate training body for ophthalmology in Ireland.

The central goal of the ICO is to maintain standards of excellence for the maintenance and restoration of vision and the preservation of sight through the education of its members, trainees and the public.

This is achieved by setting the highest standards in ophthalmic training for doctors specialising in the field and for continuing medical education and professional development for those in practice.

The mission of the ICO is to reduce the number of annual cases of preventable blindness and vision impairment, to maintain vision and to extend and prolong, to the greatest extent possible, the length of time those who have vision impairment can continue to live independently.

The ICO is focused on its strong leadership role, providing accurate medical information to the public and policy guidance to the government. The ICO is dedicated to working with all relevant parties on the most appropriate model of care for Ireland based on excellence in medical care and patient safety. The College has long standing relationships and strong interaction with a broad range of both government and non- government institutions across healthcare planning, regulation and delivery through which it both promotes and supports the specialist training and education agenda.

The College aims to guarantee the highest standards of patient safety by ensuring that there is an agreed patient pathway in eye care. Together with the HSE, the College supports the National Clinical Programme for Ophthalmology which aims to deliver changes that will improve the current system in hospital and community care services, ensuring prompt detection, diagnosis and treatment.

As the expert body on eye care in Ireland the ICO takes a broad view on the delivery of care including treatment, diagnosis, prevention, patient safety, quality and cost of care. College policy is fully aligned with the transformation programme for the health services, in particular the concept of patients receiving treatment from the appropriate personnel, in the appropriate location, in a timely manner.

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# Notes


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