The Royal College of Ophthalmologists Annual Congress 2013

Final Programme & Abstracts

21-23 May 2013
Arena & Convention Centre,
Liverpool

acc
Liverpool

Tuesday 21st May 2013

9.00 - 10.30

President's Session: 25 years of progress
Harminder Dua

Cataract Surgery
David Spalton

Medical Retina
Jon Gibson

Vitreoretinal Surgery
Bill Aylward

Surgical Training
Larry Benjamin

10.30 - 11.15: Coffee & Posters

11.15 - 12.45

President's Session: 25 years of progress
Harminder Dua

Glaucoma Management
Peng Khaw

Refractive Surgery
Dimitri Azar

Ocular Inflammation
Andrew Dick

Oculoplastics
Geoff Rose

12.45 - 1.30: Lunch

1.30 - 3.00

Management of Childhood Strabismus: the Rumsfeld Way
Mike Clarke

Disorders of the Peripheral Retinal Vasculature
Tony Moore & Michel Michaelides

Infection and Inflammation of the Orbit
Carol Lane & Jimmy Uddin

Recent Advances in Anterior Segment Surgery
Madhavan Rajan

The Coming of Age of Ophthalmic Epidemiology
Jugnoo Rahi

3.00 - 3.30: Tea & Posters

3.30 - 4.30

Rapid Fire Session
Ian Rennie

4.30 - 5.30

EDRIDGE GREEN LECTURE 2013
David Williams
Introduction by Fred Fitzke

5.45 - 7.45

25TH ANNIVERSARY RECEPTION
for all delegates and speakers
Museum of Liverpool

Monday 20th May 2013

9.30 - 5.00

Retina Day & Drinks Reception
Som Prasad & Winfried Amoaku

Wednesday 22nd May 2013

8.00 - 9.00 Breakfast Meetings

EPR - here to stay?
Bill Aylward

Grand Rounds: Nystagmus
Irene Gottlob

Eye: Meet the Editor
Andrew Lotery

Electrophysiology
Richard Smith & Graham Holder

Grand Rounds: FFA/Ocular Imaging
Adnan Tufail, Alan Bird & Giovanni Staurenghi

9.00 - 10.30

25 Years of Paediatric Ophthalmology
David Taylor

Orbital Trauma
Mike Burdon

Posterior Segment Inflammation
Carlos Pavesio & Richard Lee

Ocular Surface Disease: Problem Solving with the Experts
John Dart

£ Retinal Imaging Course Part 1*
Paulo Stanga & James Talks

10.30 - 11.15: Coffee & Posters

11.15 - 12.45

Diabetes & the Eye
Clare Bailey

The Great Debate
Bill Aylward

Ocular Oncology
Mandeep Sagoo

Management of Secondary Glaucoma
Peter Shah

£ Retinal Imaging Course Part 2*
Paulo Stanga & James Talks

12.45 - 2.00: Lunch

2.00 - 2.30

Late Breaking News: The IVAN Trial
Usha Chakravarthy

2.30 - 3.30

Rapid Fire Session
Andrew Dick

3.30 - 4.00: Tea & Posters

4.00 - 4.30

AGM

4.30 - 5.30

DUKE ELDER LECTURE 2013
Phil Murray
Introduction by Mike Burdon

5.30 - 6.30

SAS Forum

5.30 - 6.30

Ophthalmic Trainees Forum

Thursday 23rd May 2013

8.00 - 9.00 Breakfast Meetings

Grand Rounds: Medical Retina
Jon Gibson, Simon Harding & Phil Hykin

Grand Rounds: Strabismus
Tony Vivian

Revalidation
Richard Smith

How to Run a Private Practice
Bob Taylor

9.00 - 10.45

Tropical Disease
David Yorston

Choroid: the forgotten frontier
Faruque Ghanchi & Som Prasad

Eyelid Disease: an interactive session
David Verity

Vitreoretinal Surgery for Macular Disorders
David Steel

£ Glaucoma Diagnosis Course Part 1
Stephen Vernon & Rupert Bourne

10.45 - 11.30: Coffee & Posters

11.30 - 12.30

OPTIC UK LECTURE 2013
Gerrit Melles
Introduction by Frank Larkin

1230 - 1.45: Lunch

1.45 - 2.15

Awards Ceremony

2.15 - 4.00

How to Run a High Volume Cataract Service
Ted Burton

Grand Rounds: Neuro-ophthalmology
Mike Burdon & Gordon Plant

Thyroid Eye Disease
Jane Dickinson

The Optimal Care Pathway for a Busy AMD Service
Simon Harding & Chris Brand

£ Glaucoma Diagnosis Course Part 2
Stephen Vernon & Rupert Bourne

4.00

Congress close

Monday 20th May 2013

9.00 - 5.00

Glaucoma Day & Drinks Reception
Peter Shah & Fiona Spencer

* For Retinal Imaging Course timings please refer to the listing in the programme

DUKE ELDER LECTURE 2013
Professor Phil Murray

Professor Phil Murray was born within the sound of Bow Bells i.e. a true Cockney but grew up in West London. His passion for ophthalmology began as a Pre-registration House Officer at St. George's and after SHO posts in Neurosurgery (Atkinson Morley) and in Ophthalmology (Croydon and Southampton) worked at Moorfields (High Holborn and City Road) as Registrar then Senior Registrar. His interest in inflammatory eye disease, in particular uveitis, began when he was a Pre-registration House Officer in Medicine in Epsom whilst working for a rheumatologist with an interest in connective tissue disease.

In January 1990 he was appointed Senior Lecturer to the notable Alistair Fielder at the University of Birmingham and after a brief spell as Reader became Professor of Ophthalmology there in 1997. Initially with the help of Professor Mike Salmon he has built up a team of international renowned clinicians and basic scientists researching into 'Inflammatory mechanisms in the ocular microenvironment'.

He is an Honorary Consultant Ophthalmologist at the Birmingham and Midland Eye Centre (BMEC), Sandwell and West Birmingham Hospitals NHS Trust and runs 2 dedicated regional uveitis clinics per week. He undertakes cataract surgery and enjoys the challenges of surgery on the uveitic eye.

EDRIDGE GREEN LECTURE 2013
Professor David Williams

Professor David Williams received his Ph.D. from the University of California, San Diego in 1979. He was a postdoctoral fellow at Bell Laboratories, Murray Hill in 1980 and joined the University of Rochester in 1981, where he has an appointment in the Institute of Optics as well as in the departments of Brain and Cognitive Sciences, Biomedical Engineering, and Ophthalmology. He is currently William G. Allyn Professor of Medical Optics. Since 1991, Williams has served as Director of Rochester's Center for Visual Science, an interdisciplinary research program of 32 faculty interested in the mechanisms of human vision.

In 2011, he was appointed Dean for Research of Arts, Science and Engineering where he is responsible for maximizing opportunities for faculty research and scholarship, including the development of partnerships with industry and government as well as other academic institutions. Williams' research marshals optical technology to address questions about the fundamental limits of human vision.

OPTIC UK LECTURE 2013
Dr. Gerrit Melles

Dr Melles is a cornea specialist and founder of the Netherlands Institute for Innovative Ocular Surgery (NIIIOS), the Melles Cornea Clinic Rotterdam, and Amnitrans EyeBank Rotterdam. His clinical work focuses on the management of corneal disorders and he is actively involved in research and development of ophthalmic surgical techniques and has invented several advanced lamellar keratoplasty techniques among others Descemet membrane endothelial keratoplasty (DMEK). Furthermore, he has developed instruments and medical devices required for the invented techniques, as well as Vision Blue®, Membrane Blue® and the Surgicube®. Dr. Melles has received several awards including the Barraquer Award in recognition of his contribution to ophthalmology.

Dates and venue
The Annual Congress will be held from Tuesday 21st to Thursday 23rd May 2013 at The ACC, Liverpool.

Registration opening hours
Tuesday 21st May 2013 8.00 a.m. to 5.00 p.m.
Wednesday 22nd May 2013 7.45 a.m. to 5.00 p.m.
Thursday 23rd May 2013 7.45 a.m. to 3.00 p.m.

Security
All delegates must wear their badge at all times. Please assist the hall stewards by having your badge on display.

Language
The language of Congress is English.

Continuing professional development
One CPD point per hour of educational activity is awarded at Congress. The total CPD allocation for Congress is 23 points: Tuesday 8 points, Wednesday 8 points and Thursday 7 points.

Insurance
We strongly recommend overseas delegates have adequate travel and medical insurance.

Exhibition opening hours
Tuesday 21st May 2013 8.00 a.m. to 5.00 p.m.
Wednesday 22nd May 2013 8.00 a.m. to 5.00 p.m.
Thursday 23rd May 2013 8.00 a.m. to 3.00 p.m.

Refreshments and lunch
Your fee includes welcome coffee, morning coffee break, two course lunch and afternoon tea. There will be a vegetarian option but we are unable to provide for any other dietary requirements. No refunds will be given for lunches not taken.

9.00 – 9.05 Hall 1a
WELCOME TO CONGRESS 2013
The President, Professor Harminder Dua,
The Royal College of Ophthalmologists, London

9.05 – 10.30 Hall 1a
PRESIDENT'S SESSION: 25 YEARS OF PROGRESS PART ONE

Cataract Surgery
Professor David Spalton, Consultant Ophthalmologist, St Thomas's Hospital, London

Medical Retina
Professor Jon Gibson, Consultant Ophthalmologist, Birmingham Heartlands Hospital

Vitreoretinal Surgery
Dr. Bill Aylward, Consultant Ophthalmologist, Moorfields Eye Hospital, London

Surgical Training
Mr Larry Benjamin, Consultant Ophthalmologist, Stoke Mandeville Hospital, Aylesbury

10.30 - 11.15 COFFEE & POSTERS: Meet the Authors

11.15 – 12.45 Hall 1a
PRESIDENT'S SESSION: 25 YEARS OF PROGRESS PART TWO

Glaucoma Management
Professor Peng Khaw, Professor of Glaucoma and Ocular Healing, Institute of Ophthalmology & Moorfields Eye Hospital, London

Refractive Surgery
Professor Dimitri Azar, Professor of Ophthalmology, University of Illinois Eye and Ear Infirmary, Chicago, USA

Ocular Inflammation
Professor Andrew Dick, Consultant Ophthalmologist, Bristol Eye Hospital

Oculoplastics
Mr. Geoff Rose, Consultant Ophthalmologist, Moorfields Eye Hospital, London

12.45 - 1.30 LUNCH & EXHIBITION

1.30 - 3.00 Hall 1b
MANAGEMENT OF CHILDHOOD STRABISMUS: THE RUMSFELD WAY
Mr. Mike Clarke, Consultant Ophthalmologist, Royal Victoria Infirmary, Newcastle Upon Tyne

1.30 - 1.40
Introduction
Mr. Mike Clarke, Consultant Ophthalmologist, Royal Victoria Infirmary, Newcastle Upon Tyne

1.40 - 2.00
Known Unknowns
Mr. Robert Taylor, Consultant Ophthalmologist, York Hospital

2.00 - 2.20
Unknown Knowns – what are the things we factor into treatment which aren't in the textbooks
Professor Edward Wilson, Professor of Ophthalmology and Paediatrics, Medical University of South Carolina, Charleston, USA

2.20 - 2.40
Known Unknowns – Established areas of uncertainty
Mr. Mike Clarke, Consultant Ophthalmologist, Victoria Royal Eye Infirmary, Newcastle upon Tyne

2.40 - 3.00
Unknown Unknowns – Dealing with unique entities
Mr. Nadeem Ali, Consultant Ophthalmologist, Moorfields Eye Hospital, London

1.30 - 3.00 HALL 1A
DISORDERS OF THE PERIPHERAL RETINAL VASCULATURE
Professor Tony Moore, Professor of Ophthalmology, Moorfields Eye Hospital, London &
Mr. Michel Michaelides, Consultant Ophthalmic Surgeon, Moorfields Eye Hospital, London

1.30 - 1.50
Inherited Disorders of Retinal Vascular Development
Professor Tony Moore, Professor of Ophthalmology, Moorfields Eye Hospital, London

1.50 - 2.10
Vascular Tumours of the Uvea and Retina
Dr. Jerry Shields, Co-Director, The Wills Eye Ocular Oncology Service, Wills Eye Hospital, Philadelphia, USA

2.10 - 2.30
Coats Disease and Simulating Conditions
Dr. Carol Shields, Co-Director, The Wills Eye Ocular Oncology Service, Wills Eye Hospital, Philadelphia, USA

2.30 - 2.50
Advances in Surgical Management of Paediatric Retinovascular Disease
Dr. Chien Wong, Paediatric Vitreoretinal Fellow Childrens Hospital
Los Angeles

1.30 - 3.00 HALL 11
INFECTION AND INFLAMMATION OF THE ORBIT
Mrs. Carol Lane, Consultant Ophthalmologist, University Hospital of Wales, Cardiff &
Mr. Jimmy Uddin, Consultant Ophthalmic Surgeon, Moorfields Eye Hospital, London

1.30 - 1.45
Introduction: Unravelling the 'maze' of inflamed orbit
Mr. Jimmy Uddin, Consultant Ophthalmic Surgeon, Moorfields Eye Hospital, London

1.45 - 2.05
Infective Orbital Cellulitis: the essentials
Professor Peter Dolman, Consultant Ophthalmic Surgeon, University of British Columbia, Vancouver, Canada

2.05 - 2.30
Inflammation: the phantom of the orbita
Professor Ilse Mombaerts, Consultant Orbital Surgeon, University Hospital Leuven, Belgium

2.30 - 2.45
So you think you recognise TED?
Mrs. Carol Lane, Consultant Ophthalmologist, University Eye Hospital of Wales, Cardiff

2.45 - 3.00
Panel Discussion

1.30 - 3.00 HALL 3
RECENT ADVANCES IN ANTERIOR SEGMENT SURGERY
Mr. Madhavan Rajan, Consultant Ophthalmologist, Addenbrooke's Hospital, Cambridge

1.30 - 1.35
Introduction
Mr. Madhavan Rajan, Consultant Ophthalmologist, Addenbrooke's Hospital, Cambridge

1.35 - 1.55
Accelerating Corneal Crosslinking: Scientific Basis and Process
Professor John Marshall, Consultant Ophthalmologist, University College London

1.55 - 2.15
Femtosecond Laser Assisted Corneal Surgery: Scope and Limitations
Professor Dimitri Azar, Professor of Ophthalmology, University of Illinois Eye and Ear infirmary, Chicago, USA

2.15 - 2.35
Progress in Endothelial Keratoplasty: PK to Cell Therapy
Mr. Madhavan Rajan, Consultant Ophthalmologist, Addenbrookes Hospital, Cambridge

2.35 - 2.55
The Artificial Cornea – Boston Kpro: Expanding Indications and Improved Patient Outcomes
Mr. Mark Wilkins, Consultant Ophthalmologist, Moorfields Eye Hospital, London

2.55 - 3.00
Conclusion
Mr. Madhavan Rajan, Consultant Ophthalmologist, Addenbrookes Hospital, Cambridge

1.30 - 3.00 HALL 1C
THE COMING OF AGE OF OPHTHALMIC EPIDEMIOLOGY
Professor Jugnoo Rahi, Professor of Ophthalmic Epidemiology, MRC Centre of Epidemiology for Child Health, Institute of Child Health, London

1.30 - 1.55
Applying Epidemiology to Define Needs: a History of Retinopathy of Prematurity
Professor Graham Quinn, Professor of Ophthalmology, Children's Hospital of Philadelphia, USA

1.55 - 2.20
The Omics Revolution – Trends in Genetic Epidemiology
Professor Christopher Hammond, Frost Professor of Ophthalmology, Kings College London

2.20 - 2.45
The Long View: the Power of Lifecourse Epidemiology to Understand Health Inequalities and Complex Ophthalmic Disorders
Professor Jugnoo Rahi, Professor of Ophthalmic Epidemiology, Institute of Child Health and Institute of Ophthalmology UCL, London

2.45 - 3.00
Discussion

3.00 - 3.30 TEA & POSTERS: Meet the Authors

3.30 - 4.30 Hall 1a
RAPID FIRE SESSION
Professor Ian Rennie, Consultant Ophthalmologist, Royal Hallamshire Hospital, Sheffield

3.30 - 3.36
Intraoperative use of Polydioxanone (PDS) foil to reduce the incidence of sino-orbital fistulas following orbital exenteration
A Al-Hity, M E Gregory, E G Kemp
Gartnaval General Hospital

3.36 - 3.42
96-Week Results from the VIEW Studies: Intravitreal VEGF Trap-Eye versus Ranibizumab for Neovascular Age-Related Macular Degeneration Shows Sustained Improvements in Visual Acuity
V Chong
Oxford Eye Hospital

3.42 - 3.48 AMO PRIZE WINNER 2013:
Time trends over five decades, and recent geographical variation, in rates of childhood squint surgery in England
MR Chou, A N J Malik, M Suleman, M Gray, D Yeates, M J Goldacre
East Surrey Hospital

3.48 - 3.54
The effect of generic latanoprost substitution on patient compliance
A J Conor, S Fraser
Sunderland Eye Infirmary

3.54 - 4.00
Corneal penetration and anterior chamber concentration of topical antifungal agents in an in vitro human corneal model
U Hussain, H Aichner, D Oliver, E Johnson, M Rajan
Addenbrookes Hosptial

4.00 - 4.06
INTREPID - IRay Plus Anti-VEGF Treatment For Patients With Wet AMD
T L Jackson, P K K Kaiser, J S Slakter, M Shusterman, D O'Shaughnessy, L Danielson, DM Moshfeghi
King's College London

4.06 - 4.12
Associations with retinal nerve fibre layer measures in the EPIC-Norfolk Eye Study
A P Khawaja, M P Y Chan, D F Garway-Heath, D C Broadway, R Luben, K Khaw, P J Foster
University of Cambridge

4.12 - 4.18
Intravitreal VEGF Trap-Eye in Central Retinal Vein Occlusion: Results of the Phase 3 COPERNICUS and GALILEO Studies
I Pearce
Royal Liverpool University Hospital

4.18 - 4.24
British Ophthalmological Surveillance Unit Study - Perioperative visual loss due to non-ocular surgery
N Stone, H Russell, B Fleck, A Mulvihill
Princess Alexandra Eye Pavilion

4.24 - 4.30
Development and validation of a novel functional vision instrument for children and young people with visual impairment
V Tadic, A Cooper, G Lewando Hundt, J S Rahi
UCL Institute of Child Health

4.30 - 4.36
Key predictors of visual field test performance
J Ho, S Ameen, L Crawley, F Ahmed
Western Eye Hospital

4.36 - 5.30 Hall 1A
EDRIDGE GREEN LECTURE - DAVID WILLIAMS
Professor David Williams will deliver this year's Edridge Green Lecture. Please see the following page for further information.

5.45 - 7.45
25TH ANNIVERSARY DRINKS RECEPTION AT THE MUSEUM OF LIVERPOOL
Join the President of The Royal College of Ophthalmologists and the Lord Mayor of Liverpool for a free drinks reception to celebrate the 25th Anniversary of the College.

EDRIDGE GREEN LECTURE 2013

Tuesday 21st May 2013 4.36 - 5.30 Hall 1a

Imaging Single Cells in the Living Eye

Professor David Williams, Professor of Optics, Ophthalmology, Biomedical, University of Rochester, USA

Professor David Williams received his Ph.D. from the University of California, San Diego in 1979. He was a postdoctoral fellow at Bell Laboratories, Murray Hill in 1980 and joined the University of Rochester in 1981, where he has an appointment in the Institute of Optics as well as in the departments of Brain and Cognitive Sciences, Biomedical Engineering, and Ophthalmology. He is currently William G. Allyn Professor of Medical Optics. Since 1991, Williams has served as Director of Rochester's Center for Visual Science, an interdisciplinary research program of 32 faculty interested in the mechanisms of human vision.

In 2011, he was appointed Dean for Research of Arts, Science and Engineering where he is responsible for maximizing opportunities for faculty research and scholarship, including the development of partnerships with industry and government as well as other academic institutions. Williams' research marshals optical technology to address questions about the fundamental limits of human vision. His research team demonstrated the first closed-loop adaptive optics system for the eye, showing that vision can be improved beyond that provided by conventional spectacles. This work lead to wavefront-guided refractive surgery used in more than half the refractive surgical procedures conducted worldwide today. More recently, his group has been deploying adaptive optics and other advanced imaging technologies to study the normal and diseased retina, obtaining microscopic images with unprecedented resolution in the living eye.

Williams is a Fellow of the Optical Society of America, the American Association for the Advancement of Science, and the Association for Research in Vision and Ophthalmology. Awards he has received include the OSA Edgar G. Tillyer Award in 1998, the Association for Research in Vision and Ophthalmology's Friedenwald Award in 2006, the Bressler Prize from the Jewish Guild for the Blind in 2007, and the Champalimaud Vision Award in 2012.

Introduction by Professor Fred Fitzke, Professor of Visual Optics & Psychophysics, Institute of Ophthalmology, London &
Vote of thanks from Professor Harminder Dua, President, The Royal College of Ophthalmologists

Free welcome coffee, tea and pastries will be served in the hall foyer for all delegates attending breakfast sessions.

8.00 – 9.00 Hall 3
EPR HERE TO STAY?
Dr. Bill Aylward, Consultant Ophthalmologist, Moorfields Eye Hospital, London

Introduction
Dr. Bill Aylward, Consultant Ophthalmologist, Moorfields Eye Hospital, London

EPR and the Future of Audit
Mrs Melanie Hingorani, Consultant Ophthalmologist, Hinchingbrooke Hospital

How to Set Up and Run a Paperless Hospital
Mr. Christopher Canning, Consultant Ophthalmologist, Moorfields Eye Hospital, London

OpenEyes: The Welsh Experience
Professor James Morgan, Consultant Ophthalmologist, Cardiff University

Defining and Using a Core Dataset – Experiences with Retinal Detachment
Dr. David Yorston, Consultant Ophthalmologist, Gartnavel General Hospital, Glasgow

8.00 – 9.00 Hall 11
GRAND ROUNDS: NYSTAGMUS
Professor Irene Gottlob, Professor of Ophthalmology, Leicester Royal Infirmary, Leicester

Case Presentations with an Expert Panel

Presentations:

"Mum, why can't I drive?"
Professor David Taylor, Consultant Paediatric Ophthalmologist, Institute of Ophthalmology, London

"The stairs keep moving"
Dr. Helena Lee, Research Fellow, Leicester Royal Infirmary, Leicester

"The man with the magnet"
Miss Gill Adams, Consultant Paediatric Ophthalmologist, Moorfields Eye Hospital, London

"The mobile life of a printer"
Mr. Anthony Vivian, Consultant Paediatric Ophthalmologist, West Suffolk Hospital NHS Trust

"Toxin Tremble"
Dr. Maria Theodorou, Consultant Ophthalmologist, Moorfields Eye Hospital, London

8.00 – 9.00 Hall 1c
EYE: MEET THE EDITOR
Professor Andrew Lotery, Editor of Eye, Southampton Eye Unit

The Editorial Process
Professor Andrew Lotery, Editor, Eye Southampton Eye Unit

How to Write a Paper
Miss Sobha Sivaprasad, Section Editor, Eye, Moorfields Hospital and King's College London

What a Reviewer Looks for in a Paper
Mr. Nigel Hall, Section Editor, Eye, Royal Hampshire County Hospital

8.00 – 9.00 Hall 1b
ELECTROPHYSIOLOGY
Mr. Richard Smith, Consultant Ophthalmologist, Stoke Mandeville Hospital, Aylesbury &
Professor Graham Holder, Consultant Electrophysiologist, Moorfields Eye Hospital, London

The Basics of Common Tests
Mr. Richard Smith, Consultant Ophthalmologist, Stoke Mandeville Hospital, Aylesbury

Integrating the Clinical, Genetic and Electrophysiology Information
Professor Graham Holder, Consultant Electrophysiologist, Moorfields Eye Hospital, London

Pushing the Boundaries – New Technology
Dr. Neil Parry, Director of Electrophysiology Service, Manchester Royal Eye Hospital

8.00 -9.00 Hall 1a
FFA/OCULAR IMAGING GRAND ROUNDS
Mr. Adnan Tufail Consultant Ophthalmologist, Moorfields Eye Hospital,
Professor Alan Bird, Consultant Ophthalmologist, Moorfields Eye Hospital &
Professor Giovanni Staurenghi, Professor of Ophthalmology, Sacco Hospital, University of Milan, Italy

8.00 – 8.10 Vascular abnormality
Professor Tony Moore, Consultant Ophthalmologist, Moorfields Eye Hospital

8.10 - 8.20 Unknown choroidal mass
Dr. Liam Sullivan, Specialty Registrar, Leeds University Hospital

8.20 - 8.30 Atypical schisis
Mr. Pammal Ashwin, Consultant Ophthalmologist, Kettering General Hospital NHS Foundation Trust

8.30 - 8.40 Unknown ischaemia
Professor Susan Lightman, Consultant Ophthalmologist, Moorfields Eye Hospital

8.40 - 8.50 Retinal atrophy
Mr Carlo Suter, Leeds University Hospital

8.50 - 9.00 More than PIC?
Mr Faruque Ghanchi, Consultant Ophthalmologist, Bradford Teaching Hospital

9.00 – 10.30 Hall 11
25 YEARS OF PAEDIATRIC OPHTHALMOLOGY
Professor David Taylor, Consultant Paediatric Ophthalmologist, Institute of Ophthalmology, London

9.00 – 9.18
Retinoblastoma
Dr. Carol Shields, Co-Director,
The Wills Eye Ocular Oncology Service, Wills Eye Hospital, Philadelphia, USA

9.18 – 9.36
Investigating & Treating the Retina
Professor Tony Moore, Professor of Ophthalmology, Moorfields Eye Hospital, London

9.36 – 9.54
Paediatric Cataract Management
Professor Edward Wilson, Professor of Ophthalmology & Paediatrics, Storm Eye Institute, Medical University of South Carolina, Charleston, USA

9.54 – 10.12
Retinopathy of Prematurity
Professor Graham Quinn, Professor of Ophthalmology, The Children's Hospital of Philadelphia, USA

10.12 – 10.30
Advancing Paediatric Ophthalmology: Are we on the right lines?
Professor Alistair Fielder, Professor Emeritus of Ophthalmology, City University, London &
Professor David Taylor, Consultant Paediatric Ophthalmologist, Institute of Ophthalmology, London

9.00 – 10.30 Hall 1b
ORBITAL TRAUMA
Mr. Mike Burdon, Consultant Ophthalmic Surgeon, Selly Oak Hospital, Birmingham

9.00 – 9.05
Introduction
Mr. Mike Burdon, Consultant Ophthalmic Surgeon, Selly Oak Hospital, Birmingham

9.05 – 9.30
Orbital Reconstructions
Mr. Dilip Srinivasan, Consultant Oral & Maxillofacial Surgeon, Queens Medical Centre, Nottingham

9.30 – 9.45
Double Vision – managing patients expectations
Mr. Andrew Jacks, Consultant Ophthalmic Surgeon, Queen Elizabeth Hospital, Birmingham

9.45 – 10.00
Pressures High and Low
Professor Peter Shah, Consultant Ophthalmic Surgeon & Honorary Professor of Glaucoma, Queen Elizabeth Hospital, Birmingham

10.00 – 10.15
Traumatic Retinopathy
Mr. Nick Glover, Consultant Ophthalmic Surgeon, Queen Elizabeth Hospital, Birmingham

10.15 – 10.25
Traumatic Optic Neuropathy
Mr. Mike Burdon, Consultant Ophthalmic Surgeon, Selly Oak Hospital, Birmingham

10.25 -10.30
Questions

9.00-10.30 Hall 1a
POSTERIOR SEGMENT INFLAMMATION
Mr. Carlos Pavesio, Consultant Ophthalmologist, Moorfields Eye Hospital
& Mr. Richard Lee, Consultant Ophthalmologist, Bristol Eye Hospital

9.00 – 9.10
Behcet's Syndrome from the Patient's Perspective
Mrs. Jan Mather, Chair of Behcet's Syndrome Society

9.10 – 9.20
The Nationally Commissioned Behcet's Syndrome Service
Professor Phil Murray, Professor of Ophthalmology, Birmingham and Midland Eye Centre

9.20 – 9.35
Ocular Features of Behcet's Syndrome
Professor Miles Stanford, Professor of Ophthalmology, St Thomas' Hospital, London

9.35 – 9.40
Discussion/Questions

9.40 – 9.55
Non-Ocular Features of Behcet's Syndrome
Professor Ann Morgan, Professor of Molecular Rheumatology, St James University Hospital, Leeds

9.55 – 10.00
Discussion/Questions

10.00 – 10.15
Management of Behcets Syndrome
Professor Rob Moots, Professor of Rheumatology, University of Liverpool

10.15 – 10.30
Discussion/Questions

9.00 – 10.30 Hall 3
OCULAR SURFACE DISEASE:
PROBLEM SOLVING WITH THE EXPERTS
Professor John Dart, Consultant Ophthalmologist, Moorfields Eye Hospital, London

Speakers:
Professor Dimitri Azar, Professor of Ophthalmology, University of Illinois Eye and Ear Infirmary, Chicago, USA &
Mr. Nicholas Hawksworth, Consultant Ophthalmologist, Singleton Hospital, Swansea &
Professor John Dart, Consultant Ophthalmologist, Moorfields Eye Hospital, London

A fun and educational session for everyone that is designed to stimulate questions for the audience.

Structure and Aims:
• Each speaker has been given a photograph of a common problem in ocular surface disease – vascularized cornea, a persistent epithelial defect, and a grossly normal eye

•The speaker will not know the diagnosis: referral will have come from the local optometrists with a 2 week history of ocular surface symptoms

• The speaker will take the Chairman and the audience through the diagnostic and therapeutic strategy for each of these cases

10.30 - 11.15 COFFEE & POSTERS: Meet the Authors

10.00 - 2.30 Room 12
£ RETINAL IMAGING COURSE PART 1
Professor Paulo Stanga, Consultant Ophthalmologist, Manchester Royal Eye Hospital &
Mr. James Talks, Consultant Ophthalmologist, Royal Victoria Infirmary, Newcastle upon Tyne

Pre-registered delegates only. Check availability with our registration staff.

The Retinal Imaging Course involves not only a series of lectures on a wide range of imaging techniques but also a series of educational retinal cases will be available on laptops to be worked through by the delegates with the session presenters. Delegates will be allocated into groups and the presenters will rotate between the groups to achieve one-to-one interaction.

The latest imaging modalities will be covered including Optos® 200° Wide-angle Fundus Fluorescein Angiography and Autofluorescence, Fourier-Domain OCT, Camera-based Indocyanine Green Angiography, Microperimtery, Retcam® imaging in children Ultrasound Scanning Imaging and Ultrasound Biomicroscopy and Multispectral Optic Nerve Head Imaging, Imaging in Diabetic Retinopathy Screening as well as Imaging in Inflammatory Chorioretinal Diseases.

The basic and latest concepts of Multiwavelength Imaging, Fundus Fluorescein Angiography and OCT interpretation will be presented in more detail. New imaging techniques and clinical cases have been added to last year's programme; Swept Source Infrared Wavelength OCT of vitreous and Chorioretinal pathology, OCT of Uveal Disorders, amongst others.

Hands-on Fourier-Domain ad Swept Source OCT, Slit-Lamp OCT, Microperimetry and Wide-angle fluorescence Angiography and Fundus Autofluorescence Imaging equipment demonstrations by Optic UK and Topcon UK will be available.

Handouts with the slides of each presentation will be provided. By the end of the symposium the delegates should have not only increased their knowledge in the interpretation of the results obtained with the presented imaging techniques but also be able to image patients themselves.

PART ONE – LECTURES

10.00 – 10.20
Fluorescein Angiography:
Basic Interpretation of Results
Professor Yit Yang, Consultant Ophthalmologist, Wolverhampton & Midland Counties Eye Infirmary

10.20 – 10.40
Fourier Domain (FD-OCT) and Swept Source (SS-OCT) Optical Coherence Tomography in Vitreoretinal Disorders Optos® 200º Wide-angle Fundus Fluorescein Angiography and Autofluoresence
Professor Paulo Stanga, Consultant Ophthalmologist, Manchester Royal Eye Hospital

10.40 – 11.00
Masterclass in the Management of Clinical Cases and Results using Stereo FFA and Indocyanine-green Angiography (ICG) and AF in relation to OCT
Mr. James Talks, Consultant Ophthalmologist, Royal Victoria Infirmary, Newcastle upon Tyne

11.00 – 11.20
Coffee Break

11.20 – 11.40
Paediatric Posterior Pole Pathology: Retcam Fundus Photography and Fluorescein Angiography, Ultrasound Biomicroscopy (UBM) and Microperimetry
Mr. Susmito Biswas, Consultant Ophthalmologist, Manchester Royal Eye Hospital

11.40 – 12.00
Optic Nerve Imaging
Professor David Henson, Professor of Ophthalmology and Vision Science, Manchester Royal Eye Hospital

12.00 - 12.40
Imaging in Diabetic Retinopathy Screening
Mrs. Yvonne D'Souza, Consultant Ophthalmologist, Manchester Royal Eye Hospital

12.40 – 1.00 Lunch Break

1.00 – 1.20
Imaging inflammatory Chorioretinal Diseases
Dr Rick Spaide, Consultant Ophthalmologist, Macula Consultants of New York, USA

1.20 – 1.40
OCT Findings in Uveal Disorders in an Egyptian Population
Professor Magdy Moussa, Professor of Ophthalmology and Retina Consultant, Tanta University, Egypt

1.40 – 2.00
Functional Test and Retinal Imaging
Professor Bart Leroy, Head of Clinical Ophthalmic Genetics Unit, University of Ghent, Belgium

2.00 – 2.30
Round Table & Questions from the Audience

11.15 – 12.45 Hall 1a
DIABETES & THE EYE
Miss Clare Bailey, Consultant Ophthalmologist, Bristol Eye Hospital

11.15 – 11.20
Welcome and Introduction
Miss Clare Bailey, Consultant Ophthalmologist, Bristol Eye Hospital

11.20 – 11.45
The Management of Diabetic Macular Oedema
Mr. Phil Hykin, Consultant Ophthalmologist, Moorfields Eye Hospital, London

11.45 – 12.05
The Role of Surgery in Patients with Diabetes
Mr. Richard Haynes, Consultant Ophthalmologist, Bristol Eye Hospital

12.05 – 12.30
Capacity Planning for Diabetic Eye Services
Mr Rob Johnston, Consultant Ophthalmologist, Gloucestershire Royal Hospital

12.30 – 12.45
Panel Discussion

11.15 – 12.45 Hall 3
THE GREAT DEBATE
Dr. Bill Aylward, Consultant Ophthalmologist, Moorfields Eye Hospital, London

"Femtosecond laser assisted cataract surgery is a major advance over phacoemulsification"
FOR: Mr. Julian Stevens, Consultant Ophthalmologist, Moorfields Eye Hospital
AGAINST: Professor Phillip Bloom, Consultant Ophthalmologist, Western Eye Hospital, London

"Macula on retinal detachments should be operated on within 24 hours"
FOR: Mr. David Steel, Consultant Ophthalmologist, Sunderland Eye Infirmary
AGAINST: Mr. Alistair Laidlaw, Consultant Ophthalmologist, St Thomas' Hospital, London

"We understand what OCT tells us about the Retina and Choroid"
FOR: Professor Giovanni Staurenghi, Professor of Ophthalmology, Sacco Hospital, University of Milan, Italy
AGAINST: Mr. Adnan Tufail, Consultant Ophthalmologist, Moorfields Eye Hospital, London

11.15 – 12.45 Hall 11
OCULAR ONCOLOGY
Dr. Mandeep Sagoo, Consultant Ophthalmologist, Moorfields Eye Hospital, London

11.15 – 11.25
Update on Imaging in Intraocular Tumours: Autofluorescence and EDI OCT
Dr. Carol Shields, Co-Director, The Wills Eye Ocular Oncology Service, Wills Eye Hospital, Philadelphia, USA

11.25 – 11.35
Update on Conjunctival Melanoma
Professor Bertil Damato, Consultant Ophthalmologist, Royal Liverpool & Broadgreen University Hospital

11.35 – 11.45
Which Radiotherapy Modality for Choroidal Melanoma: Protons, Plaque or Stereotactic Radiotherapy?
Mr. John Hungerford, Consultant Ophthalmologist, Moorfields Eye Hospital, London

11.45 – 11.55
Systematic Screening for Uveal Melanoma
Professor Ian Rennie, Consultant Ophthalmologist, Royal Hallamshire Hospital, Sheffield

11.55 – 12.05
Update on Vascular Fundus Tumours
Dr. Mandeep Sagoo, Consultant Ophthalmologist, Moorfields Eye Hospital, London

12.05 – 12.15
Factors in Presentation of Retinoblastoma
Mr. Ashwin Reddy, Consultant Ophthalmologist, The Royal London Hospital

12.15 – 12.25 The Magic of Interferon for Conjunctival Squamous Cell Carcinoma
Dr. Carol Shields, Co-Director,
The Wills Eye Ocular Oncology Service,
Wills Eye Hospital, Philadelphia, USA

12. 25 – 12.45
Panel Discussion

11.15 – 12.45 HALL 1B
MANAGEMENT OF SECONDARY GLAUCOMA
Professor Peter Shah, Consultant Ophthalmologist,
Selly Oak Hospital, Birmingham

11.15 – 11.40
Corneal Surgery & Secondary Glaucoma
Professor Graham Lee, Associate Professor of Ophthalmology, Royal Brisbane Hospital, Brisbane, Australia

11.40 – 11.50
Neovascular Glaucoma
Mr. Mark Chiang, Senior Fellow in Glaucoma & Education,
Moorfields Eye Hospital, London

11.50 – 12.00
Eight-Ball Hyphaema
Dr. Freda Sii, Senior Glaucoma Fellow,
University Hospitals Birmingham NHS Trust

12.00 – 12.10
Uveitic Glaucoma Pearls
Professor Peter Shah, Consultant Ophthalmologist,
Selly Oak Hospital, Birmingham

12.10 – 12.25
Exfoliation Syndrome Update
Professor Graham Lee, Associate Professor of Ophthalmology, Royal Brisbane Hospital,
Brisbane, Australia

12.25 – 12.35
Managing Pigment Dispersion Syndrome
Mr. Tarun Sharma, Consultant Ophthalmologist,
Worcester Royal Hospital, Worcester

12.35 – 12.45
Holistic Care in Secondary Glaucoma
Mr. Joseph Abbott, Consultant Ophthalmologist,
Diana, Princess of Wales Children's Hospital, Birmingham

12.45 - 2.00 LUNCH & EXHIBITION

2.00 – 2.30 HALL 1A
LATE BREAKING NEWS: THE IVAN TRIAL
Professor Usha Chakravarthy, Consultant Ophthalmologist,
Institute of Clinical Service, Royal Hospitals, Belfast

2.00 - 2.10
IVAN Headline Presentation
Professor Yit Yang, Consultant Ophthalmologist,
Wolverhampton and Midland Counties Eye Infirmary

2.10 - 2.17
Safety Update
Ms. Susan Downes, Consultant Ophthalmologist,
Oxford Eye Hospital

2.17 - 2.24
Pharmacogenomics of IVAN
Professor Andrew Lotery, Consultant Ophthalmologist,
Southampton General Hospital

2.24 - 2.30
Discussion
Professor Usha Chakravarthy, Consultant Ophthalmologist,
Institute of Clinical Service, Royal Hospitals, Belfast &
Professor Simon Harding, Consultant Ophthalmologist,
Royal Liverpool University Hospital

2.30 - 3.30 HALL 1A
RAPID FIRE SESSION
Professor Andrew Dick, Consultant Ophthalmologist,
Bristol Eye Hospital

2.30 - 2.36
ILUVIEN® (0.2 Ìg/d Fluocinolone Acetonide Implant Improves Diabetic Retinopathyin Patients with Diabetic Macular Oedema
C Bailey
Bristol Eye Hospital

2.36 - 2.42
School readiness, behavioural and emotional difficulties: the impact of strabismus and its treatment
P M Cumberland, J S Rahi
UCL Institute of Child Health

2.42 - 2.48
Femtosecond Laser Assisted Lens Surgery at Moorfields Eye Hospital
A C Day, J D Stevens,
Moorfields Eye Hospital

2.48 – 2.54
Microbiology and clinical features of culture-positive bacterial endophthalmitis in Oxford, UK
A Gupta, H O Orlans, S J Hornby, I C J W Bowler
Oxford Eye Hospital

2.54 – 3.00
VEGF Trap-Eye versus Ranibizumab for Neovascular Age-Related Macular Degeneration: Subgroup Analyses from the VIEW Studies
G Menon
Frimley Park Hospital

3.00 – 3.06
"Face to face" upright seated positioning for phacoemulsification: predicted versus actual complication rate in 100 consecutive cases
M Pajaujis, T Eke
Norfolk & Norwich University Hospital

3.06 – 3.12
Endophthalmitis Following Vitrectomy - The Final Report
J C Park, B Ramasamy, R H Ling, S Prasad
Royal Devon and Exeter Hospital

3.12 – 3.18
Effectiveness and safety of Goniosynechialysis for angle closure with moderate to extensive peripheral anterior synechiae
A Raj, A Mandalos, T Parmar, V C Sung
Birmingham & Midland Eye Centre, Birmingham

3.18 – 3.24
Cumulative Incidence of Visual Acuity Change in the VIEW Studies of Patients with Neovascular Age-related Macular Degeneration
S Sivaprasad
Kings College Hospital NHS Foundation Trust

3.24 – 3.30 SOE PRIZE WINNER 2013:
IOLunder2: national study of outcomes of surgery with and without primary intraocular lens implantation in children <2years old with congenital/infantile cataract
A L Solebo, I Russell-Eggitt, J S Rahi,
Bristish Isles BCCIG UCL ICH

2.00 - 4.00 Room 12
£ RETINAL IMAGING COURSE PART 2
Professor Paulo Stanga & Mr James Talks

Pre-registered delegates only. Check availability with our registration staff.

A buffet lunch will be served on-site to all attendees during the demonstration session.

A series of educational retinal cases will be available on laptops to be worked through by delegates with the session presenters. Delegates will be allocated into groups and the presenters will rotate between groups to achieve one-to-one interaction.

Hands-on equipment demonstrations by Optos UK and Topcon UK.

By the end of the Symposium the delegates should have not only increased their knowledge in the interpretation of the results obtained with the presented imaging techniques but also be able to image patients themselves.

Demonstrators:
Mr. James Talks, Newcastle
Professor Paulo Stanga, Manchester
Professor Yit Yang, Wolverhampton
Mr. Susmito Biswas, Manchester
Professor David Henson, Manchester
Mrs. Yvonne D'souza, Manchester
Dr Rick Spaide, New York, USA
Professor Magdy Moussa, Egypt
Ms. Jane Gray, Manchester
Mr. Tim Cole, Topcon UK
Mr Marcos Lastra-Castro, Topcon UK
Mr Mark Braddon, Optos
Ms Debra Revill, Opto

3.30 - 4.00 TEA & POSTERS: Meet the Authors

4.00 - 4.30 Hall 1A
AGM
Join the President and College Officers for the 2013 AGM.

4.30 - 5.30 Hall 1A
DUKE ELDER LECTURE - PHIL MURRAY
Professor Phil Murray will deliver this year's Duke Elder Lecture. Please see page 14 for further information.

5.30 - 6.30 Hall 4
SAS FORUM

A free drinks reception offering the chance for all staff and associate grade ophthalmologists to pose questions and talk to the President and College Officers

5.30 - 6.30 Hall 3a
OPHTHALMIC TRAINEES FORUM

A free drinks reception offering the chance to all ophthalmologists in training to pose questions and talk to the President and College Officers

DUKE ELDER LECTURE 2013

Wednesday 22nd May 2013 4.30 - 5.30 Hall 1a

EYES, INFLAMMATION AND ALL THAT JAZZ

Professor Phil Murray, Professor of Ophthalmology, University of Birmingham and Honorary Consultant, Birmingham & Midland Eye Centre, City Hospital, Birmingham

Professor Phil Murray was born within the sound of Bow Bells i.e. a true Cockney but grew up in West London. He was educated at Latymer Upper School but has not gone on to have such an illustrious career as some other Latymer alumni who include Alan Rickman and Hugh Grant. He spent most of his time at school playing football at representative level so it was with great surprise he was accepted to study medicine at St. George's Hospital Medical School qualifying in 1978. His passion for ophthalmology began as a Pre-registration House Officer at St. George's and after SHO posts in Neurosurgery (Atkinson Morley) and in Ophthalmology (Croydon and Southampton) he somehow managed to get on the House at Moorfields (High Holborn and City Road) as Registrar then Senior Registrar.

His interest in inflammatory eye disease, in particular uveitis, began when he was a Pre-registration House Officer in Medicine in Epsom whilst working for a rheumatologist with an interest in connective tissue disease. Between SHO posts and Moorfields he undertook research for two years at the Institute of Ophthalmology under the laboratory and clinical supervision of Amjad Rahi and Bill Dinning respectively, mainly studying T-lymphocyte subsets in uveitis. In 1988 he was guest researcher for one year at the Institute of Ophthalmo-Immunology at the Netherlands Ophthalmic Research Institute in Amsterdam. Under the supervision of Aize Kijlstra he undertook extensive laboratory research into human and animal models of uveitis and combined this with his work at the Institute to obtain a Dutch PhD.

In January 1990 he was appointed Senior Lecturer to the notable Alistair Fielder at the University of Birmingham and after a brief spell as Reader became Professor of Ophthalmology there in 1997. Initially with the help of Professor Mike Salmon he has built up a team of international renowned clinicians and basic scientists (Si Rauz, Alastair Denniston, Graham Wallace, John Curnow) researching into 'Inflammatory mechanisms in the ocular microenvironment'. Laboratory research is undertaken at the Centre for Translational Inflammation Research, School of Immunity and Infection.

He is an Honorary Consultant Ophthalmologist at the Birmingham and Midland Eye Centre (BMEC), Sandwell and West Birmingham Hospitals NHS Trust and runs 2 dedicated regional uveitis clinics per week. He undertakes cataract surgery and enjoys the challenges of surgery on the uveitic eye. He is also involved in clinical trials on novel therapies for uveitis. He has been closely involved in obtaining funding from National Commissioning for a National Centre of Excellence for Behçet's Syndrome at BMEC, one of only 3 centres in England.

He has a passion for undergraduate education, a Life Member of Brentford FC (his boyhood football team) Supporters' Club, and plays baritone sax in Out Of The Blue Jazz Orchestra, and The Soul Providers.

Introduction by Mr. Mike Burdon, Consultant Ophthalmologist, Birmingham &
Vote of thanks from Professor Harminder Dua, President, The Royal College of Ophthalmologists

Free welcome coffee, tea and pastries will be served in the hall foyer for all delegates attending breakfast sessions.

8.00 - 9.00 Hall 3
GRAND ROUNDS: MEDICAL RETINA
Professor Jon Gibson, Consultant Ophthalmologist, Birmingham Heartlands Hospital,
Professor Simon Harding, Consultant Ophthalmologist, Liverpool & Broadgreen University Hospital &
Mr. Phil Hykin, Consultant Ophthalmologist, Moorfields Eye Hospital, London

Join the Panel for a lively Breakfast Presentation of "Interesting Medical Retina Cases" - just what you need at 8.00am in the morning! These is a spectrum of cases from the common to extremely rare but all are challenging and difficult to manage or raise important management issues, which we all encounter at some stage. Join the trio for some lively discussion!

8.00 – 9.00 Hall 1b
GRAND ROUNDS: STRABISMUS
Mr. Anthony Vivian, Consultant Ophthalmologist, West Suffolk NHS Trust

This is an interactive session of case presentations and discussions by an international panel of strabismus enthusiasts with practical problems and solutions and plenty of time for questions and answers.

Panel:

Mr. Anthony Vivian, Consultant Ophthalmologist, West Suffolk NHS Trust

Professor Edward Wilson, Professor of Ophthalmology and Paediatrics, Storm Eye Institute, Medical University of South Carolina, USA

Mr. Richard Harrad, Consultant ophthalmologist, Bristol Eye Hospital

Mr. Peter Tiffin, Consultant Ophthalmologist, Sunderland Eye Hospital

Dr. Fiona Rowe, Senior Lecturer in Orthoptics, University of Liverpool

8.00 - 9.00 Hall 11
REVALIDATION
Mr. Richard Smith, Consultant Ophthalmologist, Buckinghamshire NHS Trust

Getting Ready for Revalidation as an Ophthalmologist
Mr. Richard Smith, Consultant Ophthalmologist, Buckinghamshire Healthcare NHS Trust

Getting Ready for Revalidation as an Organisation
Mr. Declan Flanagan, Medical Director, Moorfields Eye Hospital, London

Clinical Outcome Data for Revalidation
Mr. Rob Johnston, Consultant Ophthalmologist, Gloucestershire Hospitals NHS FT

8.00 – 9.00 Hall 1c
HOW TO RUN A PRIVATE PRACTICE
Mr. Robert Taylor, Consultant Ophthalmologist, York Hospital

Introduction and Declarations
Mr. Robert Taylor, Consultant Ophthalmologist, York Hospital

The Private Medical Insurance Industry – What You Need to Know
Mr. Richard Packard, Consultant Ophthalmologist, King Edward VII Hospital, Windsor

The Value of Partnership Working
Mr. Jeremy Diamond, Consultant Ophthalmologist, Bristol Eye Hospital

The Opportunity of a Limited Company
Mr. Timothy Manners, Consultant Ophthalmologist, York Hospital

Total Control: Complete Ownership of the Value Chain
Mr. Tristan Reuser, Consultant Ophthalmologist, Birmingham Heartlands Hospital

9.00 – 10.45 Hall 11
TROPICAL DISEASE
Dr. David Yorston, Consultant Ophthalmologist, Gartnavel General Hospital, Glasgow

9.00 – 9.12
RAAB+DR: estimating diabetic retinopathy prevalence in developing countries
Dr. David Yorston, Consultant Ophthalmologist, Gartnavel General Hospital, Glasgow

9.12 – 9.24
Is Africa ready for and emerging epidemic of diabetic retinopathy?
Mr. Nicholas Beare, Consultant Ophthalmologist, Royal Liverpool and Broadgreen University Hospital

9.24 – 9.36
The Nakuru Posterior Segment Eye Disease Study: Prevalance and Predictors of Age Related Macular Degeneration
Dr. Ciku Mathenge, East African Medical Advisor, The Fred Hollows Foundation, Rwanda

9.36 – 9.48
Managing Corneal Infection in Tropical Regions: Conventional Wisdom and New Developments
Mr. Matthew Burton, Consultant Ophthalmologist, London School of Hygiene and Tropical Medicine

9.48 – 10.00
Does HIV Infection accelerate the ageing process? An evaluation in South African HIV infected individuals using the eye as a model of aging
Dr. Sophia Pathai, Clinical Research Fellow, London School of Hygiene and Tropical Medicine

10.00 – 10.12
Cerebral Visual Impairment in the Developing World: How Big is the Problem and What Can We Do About It?
Mr. Richard Bowman, Consultant Ophthalmologist, The Hospital for Sick Children, London

10.12 – 10.24
Evaluating Complex Interventions in Eye Care: Learning From Other Areas of Public Health
Professor Clare Gilbert, Professor of International Eye Health, London School of Hygiene and Tropical Medicine

10.24 – 10.45
Discussion

9.00 – 10.45 Hall 3
CHOROID: THE FORGOTTEN FRONTIER
Mr. Faruque Ghanchi, Consultant Ophthalmologist, Bradford Royal Infirmary &
Mr. Som Prasad, Consultant Ophthalmologist, Arrowe Park Hospital, Wirral

9.00 – 9.05
Introduction
Mr. Faruque Ghanchi, Consultant Ophthalmologist, Bradford Royal Infirmary

9.06 – 9.20
Imaging of the Choroid
Dr Rick Spaide, Consultant Ophthalmologist, Macula Consultants of New York, USA

9.21 – 9.35
Chroidal Tumours – Current Treatment Concepts and Future Strategies
Dr. Carol Shields, Co-Director, The Wills Eye Ocular Oncology Service, Wills Eye Hospital, Philadelphia, USA

9.36 – 9.50
Impact of CNV Treatments on the Choroid
Mr Ian Pearce, Consultant Ophthalmologist, Royal Liverpool & Broadgreen University

9.50 – 10.00
Discussion

10.01 – 10.15
Choiroiditis: Many Guises
Professor Miles Stanford, Consultant Ophthalmologist, St Thomas's Hospital, London

10.16 – 10.30
Central Serous Retinopathy
Mr. Faruque Ghanchi, Consultant Ophthalmologist, Bradford Royal Infirmary

10.31 – 10.45
Discussion and Close
Mr Som Prasad, Consultant Ophthalmologist, Arrowe Park Hospital, Wirral

9.00 – 10.45 Hall 1a
EYELID DISEASE: AN INTERACTIVE SESSION
Mr. David Verity, Consultant Ophthalmologist, Moorfields Eye Hospital, London

9.00 – 9.05
Introduction, Interaction – purpose of the session
Mr. David Verity, Consultant Ophthalmologist, Moorfield's Eye Hospital, London

9.05 – 9.20
Eyelid lumps and bumps – don't get caught out!
Professor Peter Dolman, Consultant Ophthalmic Surgeon, University of British Columbia, Vancouver, Canada

9.20 – 9.30
Questions

9.30 – 9.45
Challenging Perioribital Swellings – an Algorithmic Approach
Mr. David Verity, Consultant Ophthalmologist, Moorfields Eye Hospital, London

9.45 – 9.55
Questions

9.55 – 10.10
Modern Immunotherapy for Eyelid Tumours
Ms. Michéle Beaconsfield, Consultant Ophthalmologist, Moorfields Eye Hospital, London

10.10 – 10.20
Questions

10.20 – 10.35
When the Disease Has Spread – How to Save Lives
Professor Iain Hutchinson, Consultant Head & Neck Cancer Surgeon, The Royal London Hospital

10.35 – 10.45
Questions & Thanks

9.00 – 10.45 Hall 1b
VITREORETINAL SURGERY FOR MACULAR DISORDERS
Mr. David Steel, Consultant Ophthalmologist, Sunderland Eye Infirmary

9.00 – 9.05
Introduction
Mr. David Steel, Consultant Ophthalmologist, Sunderland Eye Infirmary

9.05 – 9.20
Diabetic Maculopathy – Who Benefits from Vitretomy?
Mr. Alistair Laidlaw, Consultant Ophthalmologist, St. Thomas' Hospital, London

9.20 – 9.40
Vitreo-macular Attachment and Traction in AMD
Mr. Tim Jackson, Consultant Ophthalmologist, King's College Hospital, London

9.40 – 9.55
Discussion

9.55 – 10.15
The management of submacular haemorrhages in AMD
Professor Jost Hillenkamp, Professor of Ophthalmology, University Medical Centre Schleswig-Holstein, Germany

10.15 – 10.30
The Prospect of Engineered RPE Grafts for AMD
Mr. Lyndon Da Cruz, Consultant Ophthalmologist, Moorfields Eye Hospital, London

10.30 – 10.45
Discussion

9.00 – 10.45 Room 12
£ GLAUCOMA DIAGNOSIS COURSE PART 1
Professor Stephen Vernon, Consultant Ophthalmologist, University Hospital, Nottingham &
Professor Rupert Bourne, Consultant Ophthalmologist, Hinchingbrooke/Addenbrookes/Moorfields Hospitals

Pre-registered delegates only. Check availability with our registration staff.

9.00 – 9.05 Introduction to retinal and optic nerve head imaging
Professor Stephen Vernon, Consultant Ophthalmic Surgeon, University Hospital, Nottingham & Professor Rupert Bourne, Consultant Ophthalmologist, Hinchingbrooke, Addenbrookes, Moorfields Hospitals

9.05 – 9.35 HRT Scanning: Glaucoma diagnosis and monitoring
Professor Stephen Vernon

9.35 – 10.05 GDx Scanning Laser Polarimetry: Glaucoma diagnosis and monitoring
Professor Rupert Bourne

10.05 – 10.35 OCT of the Optic Disc and Nerve Fibre Layer: Glaucoma diagnosis and monitoring
Mr Nick Strouthidis, Consultant Ophthalmologist, Moorfields Eye Hospital, London

10.35 – 10.45 Question and Answer session

10.45 - 11.30 COFFEE AND POSTERS: Meet the Authors

11.30 - 12.30 Hall 1A
OPTIC UK LECTURE - GERRIT MELLES
Dr. Gerrit Melles will deliver this year's Optic UK Lecture. Please see page 19 for further information.

12.30 - 1.45 LUNCH & EXHIBITION

1.45 - 2.15 Hall 1A
AWARDS CEREMONY
Chaired by Professor Harminder Dua
President, The Royal College of Ophthalmologists

2.15 - 4.00 Hall 1b
HOW TO RUN A HIGH VOLUME CATARACT SERVICE
Mr. Ted Burton, Consultant Ophthalmologist, Norfolk and Norwich University Hospital

2.15 - 2.25
Introduction
Mr. Ted Burton, Consultant Ophthalmologist, Norfolk and Norwich University Hospital

2.25 - 2.40
Strategies to Speed up Your Surgery
Mr. Sam Kasaby, Consultant Ophthalmologist, Southend University Hospital, Essex

2.40 - 2.55
High Volume Surgeries in One Operating Theatre
Mr. Ted Burton, Consultant Ophthalmologist, Norfolk and Norwich University Hospital

2.55 – 3.10
Delivering Quality Nursing in High Volume Lists
Ms. Karen Smith, Ophthalmic Theatre Sister, Norfolk and Norwich University Hospital

3.10 – 3.30
Bilateral Femtosecond Cataract Surgery in Two Operating Theatres
Dr. Pavel Stodulka, Consultant Ophthalmologist, Gemini Eye Clinic, Czech Republic

2.15 - 4.00 Hall 3
GRAND ROUNDS: NEURO-OPHTHALMOLOGY
Mr. Mike Burdon, Consultant Ophthalmologist,
Selly Oak Hospital, Birmingham &
Dr. Gordon Plant, Consultant Neurologist,
St Thomas' Hospital, London

This is an interactive session of case presentations and discussion with Professor Klara Landau, Professor and Chair of Ophthalmology, University of Zurich, Switzerland.

2.15 - 4.00 Hall 11
THYROID DISEASE
Ms. Jane Dickinson, Consultant Ophthalmologist,
Royal Victoria Infirmary, Newcastle Upon Tyne

The Patient's Experience of Thyroid Eye Disease
Professor Colin Dayan, Director, Institute of
Molecular & Experimental Medicine,
Cardiff University School of Medicine

Management of TED in a General Clinic
Mr. Daniel Morris, Consultant Ophthalmologist,
University Hospital of Wales, Cardiff

Medical Management: State of the Art and Future Possibilities
Dr. Petros Perros, Honorary Clinical Senior Lecturer,
Institute of Genetic Medicine, University of
Newcastle

Functional and Cosmetic Rehabilitation in TED: How High Can We Aim?
Dr. Peter Dolman, Consultant Ophthalmic Surgeon,
University of British Columbia, Vancouver, Canada

'The Amsterdam Declaration': Does it Involve Me?
Professor Colin Dayan, Director, Institute of
Molecular & Experimental Medicine,
Cardiff University School of Medicine

Summary
Ms. Jane Dickinson, Consultant Ophthalmologist,
Royal Victoria Infirmary, Newcastle Upon Tyne

2.15 - 4.00 Hall 1c
THE OPTIMAL CARE PATHWAY FOR A BUSY AMD SERVICE
Professor Simon Harding, Consultant Ophthalmologist,
Royal Liverpool & Broadgreen University Hospital &
Mr Chris Brand, Consultant Ophthalmologist,
Royal Hallamshire Hospital, Sheffield

This session will comprise of a series of presentations covering aspects of the provision of services for macular degeneration from units within the UK. Speakers will highlight a particular aspect of their service pathway and have been chosen to illustrate distinct and sometimes controversial approaches to managing the burden of provision that we all face. These will be followed by a facilitated panel discussion and participation from delegates will be encouraged.

Speakers:
Chris Brand, Sheffield
Richard Gale, York
Robin Hamilton, London
Simon Harding, Liverpool
Robert Johnston, Gloucester
Manoj Kulshrestha, Aberystwyth
Geeta Menon, Frimley Park
Yinka Osoba, Torbay
Deepali Varma, Sunderland

Topics to be covered:
Access and diagnosis
How the induction phase is delivered
Management of active and mature and stable phases
Department AMD protocols
Who decides on treatment and observation for patients who are in the monitoring phase
Who gives intra-vitreal injections
What treatment is being used and in which groups of patients.

2.15 - 4.00 Room 12
£ GLAUCOMA DIAGNOSIS COURSE PART 2
Professor Stephen Vernon, Consultant Ophthalmologist,
Nottingham
Professor Rupert Bourne, Consultant Ophthalmologist,
Huntingdon/Cambridge/Moorfields

Demonstrators:
Mr Nick Strouthidis, Moorfields Eye Hosptial, London
Miss Csilla Ajtony, London
Miss Laura Paisan, Huntingdon
Mr Matt Hawker, Cambridge

Pre-registered delegates only. Check availability with our registration staff.

PART TWO – CASE DISCUSSIONS & DEMONSTRATIONS

A series of educational cases involving glaucoma suspects and cases will be available on laptops to be worked through by the delegates with the session presenters. Delegates will be allocated into groups and the presenters will rotate between the groups to achieve one-to-one interaction.

Hands on equipment demonstrations by Heidelberg Engineering, Carl Zeiss Meditec and Topcon UK.

By the end of the symposium the delegates should have not only increased their knowledge in the interpretation of the results obtained with the presented imaging techniques but also be able to image patients themselves. Additionally the symposium will provide guidance on which devices to use and when, when to repeat imaging, and how to organise one's glaucoma imaging service which may involve non-ophthalmologist personnel.

4.00 CONGRESS CLOSE

OPTIC UK LECTURE 2013

Thursday 23rd May 2013 11.30 - 12.30 Hall 1a

WHERE DO WE GO WITH ENDOTHELIAL KERATOPLASTY: FROM DMEK TO DMET?

Dr. Gerrit Melles Ophthalmic Surgeon, Director, Netherlands Institude of Innovative Ocular Surgery

Dr Melles is a cornea specialist and founder of the Netherlands Institute for Innovative Ocular Surgery (NIIIOS), the Melles Cornea Clinic Rotterdam, and Amnitrans EyeBank Rotterdam. His clinical work focuses on the management of corneal disorders and he is actively involved in research and development of ophthalmic surgical techniques and has invented several advanced lamellar keratoplasty techniques among others Descemet membrane endothelial keratoplasty (DMEK). Furthermore, he has developed instruments and medical devices required for the invented techniques, as well as Vision Blue®, Membrane Blue® and the Surgicube®. Dr. Melles has received several awards including the Barraquer Award in recognition of his contribution to ophthalmology.

Introduction by Mr Frank Larkin, Consultant Ophthalmologist, Moorfields Eye Hospital, London & Vote of thanks from Professor Harminder Dua, President, The Royal College of Ophthalmologists

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

RAPID FIRE

1. Intraoperative use of Polydioxanone (PDS) foil to reduce the incidence of sino-orbital fistulas following orbital exenteration
A Al-Hity, M E Gregory, E G Kemp
Gartnaval General Hospital

2. 96-Week Results from the VIEW Studies: Intravitreal VEGF Trap-Eye (VTE) versus Ranibizumab for Neovascular Age-Related Macular Degeneration (nAMD) Shows Sustained Improvements in Visual Acuity
V Chong
Oxford Eye Hospital

3. AMO PRIZE WINNER 2013: Time trends over five decades, and recent geographical variation, in rates of childhood squint surgery in England
M R Chou, A N J Malik, M Suleman,
M Gray, D Yeates, M J Goldacre
East Surrey Hospital

4. The effect of generic latanoprost substitution on patient compliance.
A J Connor, S Fraser
Sunderland Eye Infirmary

5. Corneal penetration and anterior chamber concentration of topical antifungal agents in an in vitro human corneal model
U Hussain, H Aichner, D Oliver,
E Johnson, M Rajan
Addenbrookes Hosptial

6. INTREPID - IRay Plus Anti-VEGF Treatment For Patients With Wet AMD
T L Jackson, P K K Kaiser, J S Slakter,
M Shusterman, D O'Shaughnessy , L Danielson, D M Moshfeghi
King's College London

7. Associations with retinal nerve fibre layer measures in the EPIC-Norfolk Eye Study
A P Khawaja, M P Y Chan, D F Garway-Heath,
D C Broadway, R Luben, K Khaw, P J Foster
University of Cambridge

8. Intravitreal VEGF Trap-Eye (VTE) in Central Retinal Vein Occlusion (CRVO): Results of the Phase 3 COPERNICUS and GALILEO Studies
I Pearce
Royal Liverpool University Hospital

9. British Ophthalmological Surveillance Unit Study - Perioperative visual loss due to non-ocular surgery.
N Stone, H Russell, B Fleck,
A Mulvihill
Princess Alexandra Eye Pavilion

10. Development and validation of a novel functional vision instrument for children and young people with visual impairment
V Tadic, A Cooper, G Lewando Hundt,
J S Rahi, for the VQoL group
UCL Institute of Child Health

11. Key predictors of visual field test performance
J Ho, S Ameen, L Crawley, F Ahmed
Western Eye Hospital

12. ILUVIEN® (0.2 µg/d Fluocinolone Acetonide [FAc]) Implant Improves Diabetic Retinopathy (DR) in Patients with Diabetic Macular Oedema (DMO)
C Bailey
Bristol Eye Hospital

13. School readiness, behavioural and emotional difficulties: the impact of strabismus and its treatment
P M Cumberland, J S Rahi
UCL Institute of Child Health

14. Femtosecond Laser Assisted Lens Surgery at Moorfields Eye Hospital
A C Day, J D Stevens
Moorfields Eye Hospital

15. Microbiology and clinical features of culture-positive bacterial endophthalmitis in Oxford, UK
A Gupta, H O Orlans, S J Hornby,
I C J W Bowler
Oxford Eye Hospital

16. VEGF Trap-Eye (VTE) versus Ranibizumab for Neovascular Age-Related Macular Degeneration (nAMD): Subgroup Analyses from the VIEW Studies
G Menon
Frimley Park Hospital

17. "Face to face" upright seated positioning for phacoemulsification: predicted versus actual complication rate in 100 consecutive cases
M Pajaujis, T Eke
Norfolk & Norwich University Hospital

18. Endophthalmitis Following Vitrectomy - The Final Report
J C Park, B Ramasamy, R H Ling, S Prasad
Royal Devon and Exeter Hospital

19. Effectiveness and safety of Goniosynechialysis (GSL) for angle closure with moderate to extensive peripheral anterior synechiae (PAS)
A Raj, A Mandalos, T Parmar,
V C Sung
Birmingham & Midland Eye Centre

20. Cumulative Incidence of Visual Acuity Change in the VIEW Studies of Patients with Neovascular Age-related Macular Degeneration (nAMD)
S Sivaprasad
King's College Hospital NHS Foundation Trust

21. SOE PRIZE WINNER 2013: IOLunder2: national study of outcomes of surgery with and without primary intraocular lens implantation in children <2years old with congenital/infantile cataract
A L Solebo, I Russell-Eggitt, J S Rahi
British Isles BCCIG
UCL ICH

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

AUDIT & CLINICAL GOVERNANCE

22. Requirements for an effective glaucoma electronic health record (EHR): a consensus study
J Somner, P Shah, R R Bourne, R Froud
Anglia Ruskin University

23. The LUMINOUS Study: a prospective, multinational safety and effectiveness study into the real world usage of ranibizumab (Lucentis®).
S P Kelly, on behalf of the UK Investigators, S Lacey, C Brittain
Royal Bolton Hospital

24. Photodynamic Therapy for Central Serous Chorioretinopathy
R Saxena, U Chakravarthy, C McAvoy
Royal Victoria Hospital, Belfast

25. Certification and Registration changed my life
P A Simkiss, T Boyce, S Rughani
RNIB

26. Clinical handover in Ophthalmology: are we getting it right?
J Myerscough, A Quinn, V Tah
Essex County Hospital, Colchester

27. A one-stop service for assessment and treatment of Proliferative Diabetic Retinopathy, is this possible?
N M Randazzo, K Wykes, T Allen, M D Tsaloumas, G P Williams, A K O Denniston
Queen Elizabeth Hospital Birmingham

28. Fluorescein and indocyanine green angiography adverse drug reactions– a 2 year prospective study report
A L Rees, J Nago, A Mapani, R Hamilton
Moorfields Eye Hospital

29. Virtual monitoring of diabetic maculopathy in ophthalmic photography diabetic review (OPDR) clinic- Results of a repeat audit
E Luhishi, N Dhingra
Pinderfields Hospital

30. The trials and tribulations of individual funding applications for treatment of Retinal Disorders
A Dharmasena, E Sioras, S Kelly
Royal Bolton Hospital Foundation Trust

31. Payment By Results: an assessment of the lost revenue of unrecorded activity
S N Rajak, K Wilcox, E H Hughes
Sussex Eye Hospital

32. Reduction in the incidence of acute endophthalmitis following cataract surgery after the introduction of an intra-cameral (I/C) antibiotic regime - the experience of a District General Hospital.
C Sheldrick
Essex County Hospital

33. Professionals and Patients assessment of quality standards in paediatric ophthalmology services: survey using the RCOphth Quality Standards Instrument.
B Manzouri, H Bunting, A Davis, J Rahi
Moorfields Eye Hospital

34. Audit of the first 6,000 Lucentis injections given by a Nurse Practitioner
B Kingett, P Simcock, B Gupta
West of England Eye Unit, Exeter

35. Diagnosis and management of the ophthalmic presentation of embolic events
H Mehta, D Qatarneh, E Jones
Moorfields Eye Hospital

36. Outcome measures in Acute Angle Closure
B Shah, E Jones, P Foster
Moorfields Eye Hospital

37. Use of the Leicester visual field protocol (LVFP) for assessment of ptosis and dermatochalasis
M J Maguire, S Wilton, P Baddeley
Worthing General Hospital

38. Clinical Engagement in Delivering the Quality Agenda: One Hospital's Story
M Hingorani, D Flanagan, B Manzouri
Moorfields Eye Hospital

39. Improving management of patients with proliferative diabetic retinopathy detected at screening: an audit
N R J Cronbach, S L Watson, A Smith, V J M Barrett
Royal Berkshire NHS Foundation Trust

40. Selective Laser Trabeculoplasty Audit
J McHugh, S Shah
Sutton Hospital

41. The 'QIPP' approach in management of AMD capacity challenge
D Varma, S Stanley, K Davies, C Allchin, K Stoddart
Sunderland Eye Infirmary

42. Business Case for Optometry Combined Clinic in Paediatric Ophthalmology
S W Tung, J-S Barry
Russells Hall Hospital

43. Nurse review clinics for patients treated for choroidal neovascular membrane (CNV): Results from the first 6 months.
M Mikhail, Z Koshy
University Hospital Ayr

44. Audit on Ozurdex - efficacy, safety and OCT correlations.
R V Vemala, S Patra
Whipps Cross Hospital,London

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

AUDIT & CLINICAL GOVERNANCE

45. An evaluation of the service provided by an ophthalmic nurse practitioner (ONP) led glaucoma clinic
H E Sharma, S Sivakumar, C Atkins, V C Parthasarathy, S Mangat, A Negi
Heart of England NHS Foundation Trust

46. Are General Ophthalmology Services being effectively commissioned?
R G Mathew, V Tah, G Ward, M Hingorani, A Marinescu
Moorfields Eye Hospital

47. Our experience with cataract best practice tariffs
A Beg, M Hodder, KN Amissah-Arthur, S Sandramouli
Wolverhampton Eye Infirmary

48. Hospital Optometrists led Cataract clinic in Scottish Highlands
P Tyagi, S Hodi, C Macleod, J Banks, S Hewick
Raigmore Hospital, Inverness

49. An evaluation of the emergency ophthalmology patient pathway in a London trauma centre
R Annoh, G Fleming, E Hollick
Kings College Hospital

50. The benefits of using an in house bank of toric lenses for cataract surgery at a district general hospital.
F Harman, N Brennan, E Casswell, N Lee
Hillingdon Hospital

51. An Audit on the Management of Corneal Abrasions in an inner city Emergency Department with a review of current evidence on treatment.
S M Shahid, S Naqib, N Harrison, A Kulkarni
University Hospital Lewisham

52. Audit of Uveitis Screening in Juvenile Idiopathic Arthritis
M El-Abiary, Z Lin, L Clifford, K May
Southampton Eye Unit

53. Re-audit of glaucoma diagnosis and management in a district general hospital
F M Chew, A Cheung, S S M Fung , J Aboshita, R Obikpo
North Middlesex Universtiy Hospital

54. Creation and testing of a new NHSLA tool to assess out-patient Ophthalmology standards
A Hussain, B V Kumar
Wirral University Hospitals NHS Foundation Trust

55. Improving management safety for ophthalmic patients in Emergency Department through staff teaching and clearer guidelines
C I Pereni, P Jarvis
Calderdale Royal Hospital

56. Improving amblyopia management through audit.
S Bhansali, A Mars, S Kerrigan, J S Mars
Christopher Home Eye Unit

57. Should some diabetic eyes be screened every 6 months?
E T M Ting, J Harris, N Gregory, H L Cook
Hull and East Yorkshire Eye Hospital

58. Endophthalmitis following intravitreal injections; a 4 year audit
A Rehman, K Fotis, H Eleftheriadis, A Cole, C Bailey, M A Majid
Bristol Eye HospitaL

59. Audit Analysing Referrals From The Diabetic Screening Service To The Glaucoma Clinic At The West England Eye Unit– Can The Number Of Referrals Be Reduced?
L D Shanahan, M Blundell, M Smith
West Of England Eye Unit

60. Ophthalmic Anaesthesia training in UK Ophthalmology Trainees
S B Boukouvala, V S Sood, A T M Murray
Queen Elizabeth University Hospital of Birmingham

61. Management of Congenital Epiphora – Is it Changing?
I Ashfaq, P Tiffin , L Gnanaraj
Sunderland Eye Infirmary

62. Use of patient satisfaction survey to improve the quality of care and service delivery in paediatric ophthalmology.
R Chaturvedi, U Naveed, M Ugarte, A Maino
Stepping Hill Hospital

63. Clinical Care Pathway Coding in one Ophthalmology Unit
M R Parnell, L Ring, A E Linnell
Sutton Eye Unit

64. One stop or 2 stop ARMD/Lucentis clinic, results from a patient satisfaction survey.
S Umeed, H Thynn, R Ahmad
Ysbyty Gwynedd

65. Audit of treatment of periocular Basal Cell Carcinoma (BCC) at Countess Of Chester Hospital (COCH)
J Bhargava, M Tsagkataki
Countess Of Chester Hospital

66. Changes in Certification Status of Diabetic Patients with Time
D K-H Ho, G Vafidis
Central Middlesex Hospital

67. Re-audit of Provision of Emergent Ophthalmic Care at the North Middlesex University Hospital.
S S M Fung, F M Chew, S Jan, G Hay-Smith, J Raina
North Middlesex University Hospital

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

AUDIT & CLINICAL GOVERNANCE

68. Audit of junior doctor confidence levels in the diagnosis of ophthalmic disease
M Jeffries, R Moosavi
Princess Royal University Hospital

69. Impact of virtual glaucoma clinic on waiting times for assessment and management of patients: a prospective review
E L Seow, D O'Duffy
Royal Gwent Hospital

70. Cross-sectional survey of treatment patterns in a tertiary referral uveitis clinic
G Moussa, P I Murray
Birmingham and Midland Eye Centre

71. Appointment duration in the eye clinic: the same across different subspecialties?
H J Bunting
Princess Royal University Hospital

ORBIT & OCULOPLASTICS

72. A case of non-lacrimal, orbital immunoglobulin G4 (IgG4) disease
T A Farooq, S Sandramouli
Wolverhampton & Midland Counties Eye Infirmary

73. Ophthalmic manifestations of Xeroderma Pigmentosum (XP)– a UK case series
R Lim, S Morley
St Thomas' Hospital, UK

74. In vivo optical coherence tomography (OCT) in peri-ocular basal cell carcinoma: correlations between in vivo OCT images and postoperative histology
L Pelosini, H B Smith, J Schofield, A Meekings, M Khandwala
Maidstone & Tunbridge Wells NHS Trus

75. Myasthenia and eyelid surgery
A S Litwin, A A McNab, B Patel, J D McCann, R Malhotra
Queen Victoria Hospital NHS Trust, East Grinstead

76. The management of Graves' Orbitopathy- an online survey
S Ameen, V Lee
Central Middlesex Hospital

77. Frontalis sling surgery using the brow single stab incision technique, a closed loop audit
Y W Wong, A R G Gibson, P S Severn
James Cook University Hospital

78. Visual outcomes following orbital biopsy
E G Kemp, A Jamison, M E Gregory, D A M Lyall
Tennent Institute of Ophthalmology, Glasgow

79. Success Rate of Nurse-Led Everting Sutures for Involutional Lower Lid Entropion
B R Mohammed, R L Ford
Aberdeen Royal Infirmary

ORBIT & OCULOPLASTICS

80. Single session Argon Laser photocoagulation for xanthelasma palpebrarum: case series with 3, 6 and 12 month follow-up and patient satisfaction survey.
E R A Millar, D Tejwani
Royal Alexandra Hospital

81. Slit-lamp punctoplasty for congenital or acquired punctal absence or stenosis
F E Mellington, R Khooshabeh
Wycombe Hospital

82. Two new cases of metastatic basal cell carcinoma from the eyelids.
J O Li, A S Litwin, S D Shah-Desai, R Malhotra
Queen's Hospital, Romford

83. Inferior and Lateral Approaches to Orbital Surgery: An Anatomical Study
A Ali, H Naveed, A Messiha
St George's, University of London

84. Calibre Persistent Artery of the Eyelid
K Wong, U Mulla, F Roberts, C Diaper, P Cauchi
Southern General Hospital

85. Glomus jugulare: a rare cause of facial nerve palsy
A Kovacova, S Ghazi-Nouri
Broomfield Hospital, Chelmsford

86. IgG4 Disease: A revised diagnosis of sarcoidosis after 36 years of treatment
J T S Yu, T J Hall, S U Kale, A M Phillips, S N Madge
Wye Valley NHS Trust

87. Clinical outcome following laissez fairre approach for periocular tumours
D Trivedi, B Lakhani, R Sampath, J Burns
University Hospitals of Leicester

CORNEAL & EXTERNAL EYE DISEASE

88. Long-term follow-up of riboflavin/ultraviolet A (370nm) corneal collagen cross-linking to halt the progression of keratoconus
T Q Kwong, D O'Brart, P Patel, R J McDonald, N A O'Brart
St Thomas' Hospital, London

89. Corneal Nerves In Eye Bank Preserved Corneas
V K Dhillon, H S Dua
University of Nottingham

90. Topography-guided Photorefractive Keratectomy and Cross-linking for Ectasia After Laser Assisted In Situ Keratomileusis
S H Holland, D L Lin, G M Moloney, J T Tan
University of British Columbia

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

CORNEA & EXTERNAL EYE DISEASE

91. Percentage Endothelial Cell loss and Complication rates with combined Descetmets Stripping Endothelial Keratoplasty and Cataract Surgery
S M Jones, M Fajgenbaum, E J Hollick
Kings College Hospital NHS Trust, London

92. Management of patients with Herpes simplex virus eye disease undergoing cataract surgery in the United Kingdom: A survey
R Karim, E Sykakis, D Parmar
WhippsCross Hospital

93. Intraocular lens opacification after Descement stripping automated endothelial keratoplasty
M A Ahad, K Darcy, P J Jaycock, S D Cook, D M Tole
Bristol Eye Hospital

94. Oral acyclovir prophylaxis for recurrent Herpetic corneal diseases; Outcomes
O C Erikitola, V Shankar, A Reddy
Aberdeen Royal Infirmary

95. Topographically-guided photorefractive keratectomy for irregular astigmatism following penetrating keratoplasty (PK)
G M Moloney, S H Holland, D L Lin, J T Tan
University of British Columbia

96. Refractive outcomes of Topography-guided photorefractive keratectomy with simultaneous cross-linking for keratoconus
D L Lin, S H Holland, G M Moloney, J T Tan
Pacific Laser Eye Centre

97. Casino Royale Syndrome: "My eye bleeds doc!"
K Naderi, J Myerscough, J Sheldrick
Essex County

98. Xerophthalmia – A Potential Epidemic On Our Doorstep?
S McLaughlin, J Welch, E MacDonald, S Mantry, K Ramaesh
Tennent Institute of Ophthalmology, Glasgow

99. WITHDRAWN In vivo analysis of corneal inflammation and tissue loss in bacterial keratitis (BK).
A Konstantopoulos, M Tsatsos, D Anderson, M Christodoulides, P Hossain
University of Southampton & University Hospital Southampton

100. Ultrathin Manually Dissected DSEK
M Tsatsos, C MacGregor, A Konstantopoulos, P Hossain, D Anderson
Southampton University Hospitals NHS Trust

101. Central Corneal Thickness as an Objective Measure of Endothelial Rejection following Descemet's Stripping Endothelial Keratoplasty
M G Georgopoulos, M Georgopoulos, M Fajgenbaum, E J Hollick
King's College Hospital, London

CORNEA & EXTERNAL EYE DISEASE

102. Herpes Simplex versus Herpes Zoster Keratitis: Comparison of Disease, Treatment, Prophylaxis and Recurrence in the South East region of the UK
H Ali, M A Nanavaty
East Surrey Hospital

103. Temporal Spatial Resolution of Corneal Inflammation
A Mak,
University of Southampton

104. Study of the VEGF / HIF-1α Angiogenesis Signaling Pathway in Ophthalmic Pterygium with Application of Liquid-Based Cytology, Immuno-Histo-Chemistry and Digital Image Analysis
C D Dimitriou, E Tsiambas, G Vilaras, A Kandarakis, E Brouzas, E Georgalas, D Papaconstantinou
University of Athens

105. Endopthalmitis two hour treatment target: Is it achievable and does it improve outcome?
T F Somerville, R M K Stewart, R Cheeseman, M C Briggs
St Paul's Eye Unit, Royal Liverpool University Hospital

106. Antibiotic Resistance in Streptococcus pneumoniae After Azithromycin Trachoma Treatment: A Systematic Review
C K Sawicki, D K-H Ho, N C Grassly
Imperial College School of Medicine

107. Opacification Of Intraocular Lens Implants Following Endothelial Keratoplasty
N E Habib, J C Park
Plymouth Royal Eye Infirmary

108. Congential blepharitis- pathognomic of pseudohypoaldosteronism.
H Abeysekera, J R Ainsworth
Birmingham Children's Hospital

109. Corneal endothelial cell count: the effects of proton beam irradiation.
P J Glasman, P McCann, B E Damato
St Paul's Eye Unit, Liverpool

CATARACT & REFRACT SURGERY

110. Visual and Refractive Outcomes Following Hydrophilic Acrylic Toric Intraocular Lens Implantation in Eyes with High Corneal Atigmatism (>3.0D)
D A M Lyall, J Y Ng, S Srinivasan
University Hospital Ayr

111. Lens-iris diaphragm retropulsion syndrome during phacoemulsification in vitrectomised eyes
S Ghosh, K Best, D Steel
Sunderland Eye Infirmary

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

CATARACT & REFRACT SURGERY

112. Optimizing the intraocular lens formula constant (A-constant) according to intraocular lens diameter
A R El-Khayat, B S Redmill, B Attrup
Lincoln County Hospital

113. Prevalence of Corneal Astigmatism and Fellow Eye Biometric Correlations in Patients Undergoing Cataract Surgery in NHS
J Y Ng, D A M Lyall, S Srinivasan
University Hospital Ayr

114. The stress of cataract surgery - a second off your life?
A Arif, H A Usmani, S A Sadiq
University of Leicester

115. Eighteen Year Follow-up of Excimer Laser Photorefractive Keratectomy (PRK) with 6.00mm Optical Zone
Z Shalchi, D O'Brart, P Patel, R McDonald, J Marshall
St Thomas' Hospital

116. Monofocal or multifocal intraocular lens implants: patient choice within the National Health Service
A Jamison, S Nabili
Hairmyres Hospital

117. Topography-guided laser for the Management of Cornea Abnormalities after Anterior Segments Surgery
D I Bouzoukis, M Tappin, R Jayaswal
Ashford and St Peters NHS Trust

118. Visual outcome of toric Lentis Mplus multifocal intraocular lens implant.
P J T Chiam, A Walkden, C O'Donnell, C Gore, S A Quah
Leighton Hospital, Cheshire

119. Prediction error and accuracy of autorefraction following cataract surgery
S Tiroumal, W Meacock, J Watts, A Macleod, N Hall
Royal Hampshire County Hospital, Winchester

120. Does acute impairment of stereopsis limit ophthalmic operative performance?
M Ziaei, J McHugh, C Timms, P Sullivan
Moorfields Eye Hospital

121. Eliminating preventable blindness: The knowledge, attitudes and practice of the elderly, cataract blind population in Pune, India
A Balcombe, R Kapse, A Cassels-Brown, M Ba-Break, K Dole
Leeds University

122. WITHDRAWN
Diffuse Lamellar Keratitis- confocal microscopy features of delayed onset disease
P Adhana, M Rana, B Ilango
Royal Wolverhampton Hospital NHS Trust

CATARACT & REFRACT SURGERY

123. Checklists in Cataract Surgery
L Steeples, S P Kelly, R Smith, A Azuara-Blanco
Royal Bolton Hosp, Aberdeen Royal Infirmary, Stoke Mandeville

GLAUCOMA

124. Comparison of Management Decisions by Optometrists and a Glaucoma Specialist in patients attending a glaucoma review clinic – a Hawthorne effect compliant study.
S A Vernon, O K Vernon
University Hospital Nottingham

125. Cost Analysis of Goldmann and Tonosafe Disposable Prism Heads.
K M Jasani, N Sattar, K Mercieca, J Morarji, A Bhargava
Royal Preston Hospital

126. Outcome Measures Used in Glaucoma Randomised Controlled Trials (RCTs)
R A Ismail, A A B Azuara-Blanco, C R Ramsay
Health Services Research Unit, University of Aberdeen

127. Long term follow-up of Zonulo-Hyaloido-Vitrectomy for Pseudophakic Malignant Glaucoma
I M Madgula, N Anand
Calderdale and Huddersfield Hospitals NHS Trust

128. Long-term outcomes in fellow eyes after acute primary angle closure in a UK urban population
W A Andreatta, I Elaroud, M Nessim
Birmingham and Midland Eye Centre

129. Analysis of referral data from community optometrists to a hospital glaucoma service using an electronic patient record (EPR)
J S Foulds, R Sanders
Queen Margaret Hospital, Fife. Scotland

130. Monitoring Vision Loss
M Hovan, A W King
Nottingham University Hospitals

131. Structural and functional subjective-objective assessments of glaucomatous damage
M A Eldaly
Ophthalmology Department Faculty of Medicine Cairo University

132. Generic latanoprost: does it matter which one?
U Mulla, D Lockington, M Caslake, H Flowers, A Rotchford, K Ramaesh
Gartnavel General Hospital

133. Myocilin levels in the Aqueous Humor of Open-Angle Glaucoma Patients
A Ghanem
Mansoura Ophthalmic Center

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

GLAUCOMA

134. Does Phaco-Viscocanalostomy Work In Normal Tension Glaucoma?
C Hemmerdinger, C Rogers, M S Wishart
Warrington Hospital

135. Intravitreal Dexamethasone Implant (Ozurdex®) and Ocular Hypertension
C S Chambers, S Banerjee, B Lakhani, A Vardarinos
Leicester Royal Infirmary

136. 2-year outcomes of combined glaucoma and cataract surgery: non-penetrating deep sclerectomy vs trabeculectomy
J Keller, E Millà-Griñó
Institut Clínic d'Oftalmologia

137. Optic Disc Haemorrhage (ODH) Audit: Should Morphology Determine Referral
J Miah, P M Dodson, J M Gibson, M Clarke, S Ateeq, H M Wharton
Birmingham Heartlands Hospital

138. Manchester Royal Eye Hospital adult Baerveldt tube outcomes
K Yau, M Mustafa, K Yin, H Usmani, S Agrawal, E Nikkita, C Fenerty
Manchester Royal Eye Hospital

UVEITIS

139. Retinal nerve fibre layer thickness and impaired contrast sensitivity in South African HIV-infected individuals: a case-control study
S Pathai, S D Lawn, H A Weiss, C Cook, C E Gilbert
University of Cape Town/LSHTM

140. Dexamethasone intravitreal implant in paediatric non-infectious intermediate and posterior uveitis
V Liolios, L Joshi, E McLoone, S Lightman, O Tomkins-Netzer, A Bar, S Taylor
Royal Surrey County Hospital

141. Idiopathic Intermediate Uveitis: A 25-year study of visual prognosis
W Tucker, E M Graham, P I Murray, M R Stanford
Guys & St Thomas' NHS Foundation Trust

142. The influence of diabetes mellitus on the visual outcome of patients with uveitis
L Talat, O Tomkins-Netzer, A Bar, H Isa, N Md Din, S Lightman, S Taylor
Moorfields Eye Hospital

143. Long Term Clinical Outcomes among Patients with Birdshot Chorioretinopathy
O Tomkins-Netzer, S R J Taylor, S Lightman
Moorfields Eye Hospital

144. Evidence-Based Analysis for the Medical Treatment of Behçet's Disease
M Mubin, H Knott, B Markandey, N Joji, R Malhotra, A K O Denniston, P I Murray
University of Birmingham

UVEITIS

145. What do uveitis patients know about uveitis?
A MacKenzie, H S Southworth, P I Murray
Birmingham and Midland Eye Centre

146. Uveitis refractory to mycophenolate mofetil: value & safety of switching or adding alternative non-biological agents
V Menezo, L Joshi, L Talat, S Sandhu, P McCluskey, S Lightman, S R J Taylor
Royal Surrey County Hospital

147. Subfoveal choroidal neovascularisation (Right eye) and macular hole (Left eye) secondary to endogenous Candida Albicans endophthalmitis
H K Kolli, A S Sharma, P S Stavrou
BMEC

MEDICAL RETINA

148. Ranibizumab for the treatment of choroidal neovascularisation (CNV) due to pathological myopia (PM). The REPAIR Study 12 month analyses.
Y Yang, The REPAIR Study Group
Wolverhampton Eye Infirmary

149. Outer retinal transduction can be achieved following intravitreal delivery of AAV2 in conjunction with glycosidic enzymes.
J Cehajic Kapetanovic, M M Le Goff, A Allen, R J Lucas, P N Bishop
University of Manchester

150. Mutations in the RP1L1 gene are associated with a spectrum of inherited retinal diseases including retinitis pigmentosa and occult macular dystrophy
P Sergouniotis, A E Davidson, G E Holder, A G Robson, A T Moore, V Plagnol, A R Webster
Moorfields Eye Hospital & UCL Institute of Ophthalmology

151. Willingness to pay for predictive genetic testing for inherited retinal disease
M McKibbin, S Tubeuf, T A Willis, B Potrata, M Allsop, M Ahmed
University of Leeds

152. Social deprivation as a risk factor for late presentation of proliferative retinopathy
M L Lane, P M Matthewson, H S Sharma, A D Denniston
Queen Elizabeth Hospital Birmingham

153. Baseline characteristics of the UK wet age-related macular degeneration (wAMD) cohort of the LUMINOUS observational study.
C S Brand, M Musadiq, Y Yang, S R Taylor, R Gale, C Brittain, R Hamilton
Royal Hallamshire Hospital

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

MEDICAL RETINA

154. Predictive factors for poor central retinal thickness response to ranibizumab in wet age-related macular degeneration
J Guber, T Josifova, I Guber, P B Henrich
University of Basel

155. Incidence and baseline clinical characteristics of treated neovascular age-related macular degeneration in a well-defined region of the United Kingdom
T D L Keenan, S P Kelly, A Sallam, Q Mohamed, R L Johnston
University of Manchester

156. Ranibizumab results in durable visual acuity (VA) responses and early change may predict longer term responses – an analysis of EXCITE
W Amoaku, Y Yang, V Chong, J Warburton, C Brittain, J Alsop, A Osborne
Nottingham University Hospitals NHS Trust

157. Audit of Sheffield AMD Service: effectiveness of the "virtual review clinic"
H Abdulkarim, C Bennet, C Brand, N Acharya, M Freeman, F Quhill
Royal Hallamshire Hospital

158. Short term intraocular pressure (IOP) trends following intravitreal Ranibizumab injections for neovascular Age-related Macular Degeneration (nvAMD) – The role of oral Acetazolamide in protecting glaucoma patients.
C D Murray, D Wood, V Allgar, G Walters, R P Gale
York Teaching Hospital NHS Foundation Trust

159. Novel Minimally-Invasive Episcleral Brachytherapy for Neovascular Age-Related Macular Degeneration (nAMD): Twelve Month Results of a Prospective Phase-I Safety and Feasibility Study
K S Balaggan, R F Schindler, L Joffe, B Stea, P Patel, L Marsteller, A Tufail
University of Arizona

160. Incidence and risk factors of retinal pigment epithelial detachment in age-related macular degeneration with intravitreal antiangiogenic drugs.
S W Ching, T Empeslidis
Leicester Royal Infirmary

161. Genotype-phenotype correlations and ocular involvement in Von Hippel Lindau disease
M G Gemenetzi, J S Singh, M S Sagoo, S L Lightman, S T Taylor
Imperial College Healthcare NHS Trust, Hammersmith Hospital

162. Redefining the Management of Retinal Ischaemia using Ultra-Wide Field Fluorescein Angiography
S Subbiah, D Sharp, D Squirrell
University of Auckland, Auckland District Health Board

163. Diabetic Maculopathy (M1) referrals to hospital eye services – Are Ophthalmic Photographic Diabetic Review (OPDR) clinics the way forward?
A Ranganath, N Mathew, J Sardar
Royal Shrewsbury Hospital

164. Verteporphin Photodynamic Therapy (PDT) in Idiopathic Polypoidal Choroidal Vasculopathy (IPCV)- one year outcome.
F Ghanchi, E Ruagh
Bradford Teaching Hospitals

165. The impact of Diabetic Macular Ischaemia on Visual Acuity and Predictive Factors for Progression
D A Sim, P A Keane, M Fruttiger, C V Bunce, P J Patel, A Tufail, C A Egan
Moorfields Eye Hospital

166. Wide-Field Fundus Fluorescein Angiography in Diabetic Macular Oedema: a Study of Midperipheral and Peripheral Retinal Perfusion
A Sala-Puigdollers, S Caputo, Y Da-Souza, S J Charles, D B Henson, D McLeod, P E Stanga
Manchester Royal Eye Hospital

167. Subconjunctival Lidocaine or Topical Proxymetacaine forIntravitreal Anti-VEGF Therapy: What would your patients prefer?
E D Hawkes, S Hannan, S I Haider, F G Ahfat
Maidstone Hospital

168. Structure-function correlation in macular oedema due to retinal vein occlusions.
R Gohil, R Akshikar, S Sivaprasad
King's College Hospital NHS Foundation Trust

169. 1 year experience with Dexamethasone intravitreal implant (Ozurdex) for macula oedema (MO) secondary to CRVO in routine clinical practice: A multicentre report
C Dinah, K Nenova, S Pushpoth, G Menon, I El Ghralby, D Varma, S J Talks
Royal Victoria Infirmary

170. A study to determine the safety of nurse delivered intravitreal injections to increase clinic capacity
J DaCosta, R Hamilton, J Nago, B Pal, D Thomas, C Pavesio, D Flanagan
Moorfields Eye Hospital

171. Outcomes of treatment with intravitreal Ranibizumab in patients of Wet Age Related Macular Degeneration (AMD) with visual acuity at baseline better or worse than specified in NICE TA155
S Arora, T Islam, N Hickley, D Gilmore, N Dhingra, L Downey, M Mckibbin
St James University Hospital Leeds, Hull Royal Infirmary

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

MEDICAL RETINA

172. Systolic blood pressure and ocular perfusion pressure influence sub-foveal choroidal thickness in normal individuals
L T Sansom, M McKibbin
St. James's University Hospital, Leeds

173. Dexamethasone Implants and Neovascular Glaucoma in Central Retinal Vein Occlusion
A Lula, L Joshi, N Kirkpatrick, V Menezo, A Sallam, S L Lightman, S R J Taylor
Royal Surrey County Hospital

174. Diabetic Macular Oedema (DMO): Identifying Patients Eligible for Treatment with The New Therapies
A Kirmani, M Mohamed, S Mann, T Ratneswaren
Guy's & St.Thomas' NHS Trust

VITREO-RETINAL DISEASES & SURGERY

175. EpiRetinal brachytherapy In Treated AGE-related macular degeneration (MERITAGE): 24 month optical coherence tomography (OCT) and fundus fluorescein angiography (FFA) results.
R Petrarca, P Dugel, M Bennett, A Barak, D Weinberger, J Nau, T L Jackson
King's College Hospital NHS Foundation Trust

176. Anatomical and visual outcomes of surgery for traction retinal detachment (TRD) in familial exudative vitreoretinopathy (FEVR)
S C Wong, T Ranchod, C K Luo, L Ho, K A Drenser, A Capone, M T Trese
Beaumont Hospital

177. Effectiveness of Emergency Argon Laser Retinopexy Performed By Trainee Doctors : 10 Years Later
P Petrou, K S Lett
Birmingham & Midland Eye Centre

178. In-vivo Imaging and Measurement of the Bursa Premacularis using 1,050nm Swept-Source Deep Range Imaging Optical Coherence Tomography (DRI-OCT1 Atlantis®)
S Caputo, A Sala-Puigdollers, S J Charles, S Biswas, D B Henson, D McLeod, P E Stanga
Manchester Royal Eye Hospital

179. Eligibility for Intravitreal Ocriplasmin and Effect of Referral Pathways for Macular Holes
H M Madi, C D Dinah, D S Steel
Sunderland Eye Infirmary

180. Survival Rates of Patients Undergoing Vitrectomy for Proliferative Diabetic Retinopathy
M T Sandinha, G Morphis, DM Broadbent Broadbent, S P Harding, I Pearce, I McKay, H Heimann
Royal Liverpool University Hospital

181. Trans-scleral illumination compared with ultrasound biomicroscopy: An analysis of surface landmarks for safe sclerostomy in young children
R H H Henderson, C Vanden Hoven, S Lei, W C Lam
The Hospital for Sick Children, Toronto

VITREO-RETINAL DISEASES & SURGERY

182. Ocular manifestations of Marfan Syndrome in the UK
V J Ekwalla, A H Child, D G Charteris, A Chandra
St George's University of London

183. Cost analysis of pars plana vitrectomy for the treatment of symptomatic vitreomacular adhesion
F Grimaccia, T L Jackson, E Nicod, A Angelis, A R H Simpson, P Kanavos
Kings College London and London School of Economics

184. Management of Retinal Detachment in Coats' Disease with Drainage of Subretinal Fluid, Bevacizumab and Laser
A Bindra, S Biswas, P Stanga
Manchester Royal Eye Hospital

185. Macula Photoreceptor Rescue demonstrated by Adaptive Optics Retinal Imaging, in 3 Patients 6 to 8 years Post-Macular Translocation Surgery for Neovascular Age-related Macular Degeneration.
M N Muthiah, J Zhong, C Gias, G Uppal, P J Coffey, L da Cruz
Moorfields Eye Hospital & UCL Institute of Ophthalmology

NEURO-OPHTHALMOLOGY

186. Optic nerve sheath fenestration via upper lid skin crease approach
N Raoof, S M Salvi
Royal Hallamshire Hospital, Sheffield

187. Giant cell arteritis - to biopsy or not to biopsy
A Patel, A Swampillai, J A Deane
University Hospitals of Leicester NHS Trust

188. Management and visual outcomes of pregnancy associated with pituitary masses.
B K Lakhani, S W Ch'ng, N Sarvananthan
University Hospitals Leicester, Leicester Royal Infirmary

189. Benefits of Electrodiagnostics in the Diagnosis and Prognosis of Amblyopia and Reduced Visual Acuity
J A Ong, S Jain, C Critchley
Royal Preston Hospital

190. Charles Bonnet Syndrome: challenging current theories of aetiology
A Daud, E Chisholm, M Anastasis, N Akhtar, A Lin, B Ingram, E Khoo
Princess Alexandra Eye Pavilion, Edinburgh

191. Assessment of adherence to the Royal College of Physicians' Pituitary Adenoma Guidelines
R Batra, L Senthil, T D Matthews
Birmingham Neuro-ophthalmology Unit

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

NEURO-OPHTHALMOLOGY

192. Investigating Swollen Discs
A A Khan, C Williams, A Blaikie
Queen Margaret Hospital, Dunfermline

193. Internuclear ophthalmoplegia as a presenting sign of Lyme disease
L North, J A A Govan, M F P Griffiths, G Menon
Frimley Park Hospital

OCULAR MOTILITY

194. Do inferior oblique recession and myectomy procedures affect horizontal deviation in primary gaze in children
A C Ferdi, A Jones, A Maino, S Jain
Royal Free Hospital

195. Can You Predict The Outcome Of Strabismus Surgery?
A Sharma, L Benjamin
Stoke Mandeville Hospital

PAEDIATRIC OPHTHALMOLOGY

196. Ophthalmic abnormalities in children with Developmental Coordination Disorder: Data from the Avon Longitudinal Study of Parents and Children (ALSPAC)
A L Creavin, R Lingam, K Northston , C Williams
University of Bristol

197. Novel concentric petaloid reflex in macula in patients with foveal hypoplasia
A Reddy, K S Cornish, V A McBain
Aberdeen Royal Infirmary

198. Feasibility and diagnostic role of the hand-held OCT in investigating nystagmus in children unable to perform conventional OCT
H Lee, V Sheth, M Bibi, G Maconachie, F Proudlock, I Gottlob
University of Leiceter

199. Retinopathy of Prematurity Treatment in Northern Ireland: 2000-2011.
S Chamney, L McGory , S Twaij , E McCall, S Craig , G Ginnity , E McLoone
RVH Belfast

200. Reduced choroidal thickness in retinopathy of prematurity (ROP)
M Anderson, B Ramasamy, D Clark
University Hospital Aintree

201. Automated digital image analysis for ROP – a novel, feasible and globally accessible screening paradigm?
C M Wilson, K Wong, A R Fielder
UCL Institute of Ophthalmology

202. Is it possible to safely discharge low risk infants from ROP screening earlier than 37 weeks?: an audit
E Arbabi, R F Pilling
Bradford Royal Infirmary

PAEDIATRIC OPHTHALMOLOGY

203. Clinical and Molecular Characterization of Mucolipidosis-IV in patients from Oman
B Harikrishna, S Al-Zuhaibi, K Al-Thihli, A Qureshi, A Ganesh
Sultan Qaboos University Hospital

204. Strabismus Surgery in Children in the UK – is it still decreasing?
S J Heng, C J MacEwen
Imperial College Faculty of Medicine

205. Atropine penalisation as second line treatment for childhood amblyopia
J S Mars, S MacDiarmid, S Bhansali
Christopher Home Eye Unit

206. Which children suspected of abusive head trauma need to be referred to Ophthalmology? : A National survey of paediatricians involved in child protection
B Thajudeen, A D Shaw, P O Watts
University Hospital of Wales, Cardiff

207. Modification of Spectralis HRA + OCT for intraoperative imaging in paediatric retinal diseases: The Oxford Experience
T H M Fung, T H M Fung, M M K Muqit, D J Mordant, L M Smith, C K Patel
Oxford Eye Hospital

208. The management of heritable congenital and infant onset retinal fold and detachment
K N Amissah-Arthur, D Williams, J R Ainsworth
Birmingham Children's Hospital

209. Investigating Paediatric Cataract Patients.
R E M McCollum, E McLoone
Royal Victoria Hospital

210. Improvement of ROP screening standards with the development of a dedicated ROP team.
M Vasalaki, H Patel, M Crame, Y Solinap, M A Reddy
The Royal London Hospital

211. Primary Congenital Glaucoma in Northern Ireland – 50 years of experience
M S Dowlut, S Chamney, E Mcloone
Royal Belfast NHS Trust

212. Paediatric Visual Impairment in Northern Ireland: 1984-2011
E McLoone, S Chamney, P Satkurunathan
RVH Belfast

213. Ophthalmic features of NF2; A missed Opportunity?
D Trivedi, S Sharif, J Ainsworth, C Smyth, R Irving
Birmingham Children's Hospital

214. Breaks in Descemet's membrane as a sign of non accidental injury – a test case
S Bhagat, M Mikhail, J Mackinnon, N Boyle
Ayrshire and Arran NHS Trust

All posters will be displayed from 10.00 a.m. on Tuesday 21st May to Thursday 23rd May at 3.00 p.m.

MISCELLANEOUS

215. Global variations in childhood myopia and ocular biometry: A systematic review
Z Jarrar, M Khatib, M Bizrah, C Owen, A Rudnicka
St. George's University of London

216. Detecting Blinding Eye Disease in Socioeconomic Deprived Communities – Economic Evaluation of a Novel Method
D Todkill, D Shickle, C Chisholm, A Cassels-Brown
University of Leeds

217. The reporting quality of Randomised Controlled Trials in Ophthalmic Surgery in 2011: A systematic review
A C Yao, A Khajuria, C F Camm, E Edison, R Agha
Imperial College London

218. A virtual reality study of learning curves in expert and novice surgeons using the EyeSi VR simulator.
O A-M Williams, S Waqar, J Park, N Modi, T Kersey, T Sleep
Ophthalmology Department, South Devon Foundation NHS Trust

219. Pupil dilatation for cataract surgery with Mydriasert.
J Myneni, S P Desai, V V Kayarkar
Doncaster Royal Infirmary

220. One drop or two? Comparison of pupil size following administration of tropicamide alone vs combination of tropicamide+phenylephrine given in rapid succession.
H B Jenkins, S Nasrat, J Menon, R Ahmed
Royal Glamorgan Hospital

221. Intra vitreal Anti-VEGF injection for radiation retinopathy/neuropathy
M Zayed, K Sears , P Rundle
Royal Hallamshire Hospital

222. The best site for intravitreal injections.
L A Langsaeter, T Leong
West Sussex Hospital Trust

223. Why don't people go to have their eyes examined?
M Griffin, D Shickle, M Mookhtiar, D Todkill, A Cassels-Brown
University of Leeds

224. Inverse Eye Care Law: A geographical analysis of place of residence and deprivation of people receiving an NHS funded eye examination
T Farragher, D Shickle, M Mookhtiar, D Todkill, A Cassels-Brown
University of Leeds

225. Eye care services for communities at risk of avoidable sight loss – removing the pathway barriers
S Leamon , C Haydon, H Lee
RNIB

226. Is it Safe to Increase Diabetic Retinopathy Screening Intervals in Patients With No/Background Diabetic Retinopathy?
H C Chambers, S B Balu, H W Wharton, P M D Dodson, J M G Gibson
Heartlands hospital

227. Homelessness and ocular morbidity: a systematic review
A Silvester
St Paul's Eye Unit, Royal Liverpool University Hospital

228. Conjunctival Squamous Cell Neoplasia: The Liverpool Ocular Oncology Centre experience
A O Garrick, N Kenawy, H Heimann , S Coupland, D Damato
Royal Liverpool University Teaching Hospital

1. One cornea for two recipients-Combination of anterior and posterior lamellar keratoplasty
E Giallouros, M Petrak, W Sekundo, K Droutsas
University of Marburg

2. Use of new smartphone technology to Improve and Monitor Patient's Compliance to Treatment and Continuity of Long-term Care
N Lau, N M S Lau, J D Stevens
Moorfields Eye Hospital

3. Goniosynechialysis - a demonstration video
F Ahmed, L Crawley, S Ameen, J Ho
Western Eye Hospital

4.WITHDRAWN Endoscope-assisted vitrectomy for traction retinal detachment (TRD) in retinopathy of prematurity (ROP) in neonates.
T H Lee, S C Wong
Children's Hospital Los Angeles

5. Descemet-Stripping Automated Endothelial Keratoplasty in Eye With a 'Sputnik' Intraocular Lens Implant
N Hirji, M Nanavaty
East Surrey Hospital

6. Ahmed Valve Tube Extension using a 22-Gauge Venflon Angiocatheter
S N Chia, J F T Li Yim, D M I Montgomery
Stobhill Hospital, Glasgow

7. Viscocanalostomy glaucoma surgery – a modified technique.
D Mathews, T D Betts, A Hamroush
Stanley Eye Hospital, Abergele

8. A modified technique for plana plana vitrectomy and scleral-fixated posterior chamber lens implantation
M M K Muqit, D J Mordant, C K Patel
Oxford Eye Hospital

9. Z-Shaped Knotless Suture
D Steel, S Ghosh
Sunderland Eye infirmary

10. Novel cannula for Big-Bubble Deep Anterior Lamellar Keratoplasty
M P Watson, S J Tuft
Moorfields Eye Hospital

11. Delineation And Excision Of A Tenon's Cyst Using Trypan Blue
H Jewsbury, K Rajkumar
Princess of Wales Hospital, Bridgend, South Wales

12. Dual-layer conjunctival and Tenon's capsule closure for fornix based trabeculectomy
Z Varga, T D Manners, A Hardisty
York Teaching Hospital NHS Foundation Trust

13. Voluntary nystagmus
A Kostakis, J Myneni, S P Desai
Doncaster Royal Infirmary

14. 'Double occlusion' - Black Artisan iris claw intraocular lens (IOL) insertion following black Morcher posterior chamber IOL for the treatment of unresolved intractable diplopia
S Sherpa, O Shonibare, J Lochhead
St Mary's Hospital. Newport

15. A low cost retinoscopy model eye
T D Betts
Stanley Eye Hospital, Abergele

16. Standardised Views in Oculoplastic Photography
A Muneeb, B Chang, C Ong, S Jyothi
LTHT

17. TREACHER COLLINS WINNER 2013: Trachomatous Trichiasis Surgery Training DVD: A Step-By-Step Guide To Trachoma Surgery
M J Burton, S N Rajak
International Centre for Eye Health, LSHTM

18. Lateral Tarsal Strip Squeeze: A simple modification to reduce granuloma formation
A Kreis, J T S Yu, S N Madge
Wye Valley NHS Trust

19. Removal of four inches long live worm from suconjutival space of a male patient.
J Rahman, N Al Harti
Al Nahda Hospital Muscat

20. Intraocular foreign body removal from the ciliary body
B Vella Briffa, M J Menage
St. James's University Hospital, Leeds

21. How to perform a vitreous biopsy using a 23-gauge vitreous cutter.
S Padroni, S W Ch'ng, S Banerjee
Leicester Royal Infirmary

OPTIC UK

Annual Congress Commercial Exhibition
The UK's largest ophthalmic exhibition will be open throughout the Congress. The exhibition is organised by Optic UK as part of their continuing support to the ophthalmic profession.

Exhibition opening hours:
Tuesday 21st May 2013 8.00 a.m. to 5.00 p.m.
Wednesday 22nd May 2013 8.00 a.m. to 5.00 p.m.
Thursday 23rd May 2013 8.00 a.m. to 3.00 p.m.
Optic UK will be sponsoring free wifi in the exhibition hall all week.

The Optic UK Lecture 2013
The fifth Optic UK Lecture will take place on Thursday 23rd May 2013. We are delighted that the eminent and world-renowned speaker Dr. Gerrit Melles will delivering this year's lecture. Please see page 19 for more details on Dr. Melles.

EXHIBITING COMPANIES

Alcon Eye Care Ltd **STAND G**
We would be delighted to welcome you to stand G on which are featured both new and world leading products in the pharmaceutical and surgical markets.

ALCON GRIESHABER **STAND 3**
Please feel free to visit us on stand number 3 where we will be exhibiting the latest exquisite single-use vitreo-retinal instrumentation and accessories.

Alimera Sciences **STAND 4**

Allergan Ltd **STAND D**

Altacor **STAND 38**

Altomed Ltd **STAND T**
As well as displaying new products like capsule retractors, Mani LRI knives and various recently developed instruments, Altomed have dedicated a large portion of their stand this year to seating and tables, where you can bring your refreshments and relax in comfort with your colleagues.

AMO United Kingdom Ltd **STAND L**
Tecnis ITec Preloaded Delivery System, Tecnis Multifocal and Toric IOL family, Whitestar Signature Phacoemulsification System, Intralase Femtosecond Laser, Star 54IR Excimer Laser System

Aspen Medical Europe Ltd **STAND 8**
Aspen Medical offer a comprehensive range of high quality ophthalmic cannulas, knives and procedures packs under the Steriseal brand. New to our range for 2013 is the CurveSite Intravitreal Injection device

Bayer **STAND 22 & 23**

Bausch & Lomb (UK) Ltd **STANDS P & Q**
Bausch & Lomb is one of the best known and most respected healthcare brands in the world. Please visit the stand to see 'Incise' the latest advancement in mics procedures

Butterflies Healthcare **STAND 17**

Carleton Optical Ltd **STAND M**
It will be our pleasure to demonstrate many new and innovative instruments including the Canon OCT-HS100 featuring automatic alignment, focus and eye-tracking. The new Iridex scanning laser should also capture your interest.... Whatever your requirements please come and see us.

Carl Zeiss Ltd **STAND V**

Core Surgical Ltd **STAND 2**

DORC **STAND S**

Eye News **STAND 1**

Fight For Sight **STAND 12**

Grafton Optical Co. Ltd **STAND 11**
Grafton launch the New Optovue OCT to include VTrack, Total Cornea Power Module and Epithelium Thickness Module (EPI). The New 'S4Optik' Slit Lamp Delivery Unit will also be launched.

Haag-Streit UK **STAND B**
Visit Haag-Streit UK on Stand B to see our comprehensive ophthalmic portfolio, including the; MAIA microperimeter, DRS retinal camera, LENSTAR biometer, Octopus perimeter and the latest in slit lamp imaging.

Heidelberg Engineering Ltd **STAND N**
Visit Heidelberg Engineering on stand N to see the SPECTRALIS OCT now with: Ultra widefield - MultiColour - Modular - Upgradeable - Multi-mode Imaging - Perimetry - Tomography - SD-OCT - Infrared - Autofluorescence - FA - ICGA - Redfree - Widefield - Anterior Segment - EDI - Stereo - Dynamic Movies

International Glaucoma Assosciation/Macular Society **STAND 9 & 10**

John Weiss & Son LtdJ **STAND 34**
We will be presenting the Weiss surgical instrument range and featuring the latest DSAEK advances with the Tan EndoGlide and CamFlow, Keraring products for Keratoconus, together with all the new MedOne products for VR surgery.

Keeler Ltd **STAND W**
Hand held Ophthalmic diagnostic Instruments

Kestrel Ophthalmics **STAND O**

Kowa Optimed Europe Ltd **STAND 28**
The Kowa team will be on hand to demonstrate its range of solutions that support you to confidently diagnose of a wide range of ophthalmic conditions, including Glaucoma, Diabetes and ARMD. www.kowamedical.com

Leica Microsystems UK Ltd **STAND 35**
Leica Microsystems focus is to partner and support micro-surgeons and their care of patients with the highest quality, most innovative surgical microscope technology available. Visit stand 35 or www.leica-microsystems.com

Lenstec **STAND 1**

Litechnica **STAND A**
With over 35 years in the industry, Litechnica are renowned for the high level of service and aftercare that we provide. visit Stand A, where we will be exhibiting our latest range of laser systems and bespoke video solutions.

Macuvision Europe Ltd **STAND 5**

Mainline Instruments Ltd **STAND 40**

Malosa Medical **STAND R**

Medisoft Ltd **STAND 39**
Visit our stand to see how exciting new developments to Medisoft's ophthalmology clinical system will help you increase capacity and improve service quality

M.I.S.S Ophthalmics **STAND 26 & 27**

Moorfields Pharmaceuticals **STAND 31**

Nature Publishing **STAND 13**

NHS Supplies **STAND 20**

Nicox UK Ltd **STAND 25**

Nidek Medical Instruments **STAND 24**

Novartis Ophthalmics **STAND F**

Openeyes (Moorfields) **STAND 32**

Optiquip

Optos PLC **STAND E**

Oraya Therapeutics **STAND 19**

Rayner Intraocular Lenses Ltd **STAND J**
With 60 years expertise, Rayner remains at the forefront of IOL innovation, design; Toric, Multifocal Toric and Supplementary IOLs, each model system packed with a unique single-use injection system.

Scope Ophthalmics **STAND 33**
Scope Ophthalmics Ltd is now a leading company in the area of Ocular Surface Disease. Providing innovative products, including our PF Multidose lubricants, Blepharitis lid wipes and our new Omega-3 supplement

SD Healthcare UK Ltd **STANDS H & I**
SD Healthcare Ltd are distributors of the Schwind AMARIS Excimer Laser and the OptiMedica Femtosecond Laser systems. We also distribute the AcuFocus KAMRA inlay which is designed to treat presbyopia and restore everyday near vision.

Sigmacon (UK) Ltd **STAND U**
Lasers for Retina, glaucoma & anterior segment - YAG, SLT, Diode, Multispot & Micropulse. Operating chairs for Cataract Surgery
Brands incude Lumenis, Quantel, Valon and Rini

Spectrum & Spectrum Théa Pharmaceuticals **STAND C**
Spectrum will be showing the latest innovations in both surgical and diagnostics and Spectrum Théa will be launching two innovative products - Monopost® (preservative-free latanoprost) and Aprokam® (intracameral cefuroxime).

Stat One Services **STAND 14**
Enjoy the latest VRmagic EYEsi Simulators, try the ground-breaking LKC handheld Diabetic Retinopathy Screener and see the latest Oculus BIOM innovations.

Tear Science **STAND 21**

Topcon (GB) Ltd **STAND K**
Topcon (GB) Ltd will be exhibiting a full range of our products ranging from our digital slit lamps; Fundus Imaging; Corneal topography systems as well as Pascal laser and LensAR Femtosecond Cataract laser. In addition we will be showcasing a number of new and exciting products for the first time at RCO

TRB Chemedica Ltd **STAND 16**
TRB Chemedica's VISMED®: preservative-free sodium hyaluronate lubricant eye drops for dry eye; available in two strengths as single-dose vials or multi-dose bottles. New this year: VISMED® GEL MULTI. Stand 16.

VisionCare Ophthalmic Technologies Inc. **STAND 37**

Vision Matrix Ltd **STAND 7**
FineVision Trifocal. Micro –Incision Toric Acrylic Lenses. Pre-Loaded Micro-Incision, Injectable, Hydrophobic and Hydrophilic Aspheric Acrylic Lenses, Healaflow Glaucoma Implant. Pre-loaded Tension Rings, Iris-Hooks, Viscoelastics.

Wisepress **STAND WP**

1. Intraoperative use of Polydioxanone (PDS) foil to reduce the incidence of sino-orbital fistulas following orbital exenteration

A Al-Hity, M E Gregory, E G Kemp
Gartnaval General Hospital

Introduction: Orbital exenteration is a disfiguring surgery, usually reserved for treatment of life-threatening orbital malignancy when less radical treatment is deemed inadequate or has failed. Sino-orbital fistula formation is a common complication.

Purpose: In 2010, we introduced the use of polydioxanone (PDS) foil placed on the medial orbital wall following orbital exenterations aiming to reduce this complication.

Method: Retrospective case note review of all cases of orbital exenteration between 1993 and 2012 at the Scottish Ocular Oncology Service.

Results: 28 patients underwent Orbital Exenteration for BCC (7%), SCC (14%), Melanoma (54%), non-malignancy (4%) and other malignancies (11%). Exenteration was eyelid sparing in 15 (54%), total in 13 (46%) and extended in 0 (0%). In 7 patients (25%) an appropriate sized PDS foil was cut out and positioned to cover the anterior half of the medial orbital wall and was held in place with socket packing. Sockets were lined with eyelid skin (6/28), split skin (thigh) (9/28) or healed secondarily (13/28). PDS foil was inserted in 7 sockets, all of which were left to heal secondarily. Mean follow up time was 17 months (range 66 months). Sino-orbital fistulas involving the ethmoidal sinus, were observed in 9/21 (43%) orbits without PDS plate compared to 0/7 (0%) of orbits with PDS plates (p=0.0621) using the two-tailed Fisher Exact Test). Mean time to fistula formation was 4.9 months (range 1-9).

Conclusion: The PDS is completely resorbed within 5 months, excluding long-term complications of other artificial implants. Use of PDS foil appears to be a useful addition in orbital exenteration surgery leading to a reduction in occurrence of sino-orbital fistulas.

2. 96-Week Results from the VIEW Studies: Intravitreal VEGF Trap-Eye versus Ranibizumab for Neovascular Age-Related Macular Degeneration Shows Sustained Improvements in Visual Acuity

V Chong
Oxford Eye Hospital

Introduction: VTE (aflibercept) was assessed for nAMD treatment in 2 Phase 3, VIEW studies

Purpose: To evaluate VTE versus ranibizumab in an integrated, 96-week analysis.

Method: Patients were randomized to monthly ranibizumab 0.5 mg (Rq4), monthly VTE 2 mg (2q4), monthly VTE 0.5 mg (0.5q4), or VTE 2 mg every 2 months (2q8) following 3 initial monthly doses. The primary endpoint was evaluated at Week 52. Between Weeks 52-96, injections were given at 12-week intervals, but could be given more frequently (up to every 4 weeks) if pre-specified criteria were met.

Results: The percentage of patients with a loss of <15 EDTRS letters ranged from 91.5-92.4%. Best corrected visual acuity gains were 7.9, 7.6, 6.6 and 7.6 letters for Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8, respectively. Mean injection number at 96 weeks for Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8 was 16.5, 16.0, 16.2 and 11.2, respectively. Of the patients who completed the study, fewer received ≥6 injections after Week 52 in the VTE 2q4 (14.0%) and 2q8 (15.8%) groups than Rq4 (26.4%). Among the 25% of patients who received the greatest number of injections, fewer injections were required among those randomized to VTE 2q4 (6.5) and 2q8 (6.6) than Rq4 (8.0). Incidence of ocular and systemic adverse events was balanced across groups.

Conclusion: Visual improvements achieved at Week 52 in the VIEW studies were largely maintained through Week 96 with VTE and ranibizumab. When translated into practice, the every-other-month VTE regimen would allow for fewer visits versus established anti-VEGF treatments.

3. AMO PRIZE WINNER 2013:
Time trends over five decades, and recent geographical variation, in rates of childhood squint surgery in England

MR Chou, A N J Malik, M Suleman, M Gray, D Yeates, M J Goldacre
East Surrey Hospital

Introduction: Strabismus is one of the most common ocular problems in children. Time trend and geographical variation analyses of strabismus surgery rates provide context from which further research and decision-making about services can be carried out

Purpose: To study trends in rates of childhood squint surgery, in England over five decades, and to study geographical variation in England to highlight any inequity in the delivery of ophthalmological services.

Method: Analysis of Oxford record linkage study data from 1963 to 2010 and English national hospital statistics from 1968 to 2010 to study trends in squint surgery. Analysis of English national hospital statistics from 1999-2010 to study geographical variation across local authority areas.

Results: The study included 519 089 admissions for operations on squint. Annual admission rates fell from 188.8 episodes per 100,000 population (95% confidence interval (CI) 180.9-196.8) in 1968 to 64.1 (62.4-65.7) episodes per 100,000 population in 2010. A similar decline was seen in the Oxford region, from 213.2 (181.3-245.2) episodes per 100,000 population in 1963 to 61.3 (54.8-67.9) episodes in 2010. There was wide variation across local authorities in annual rates of squint surgery from 28.2 (95% CI 22.7-34.8) admissions per 100,000 population to 138.6 (123.0-155.7) admissions per 100,000, a 4.9-fold difference.

Conclusion: Rates of squint surgery have decreased substantially over time. The current wide geographical variation in rates raises questions about whether this scale of variation is clinically warranted.

4. The effect of generic latanoprost substitution on patient compliance

A J Conor, S Fraser
Sunderland Eye Infirmary

Introduction: This year the patent to manufacture latanoprost (Xalatan) expired. Since then a number of generic latanoprost preparations have become available. There is an incentive for health services to prescribe and dispense the less expensive generics but there is concern this may lead to compliance problems.

Purpose: To investigate what extent patients switched from Xalatan to generic latanoprost effected compliance.

Method: A questionnaire was completed by 50 consecutive patients attending our glaucoma service who had been solely on Xalatan for at least one year.

Results: 74% (37) of patients had been changed to generic latanoprost. Only 17% (6) had this change explained to them. 11% (4) reported missing at least one drop because of the change. 19% (7) of those changed to generics had previously used the Xal-ease compliance aid and none of these were able to use this afterwards. 19% (7) patients found the new drops easier to use whilst 35% (13) found the drops more difficult to use. Of those who found the new drops more difficult to use difficulties included being unable to use Xal-ease compliance aid (4); difficult to aim (4); difficult to squeeze (4); difficult to hold (2); too many drops came out (4) and harder to open the bottle (1).

Conclusion: Whilst the substitution of branded medicines has financial benefits this change has to be managed appropriately to avoid a decline in compliance. Uniquely with eye drops consideration must be given to difficulties with drop compliance aids when the switch is made.

5. Corneal penetration and anterior chamber concentration of topical antifungal agents in an in vitro human corneal model

U Hussain, H Aichner, D Oliver, E Johnson, M Rajan
Addenbrookes Hosptial

Introduction: Treatment challenges in fungal keratitis include delayed diagnosis, limited therapeutic choices and drug resistance. Little is known regarding optimal intraocular and corneal bioavailability of topical antifungal therapy.

Purpose: To evaluate corneal and anterior chamber bioavailability of amphotericin B 0.3% and voriconazole 1% following frequent topical application.

Method: Paired cadaveric human corneas, held in an in vitro model, were randomised to treatment and control groups. Treatment group corneas underwent frequent topical application (every five minutes for one hour) with either amphotericin B 0.3% or voriconazole 1%. Controls were treated with sterile balanced salt solution. A motorised microkeratome was used to dissect corneas into anterior and posterior lamellae to assess depth of drug permeability. Anterior chamber fluid was sampled at one hour. Drug concentrations were ascertained using high performance liquid chromatography.

Results: The defined reference for amphotericin B and voriconazole was 6760 µg/mL and 13,045 µg/mL respectively. Voriconazole concentrations in anterior stroma and AC fluid were 21.1 ug/mL and 60 ug/mL respectively. In comparison, Amphotericin B could not be identified in anterior or posterior corneal stroma with absent concentration in AC fluid

Conclusion: Topical Amphotericin B 0.3% fails to achieve any significant concentration in cornea or intraocular tissues despite intensive therapy. Clinicians need to consider alternative strategies such as intra-stromal or intra-cameral administration when Amphotericin is chosen over Voriconazole in the treatment of mycotic keratitis.

6. INTREPID - IRay Plus Anti-VEGF Treatment For Patients With Wet AMD

T L Jackson, P K K Kaiser, J S Slakter, M Shusterman, D O'Shaughnessy, L Danielson, DM Moshfeghi
King's College London

Introduction: Ionizing radiation treatment, which can induce regression of new blood vessels, has been proposed for neovascular age-related macular degeneration (nvAMD). Early studies were inconclusive, possibly due to technology limitations. A new device, stereotactically delivering low-energy X-rays to the macula in a single fraction, has been tested for safety and efficacy.

Purpose: To assess the safety and efficacy of low-voltage stereotactic radiotherapy at 2 dose levels for the treatment of choroidal neovascularization secondary to AMD.

Method: This double-masked, sham-controlled, dose-ranging trial of radiation in conjunction with ranibizumab enrolled 230 nvAMD patients previously treated with at least 3 anti-VEGF injections. The primary endpoint was the number of anti-VEGF injections during Year 1. A post-hoc responder analysis was undertaken using the hypothesis that radiation would be most effective in actively leaking AMD lesions with a greatest linear dimension not exceeding the beam size.

Results: The study met its primary endpoint of fewer as-needed (PRN) ranibizumab injections, with a 32% reduction (P=0.0014) compared to the sham group. The post-hoc responder analysis determined that actively leaking patients (total macular volume > the median of 7.4 mm3 on Stratus OCT), with lesions <4 mm in greatest linear dimension (corresponding to the 90% isodose treatment zone), had 54% fewer PRN injections (P=0.0001) and visual acuity superiority of 6.83 letters (P=0.0037).

Conclusion: Low-voltage stereotactic radiotherapy was shown to be effective in previously treated patients, and most effective in actively leaking lesions that were located fully within the 90% isodose treatment zone.

7. Associations with retinal nerve fibre layer measures in the EPIC-Norfolk Eye Study

A P Khawaja, M P Y Chan, D F Garway-Heath, D C Broadway, R Luben, K Khaw, P J Foster
University of Cambridge

Introduction: Assessment of the peri-papillary retinal nerve fibre layer (RNFL) is an important part of the management of patients with suspected and established glaucoma. An understanding of the determinants of RNFL health on a population level may provide some insight into the aetiology of glaucoma.

Purpose: To describe RNFL measures in a healthy British cohort, and to describe associations with basic demographic, systemic and ocular factors.

Method: The EPIC-Norfolk Eye Study is nested within a large multi-centre cohort study – the European Prospective Investigation of Cancer. RNFL measurements were taken using the GDx VCC and only scans with a quality score 7 considered. Regression models were used to assess associations with RNFL measures. Data from both eyes of each participant were considered and generalised estimating equation models used to account for the correlation between eyes.

Results: There were complete data from 11,030 eyes of 6,309 participants with mean age 68yrs (48–90), and 56% were women. Older age (-1.53Ìm/decade, p<0.001), male sex (-0.44Ìm, p=0.031), shorter axial length (-0.15Ìm/mm, p=0.024) and pseudophakia (-0.49Ìm, p=0.033) were associated with thinner RNFL after adjustment for confounders. Body mass index (BMI) was negatively associated with RNFL thickness in men only (-0.30Ìm/5Kg/m2, p=0.039). Intraocular pressure, blood pressure, social class, educational level, alcohol intake and smoking status were not independently associated with RNFL measures.

Conclusion: Older age, male sex, higher BMI in men, shorter axial length and pseudophakia were independently associated with a thinner RNFL in this cohort.

8. Intravitreal VEGF Trap-Eye in Central Retinal Vein Occlusion: Results of the Phase 3 COPERNICUS and GALILEO Studies

I Pearce
Royal Liverpool University Hospital

Introduction: The COPERNICUS and GALILEO studies evaluated VTE (aflibercept) in patients with macular oedema secondary to CRVO.

Purpose: To assess the efficacy and safety of VTE at 52 weeks.

Method: Patients were randomized to receive 2 mg VTE or sham every 4 weeks for 24 weeks. Patients in GALILEO (n=177) maintained their initial treatment groups through week 52, but received their allocated treatment as needed (PRN) after Week 24. All patients enrolled in COPERNICUS (n=187) were treated with 2 mg VTE-PRN per retreatment criteria after the first 24 weeks.

Results: The baseline demographics for each study were balanced between arms for baseline visual acuity (VA) and central retinal thickness (CRT). At Week 52, in GALILEO, more VTE-treated patients gained ?15 Early Treatment Diabetic Retinopathy Study letters from baseline compared with sham (60.2% vs. 32.4%, P=0.0004), with mean letter gains of 16.9 and 3.8, respectively (P<0.0001). A larger mean decrease in CRT was observed for VTE+VTE-PRN vs. sham treatment (–423.5 vs. –219.3 µm, P<0.0001). In COPERNICUS, more eyes injected with VTE+VTE-PRN gained ≥15 letters than those receiving sham+VTE-PRN (55.3% vs. 30.1%, P<0.001); mean letter gains were 16.2 and 3.8, respectively (P<0.001). Mean change in CRT was -413.0 and -381.8 µm for VTE+VTE-PRN and sham+VTE-PRN, respectively. VTE treatment was generally well-tolerated.

Conclusion: Patients treated with VTE for 52 weeks experienced considerable improvements in VA that were greater than those receiving sham or sham+VTE-PRN. Data from both studies suggest that VTE can be an effective treatment for macular oedema secondary to CRVO.

9. British Ophthalmological Surveillance Unit Study - Perioperative visual loss due to non-ocular surgery

N Stone, H Russell, B Fleck, A Mulvihill
Princess Alexandra Eye Pavilion

Introduction: Perioperative visual loss during and immediately following non-ocular surgery is rare, unpredictable and devastating. The incidence of this complication in the UK is unknown and its pathogenesis is unclear.

Purpose: To determine the incidence and risk factors for the development of perioperative visual loss during non-ocular surgery thereby providing accurate data for informed consent of patients.

Method: In conjunction with BOSU a questionnaire was sent to all relevant reporting consultants over a 12 month period (commencing November 2011). Following the initial data collection a follow-up questionnaire was also sent.

Results: Over a 12 month period 15 baseline questionnaires and 4 follow-up questionnaires were returned. Of the 15 patients, 4 were affected bilaterally (3 patients sustained cortical or brain injuries whilst 1 patient had bilateral ocular lesions). The most common reported pathologies were ischaemic optic neuropathy, retinal arterial occlusion and cortical/brain infarction. 12/19 eyes were blind (hand movement vision or worse) with 5 of these having no perception of light. 3 out of 4 bilaterally affected patients had hand movement vision or worse in both eyes. This equates to 20% of patients with perioperative visual loss becoming totally blind.

Conclusion: The incidence of perioperative visual loss due to non-ocular surgery in the UK appears low. However the rate of total blindness amongst these patients is higher than expected and may warrant further data collection.

10. Development and validation of a novel functional vision instrument for children and young people with visual impairment

V Tadic, A Cooper, G Lewando Hundt, J S Rahi, for the VQOL Group
UCL Institute of Child Health

Introduction: Robust patient-reported outcome measures in paediatric ophthalmology are lacking. After developing a vision-related quality of life (VQoL) instrument for visually impaired (VI) children to self-report the impact of living with impaired vision, we have now developed a complementary self-report measure of Functional Vision (FV).

Purpose: To report development and validation of our novel FV instrument for VI (LogMAR worse than 0.48) children aged 10-15 years.

Method: Qualitative interviews (n=32 VI children) supplemented by narrative feedback (n=15) were used to generate a draft FV instrument, with further review/reduction through individual consultations (n=17) about item relevance and comprehensibility. The instrument was piloted with 94 VI children by postal survey to 21 NHS Trusts. Item reduction was informed initially by missing data and item distribution. Rasch Rating Scale Model, supplemented by Factor Analysis and internal reliability statistics, was applied to assess unidimensionality, precision, targeting and response category ordering.

Results: 712 qualitative statements were reduced to 56 items capturing difficulty in performing vision-dependent activities of which 34 were removed after piloting. The resulting 22-item scale showed acceptable infit and outfit values (Rasch) and good targeting of items to respondents (person-item map). Individual item characteristic curve plots revealed ordered response categories. The reduced scale has high internal consistency (Cronbach á=0.95) and a clear unidimensional structure.

Conclusion: Our novel FV instrument is a psychometrically robust measure for capturing the functional impact of visual disability from the child's own perspective, offering a potential adjunct to clinical assessments in routine paediatric ophthalmology practice.

11. Key predictors of visual field test performance
J Ho, S Ameen, L Crawley, F Ahmed
Western Eye Hospital

Introduction: Patient performance determines visual field (VF) reliability, which complicates interpretation, diagnosis and monitoring of progression in glaucoma.

Purpose: To determine which factors predict poor VF test reliability according to standard indices of Fixation loss (FL), False-negatives (FN) and False-positives (FP).

Method: We conducted a 14-year retrospective review of 34304 Humphrey 24-2 visual field tests from 8532 patients at a single tertiary referral centre. Corresponding clinical data was collated from a Medisoft database. Each VF test was analysed individually. Standard criteria were used to assess VF test reliability: FL<25%, FP<25% and FN<33%. Multivariate binomial logistic regression analysis determined which clinical factors correlate with VF reliability. Subgroup analysis was performed for: (i) patients with >3 VF tests and (ii) VF tests with recorded visual acuity data.

Results: 26.25% of VF were unreliable. Mean patient age was 65. Standard reliability indices (FL, FN, FP) independently demonstrate good correlation (p=0.00). Age, greater mean deviation, pattern standard deviation, an established glaucoma diagnosis, using >1 glaucoma medication and having fewer prior VF tests, all negatively correlate with the likelihood of VF test reliability (p<0.03). VF tests performed at longer intervals are more likely to be reliable (Odds Ratio 1.03, p=0.016). Sex, presence of cataract and ARMD are not significant predictors. Worse visual acuity is independently associated with more unreliable VF tests.

Conclusion: As the largest study to date analysing the determinants of VF test reliability, our data will aid clinical decisions and improve resource utilisation of visual field tests in busy glaucoma practices.

12. ILUVIEN® (0.2 µg/d Fluocinolone Acetonide Implant Improves Diabetic Retinopathyin Patients with Diabetic Macular Oedema
C Bailey
Bristol Eye Hospital

Introduction: The Fluocinolone Acetonide in Diabetic Macular Oedema (FAME) study assessed efficacy and safety of nonbioerodible intravitreal FAc implants over 3 years.

Purpose: Here we report the effects of FAc on DR.

Method: FAME consisted of 2 randomized, prospective, multicenter, double-masked, sham-controlled, parallel-group, phase 3 trials enrolling patients with DMO. Details of the methodology have been reported previously (Campociaro P, et al. Ophthalmology. 2011 Apr;118(4):626-635.e2). DR was assessed by a masked reading center, using 7 field color fundus photography graded by the ETDRS multi-step eye scale.

Results: Significantly more ILUVIEN patients experienced a ≥15-letter VA improvement at month 24 and 36 vs controls, with a doubling of the treatment effect seen among chronic DMO patients receiving ILUVIEN (?3 years at baseline, all Ps<.05). In chronic DMO patients, 16.7% of ILUVIEN-treated patients and 8.3% of controls experienced a 2-step improvement in DR at month 36 (P=.042). Among chronic DMO patients, a smaller proportion received PRP (P=.003), and fewer PRP treatments per patient were required (P=.044) vs chronic controls. Among phakic patients, cataract surgery was performed in 80.0% receiving ILUVIEN and 27.3% receiving sham. Incisional IOP-lowering surgery was required by 4.8% of ILUVIEN-treated patients and 0.5% of controls.

Conclusion: ILUVIEN treatment led to rapid and sustained improvements in VA in DMO patients for up to 36 months. The treatment effect was most significant in patients with chronic DMO. This subgroup also experienced a greater proportion with improvement in DR with ILUVIEN treatment compared vs control. ILUVIEN was well tolerated with a low rate of incisional IOP-lowering procedures.

13. School readiness, behavioural and emotional difficulties: the impact of strabismus and its treatment
P M Cumberland, J S Rahi
UCL Institute of Child Health

Introduction: Peer victimisation of school-age children with strabismus, glasses or occlusion has been reported.

Purpose: To investigate emergence/development of poor school readiness and/or behavioural or emotional problems in pre-schoolers with strabismus.

Participants: Three year olds in the Millennium Cohort Study.

Outcomes: Bracken test of formal school readiness. By convention, the lowest decile of age and gender standardised scores indicates poor school readiness. (Children with lowest 3% Bracken scores and/or neurological/neurodevelopmental conditions excluded). Parent-reported behavioural or emotional problems. Lowest decile scores on Strengths and Difficulties questionnaire (SDQ) indicates poor 'ability' (conduct, hyperactivity, peers, emotional, prosocial domains).

Analysis: Logistic regression with adjustment for treatment (glasses, occlusion, or surgery) as well as birthweight, gestational age, birth order, and maternal factors (education, age, ethnicity, socio-economic status).

Results: 258 of 11,583 (weighted 2%) of 3 year olds had 'isolated' strabismus (without associated neurological/neurodevelopmental disorders). Poor school readiness was associated with strabismus independent of the effect of treatment OR=1.9 [95% confidence interval 1.1, 3.2]. There were no significant associations between poor SDQ scores and strabismus, after adjustment for treatment. However, children wearing glasses (with/without strabismus) were more likely to have a poor hyperactivity score (OR=2.0 [1.3, 3.1]) and poor peers score (overall; OR=1.7 [1.1, 2.6], girls; OR=2.3 [1.3, 4.3]).

Conclusion: Early support for children with strabismus may be required to minimise its impact on school readiness, which appears to be independent of a 'social/cosmetic' effect. A different approach is likely to be required to address parental concerns about social and behavioural problems in preschool age children who wear glasses.

14. Femtosecond Laser Assisted Lens Surgery at Moorfields Eye Hospital

A C Day, J D Stevens,
Moorfields Eye Hospital

Introduction: Laser platforms are now available that can accurately and reproducibly perform key steps in lens extraction including corneal incisions, capsulotomy and lens fragmentation.

Purpose: To describe the outcomes of 42 consecutive femtosecond laser assisted lens surgery procedures.

Method: Lens capsulotomy and lens fragmentation were performed using the OptiMedica Catalys system following a standardised operating protocol. Post-operative visual acuities and refraction were recorded at 4 weeks. Corneal endothelial cell density was compared to pre-operative values. NRES approval: 12/LO/0042; ISRCTN: 49681405.

Results: Mean participant age was 58 years old (SD 10 years) with mean ocular axial length of 23.67mm (SD 1.81mm) and aqueous depth of 2.60mm (SD 0.37mm). A free floating capsulotomy was produced in all 42 cases, as well as uneventful lens fragmentation. There were no instances of anterior or posterior capsular tear. There were no postoperative complications. All but 5 cases achieved a visual acuity of 6/6 or better best corrected, with ocular co-pathology limiting visual improvement in the remainder.

Conclusion: Femtosecond laser assisted lens surgery was easily performed in all cases without complication.

15. Microbiology and clinical features of culture-positive bacterial endophthalmitis in Oxford, UK

A Gupta, H O Orlans, S J Hornby, I C J W Bowler
Oxford Eye Hospital

Introduction: Bacterial endophthalmitis is a rare but serious complication of intraocular surgery. The identity of the causative organism may have a significant impact on clinical course.

Purpose: To review the microbiology of culture-positive cases of bacterial endophthalmitis, and to correlate this with clinical features and visual outcomes.

Method: Case notes were reviewed for culture-positive cases of bacterial endophthalmitis over a period from November 1999 to June 2012. Cases were identified retrospectively using a local database.

Results: Of the 47 cases of culture-positive bacterial endophthalmitis identified, 81% occurred postoperatively, 11% followed intravitreal injection, 6% had an endogenous source and 2% followed ocular trauma. 87% of isolates were Gram-positive. The most commonly identified organisms were Coagulase-negative Staphylococci (42%) and Streptococcus spp. (21%). Patients were treated with intravitreal vancomycin and either amikacin or ceftazidime. All Gram-negative isolates were sensitive to aminoglycosides and ceftazidime, and all Gram-positive isolates were vancomycin sensitive. Final visual acuity was 6/12 or better in 38% of cases, and counting fingers or worse in 28%. Endophthalmitis caused by Streptococci was associated with a poorer final visual acuity (odds ratio for counting fingers or worse=15.4, P=0.002). Five eyes were eviscerated or enucleated. Infection with Haemophilus influenzae was strongly associated with this outcome (OR=58.5, P=0.003).

Conclusion: Over the time period of this study there was no evidence of emerging resistance to empirical antibiotics used commonly for the treatment of bacterial endophthalmitis. Infection with Streptococcus spp. or Haemophilus influenzae was associated with a poor visual outcome.

16. VEGF Trap-Eye versus Ranibizumab for Neovascular Age-Related Macular Degeneration: Subgroup Analyses from the VIEW Studies

G Menon
Frimley Park Hospital

Introduction: The Phase 3 VIEW 1 and VIEW 2 studies showed non-inferiority of VTE (aflibercept) to ranibizumab in maintenance of best-corrected visual acuity (BCVA) gains over 52 weeks in patients with nAMD.

Purpose: To describe subgroups defined by baseline characteristics from the VIEW studies.

Method: In both studies, patients with neovascular age-related macular degeneration were randomized to monthly ranibizumab 0.5 mg (Rq4), monthly VTE 2 mg (2q4), monthly VTE 0.5 mg (0.5q4), or VTE 2 mg every 2 months (2q8) following 3 initial monthly doses. Integrated subgroup analyses were performed for 52-week results.

Results: At baseline, 26.2% (631/2412), 34.7% (838/2412) and 38.4% (926/2412) of patients presented with predominantly classic, minimally classic and occult lesions, respectively. The largest gains in BCVA were observed in patients with predominantly classic lesions (+10.0, +12.4, +9.2, and +9.8 letters for Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8, respectively) compared to patients with minimally classic (+7.5–9.6 letters) and occult lesions (+6.7–8.6 letters). Most patients (74.3%, 1791/2412) presented with lesions that were ≤10.16 mm2 (equivalent to 4 disc areas). Patients with smaller lesions experienced greater BCVA gains (+9.4, +10.3, +8.7, and +9.3 letters for Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8, respectively). Patients with larger lesions gained +6.0–7.1 letters.

Conclusion: The largest gains in BCVA were observed in patients with predominantly classic lesions at baseline. BCVA outcomes for subgroups stratified by baseline lesion characteristics were consistent with outcomes from the overall study population.

17. "Face to face" upright seated positioning for phacoemulsification: predicted versus actual complication rate in 100 consecutive cases

M Pajaujis, T Eke
Norfolk & Norwich University Hospital

Introduction: We developed "face to face" positioning for cataract patients who cannot lie flat. The patient sits upright, facing directly forward or (preferably) more toward the ceiling. The surgeon sits or stands, facing the patient, with the microscope rotated forward to face the patient. Phacoemulsification is done through an inferiorly placed corneal incision, using topical-intracameral anaesthesia.

Purpose: We assessed safety in an audit of our first 100 cases.

Method: A prospective audit of the first 100 consecutive cases of 'face to face' cataract surgery, done by one surgeon (TE). Data included: reason patient could not lie flat, position adopted, surgical and medical complications. Rate of posterior capsule rupture and/or vitreous loss (PCR/VL) was compared with the individualised predicted PCR/VL likelihoods, according to the model published from the Cataract National Dataset of 55,567 operations (Narendran et al, Eye 2009; 23: 31-37).

Results: All 100 cases were completed, with posterior chamber intraocular lens. No systemic adverse events occurred. About half of cases had additional ocular pathology which made surgery even more challenging (e.g. small pupil, white cataract, floppy iris). Using Narendran's model, the bespoke predicted PCR/VL risk for each individual patient ranged from 1.05% to 17.28%, with an overall predicted PCR/VL rate of 2.59% for these 100 cases. The actual PCR/VL rate was 3% (3 cases).

Conclusion: "Face to face" positioning, in the hands of an experienced surgeon, is an acceptably safe approach for patients unable to lie flat for cataract surgery. All patients should be counselled regarding the risk of operative complications.

18. Endophthalmitis Following Vitrectomy - The Final Report

J C Park, B Ramasamy, R H Ling, S Prasad
Royal Devon and Exeter Hospital

Introduction: Information relating to endophthalmitis following vitrectomy is limited and this prospective and nationwide study aims to investigate its nature thoroughly.

Purpose: To establish the incidence, clinical features, risk factors, management and outcome of acute, presumed infectious endophthalmitis following pars plana vitrectomy surgery in the UK.

Method: A two-year, nationwide, prospective, observational and case-control study of endophthalmitis following vitrectomy, in association with the British Ophthalmic Surveillance Unit.
37 cases of endophthalmitis following vitrectomy were reported. 28 met the diagnostic criteria. 270 controls were randomly and prospectively collected from nine UK centres.

Results: The incidence of endophthalmitis following vitrectomy surgery is 1 in 1,730 (28 cases per 48,433 operations in two years) based on Hospital Episode Statistics and UK Census data. Operating for diabetic vitreous haemorrhage is a significant risk factor for endophthalmitis (odds ratio 3.43, 95% confidence interval 1.18 – 9.96, p = 0.024). Operating with 23 or 25 gauge relative to 20 gauge only just reached statistical significance as a possible risk factor for endophthalmitis (odds ratio 1.31, 95% confidence interval 1.01 – 1.78, p = 0.043).

Conclusion: This is the first large scale prospective study to investigate endophthalmitis following vitrectomy. The incidence of endophthalmitis following vitrectomy surgery is 1 in 1,730 (28 cases per 48,433 operations in two years). Operating for diabetic vitreous haemorrhage is a significant risk factor for endophthalmitis. This information allows improved patient consent and now efforts must be made to reduce infection in patients with diabetic vitreous haemorrhage.

19. Effectiveness and safety of Goniosynechialysis for angle closure with moderate to extensive peripheral anterior synechiae

A Raj, A Mandalos, T Parmar, V C Sung
Birmingham & Midland Eye Centre, Birmingham

Introduction: First described by Shaffer and later reintroduced more recently by Campbell & Vela ,GSL is an important component of the synechial angle closure management paradigm. Campbell & Vela reported 80% success rate with minimal complications if the peripheral anterior synechiae (PAS) had been present for less than one year.This study was to evaluate this procedure at Birmingham with a specific technique developed by Mr Velota C Sung.

Purpose: To determine the safety and efficacy of GSL as a surgical management for angle closure with significant PAS.

Method: Retrospective case-note reviews of 79 eyes of 68 patients. These patients have had acute primary angle closure (PAC) or chronic angle closure with > 90 degrees of PAS. Success was defined as intraocular pressure (IOP) < 21mmHg with or without glaucoma medications and without any further IOP lowering procedures. Statistical analysis was performed using Paired t-tests and Wilcoxon signed ranked test

Results: The mean age was 65.05 years. The mean pre-operative IOP was 22.22 mmHg and the mean final post-operative IOP was 14.73mmHg, a mean IOP reduction of 7.49mmHg (p= 0.000). The mean degree of pre-op PAS was 278.73 and the degree of post-op PAS was 94.00, a mean reduction of 185.00 (p=0.000). The median number of pre-op glaucoma medications were 3 and the median number of post-op medication was 1 (p=0.000). Mean follow-up period was 24.31 months. All except 8 eyes were classified as success (90%) that is IOP under 21 mm Hg with or without medications and without any further IOP lowering procedures. There were only two cases of intraoperative complication (hyphaema in one eye and slight inferior decentration of IOL in the other eye). A total of 19 eyes had transient post-operative complications, mostly fibrinous uveitis and cystoids macular oedema.

Conclusion: GSL is an effective and safe procedure in controlling IOPs in patients with moderate to extensive PAS.

20. Cumulative Incidence of Visual Acuity Change in the VIEW Studies of Patients with Neovascular Age-related Macular Degeneration

S Sivaprasad
Kings College Hospital NHS Foundation Trust

Introduction: The Phase 3 VIEW studies evaluated VEGF Trap-Eye (VTE, aflibercept) for treatment of patients with nAMD.

Purpose: To compare the time to sustained visual acuity (VA) gain or loss in nAMD patients receiving different dosing regimens of VTE or monthly ranibizumab.

Method: VIEW 1 and VIEW 2 patients (n=2457) were randomized to receive monthly ranibizumab 0.5 mg (Rq4), monthly VTE 2 mg (VTE 2q4), monthly VTE 0.5 mg (VTE 0.5q4) or VTE 2 mg every 2 months (VTE 2q8,

after 3 initial monthly doses). Pre-specified analyses were conducted to assess temporal patterns of the cumulative incidence of the first >2 consecutive occurrences gain or loss of 15 letters (sustained event) after 52 weeks. Kaplan-Meier methodology was used to compare the cumulative incidence curves for all groups. The analysis was adjusted for varying patterns of censorship.
Results: At 52 weeks, sustained gains of ≥15 letters were observed in 36% (214/595), 36.7% (226/615), 34.7% (208/271) and 37.2% (226/608) of patients in the Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8, respectively. Sustained losses of ≥15 letters were observed in 5% (30/595), 5.4% (33/615), 5.8% (35/271), and 5.4% (33/608) of patients in the Rq4, VTE 2q4, VTE 0.5q4 and VTE 2q8, respectively. Cumulative incidence curves were similar for all groups and analyses. All treatment groups exhibited an early improvement in vision.

Conclusion: Temporal patterns in VA gain or loss were similar among all treatment groups, indicating that VTE treatment every 2 months was as beneficial as monthly VTE or ranibizumab doses.

21. SOE PRIZE WINNER 2013:
IOLunder2: national study of outcomes of surgery with and without primary intraocular lens implantation in children <2years old with congenital/infantile cataract
A L Solebo, I Russell-Eggitt, J S Rahi, Bristish Isles BCCIG
UCL ICH

Introduction: IOL implantation in early childhood is advocated despite uncertainties regarding optimal approaches, risks and benefits.

Purpose: Investigate clinical and functional outcomes following surgery in children <2 with congenital/infantile cataract.

Method: A national prospective observational cohort study was undertaken through the BCCIG, a collaborative research network, with standardised data collection on children undergoing surgery between January 2009 – December 2010.

Analysis: multivariable multilevel regression to identify predictors of outcome.

Results: 1 year post-operative outcomes data are available on 221 children (131 bilateral cataract:BC, 90 unilateral cataract:UC):

- In the absence of significant ocular co-morbidity, vision within normal range for age in 49% BC children and 31% UC eyes
- Additional surgery for visual axis opacity (VAO) in 24% BC & 50% UC eyes
- Postoperative glaucoma in 10% BC, 9% UC eyes, additionally ocular hypertension in 6% BC, 16% UC. Primary IOL implantation (undertaken in 56/131 BC, 48/90 UC) was not independently associated with either visual outcome or postoperative glaucoma, but was associated with VAO (OR:7.7, 95%CI 3.1-16.1, p<0.001), where VAO was more likely with single piece IOLs (OR 4.2, 95%CI 1.3-13.5, p<0.05).

Conclusion: Primary IOL implantation does not appear to confer any visual benefit in the first post-operative year, nor alter the high risk of aphakic/pseudophakic glaucoma, but often commits children to early re-operation requiring repeat general anaesthetics during the crucial neurological developmental period. Planned further follow-up of the IOLunder2 cohort will provide currently unavailable data on predictors of favourable and adverse outcomes.

22. Requirements for an effective glaucoma electronic health record: a consensus study

J Somner, P Shah, R R Bourne, R Froud
Anglia Ruskin University

Introduction: Specific requirements for electronic health records (EHRs) in ophthalmology are recognised but there is no consensus on EHR requirements for managing glaucoma.

Purpose: To identify specific requirements for a glaucoma EHR.

Method: 57 attendees at the 2011 UK & Eire Glaucoma Society meeting agreed to be contacted to participate in an online study using a modified Delphi process. 66% participated with 70% completing both rounds.

Results: Participants agreed that several strategies for migrating to an EHR from paper records exist. All may be appropriate and data input can be carried out by any appropriately trained individual. Twenty core data fields to be extracted from paper records were defined. Thirty- four clinical decision support tools were prioritised and 30 audits suggested. Patient reported outcome measures (PROMS) were agreed to have a role in assessing the outcomes of all glaucoma procedures and all glaucoma patients in routine glaucoma care. Patient reported experience measures (PREMS) were considered an important measure of service quality. Collection of this type of data was felt to be appropriate either in clinic or at home and there was no strong preference for any questionnaire format. The ideal frequency of PREM measurement was disputed. It was not possible to establish consensus on the role of personal health records for glaucoma patients.

Conclusion: This method successfully established consensus on a range of issues. The need to develop a working PROM for routine care was established in addition to a list of audits and priorities for the development of clinical decision support tools.

23. The LUMINOUS Study: a prospective, multinational safety and effectiveness study into the real world usage of ranibizumab (Lucentis®)

S P Kelly on behalf of the UK Investigators, S Lacey, C Brittain
Royal Bolton Hospital

Introduction: LUMINOUS is one of the largest ophthalmology observational studies, recruiting up to 30,000 ranibizumab patients. Ranibizumab is approved for the treatment of wet age-related macular degeneration (wAMD) and visual impairment due to diabetic macular oedema (DMO) or retinal vein occlusion (RVO).

Purpose: Whilst the safety profile and efficacy of ranibizumab have been well described in randomised controlled trials, individualised treatment and follow-up regimens may vary in clinical practice. LUMINOUS will study their effect on long term outcomes. We describe the methodology and current study status.

Method: Prospective collection of patient demographics, visual acuity, retinal thickness, injection frequency is undertaken on eligible patients. Quality of Life (QoL) measurement is performed using the Visual Function Questionnaire-25 (VFQ-25). Patients are excluded if involved in any investigational drug or procedure study, and if treated with other VEGF inhibitors in the prior 90 days.

Results: The LUMINOUS study is underway in 14 nations. By November 2012 7071 patients were enrolled globally. The cohort from the 33 UK NHS ophthalmic department participants is the largest (n=3914) with 3887 (99.3%) wAMD, 16 (0.4%) DMO and 11 (0.3%) RVO patients recruited.

Conclusion: The LUMINOUS study is providing long term patient safety and clinical effectiveness data on real world ranibizumab use in NHS care. The phenomenal success of UK recruitment highlights the improving environment for NHS clinical research, and the importance of long term prospective research to enhance patient outcomes.

24. Photodynamic Therapy for Central Serous Chorioretinopathy

R Saxena, U Chakravarthy, C McAvoy
Royal Victoria Hospital, Belfast

Introduction: Central serous chorioretinopathy (CSCR) is characterized by localized serous detachment of neurosensory retina. Photodynamic Therapy (PDT) is the recommended treatment for chronic CSCR.

Purpose: To reaudit the treatment of chronic CSCR with PDT, following recommendations made in the previous audit (2011).

Method: This was a retrospective, case-notes based audit, closing the loop on the previous audit carried out in 2011. The diagnosis was confirmed by FFA & ICG in all patients. PDT treatments with half dose verteporfin and half fluence for chronic CSCR in 11 eyes, of 10 patients, from Aug'2011 to Feb'2012 were evaluated. Changes in LogMAR & letters best corrected visual acuity and Central foveal thickness, measured by optical coherence tomography (OCT) were evaluated. The data was analysed and the results compared with findings published in contemporary peer reviewed literature.

Results: Mean follow-up was 10.18weeks. Mean improvement of Letters visual acuity was 5.81 (p=0.0232, 95% CI -10.66 - -0.97 Mean central foveal thickness improved by 157.18µ (p=0.0091, 95% CI 48.66 - 265.70). There was complete resolution of sub-retinal fluid (SRF) in 9 out of 11 eyes. These results compared favourably with the data published in contemporary peer reviewed journals.

Conclusion: Photodynamic Therapy with half dose verteporfin, using half fluence is an effective treatment for chronic CSCR resulting in improved visual acuity and resolution of sub-retinal fluid

25. Certification and Registration changed my life

P A Simkiss, T Boyce, S Rughani
RNIB

Introduction: As the new Public Health Indicator for Eye Health is based on certification figures, RNIB commissioned research to understand why Certification and Registration numbers have declined since the new Certificate of Vision Impairment (CVI) was introduced.

Purpose:
•To document C&R processes from patient, health and social care professional perspectives.
•To identify barriers and enablers.
•To recommend improvements.

Method: Patients and professionals (hospital and social services staff involved in certification and registration) in three urban areas of England were interviewed by telephone. Ethics approval was secured. In all 46 patients who had been certified as SSI (blind) or SI (partially sighted) in the past 12 months and 43 professionals (e.g. 12 consultant ophthalmologists, 4 eye clinic liaison officers (ECLO), 8 rehabilitation officers) took part.

Results: Patients described help they received through C&R as substantially improving their lives, however often the processes were lengthy and fraught with frustrations. Ophthalmologists expressed uncertainty with timing of certification, particularly for people with long term conditions, and reported poor awareness of the benefits of being certified. Clinicians made incorrect assumptions about patients' views and need. They perceived certification as end of clinical process; patients saw it as a route to services.

Conclusion: •Clarify payments for CVI.
•Develop standardised care pathway with clear roles for ECLO.
•Educate ophthalmologists of the importance of timely referral for rehabilitative support through certification and registration.
•Support development of formal relationships between ophthalmology departments, low vision clinics and local social services.

26. Clinical handover in Ophthalmology: are we getting it right?

J Myerscough, V Tah, A Quinn
Essex County Hospital, Colchester

Introduction: The annual GMC training survey has highlighted handover in ophthalmology as an area in which we perform poorly. Handover done improperly can be a major contributory factor to error and subsequent harm to patients. This issue has been compounded by the shift in working patterns for doctors following the implementation of the European Working Time Directive. Continuity of care can be challenging with up to 3 handovers during any 24-hour period.

Purpose: The handover process has been well investigated and adjusted in many specialties recently. This observational study aimed to examine handover practice in ophthalmology to determine whether the specialty would benefit from guidelines on the process.

Method: UK trainees were surveyed using an online questionnaire of 10 questions. The questionnaire was predominantly closed-end questions and took 60 seconds to complete. Questions focussed on what processes were in place and their impact on patient safety.

Results: Trainees from 7 deaneries participated in the study. In 94% of units there was no departmental protocol regarding handover, and no trainees had never received any training on the topic. 65% of trainees could recall a time when a patient had not been handed over appropriately, with 32% stating lack of handover in ophthalmology has impeded clinical care. 77% thought current handover practice is inept and could lead to a patient safety issue.

Conclusion: Good Medical Practice states doctors will 'keep colleagues well informed when sharing the care of patients'. However almost 80% of trainees think handover practice in ophthalmology may be unsafe. Guidelines adapted from 'Safe Handover-Safe Patients'(BMA) are needed to improve ophthalmic handover practice.

27. A one-stop service for assessment and treatment of Proliferative Diabetic Retinopathy, is this possible?

N M Randazzo, K Wykes, T Allen, M D Tsaloumas,
G P Williams, A K O Denniston
Queen Elizabeth Hospital Birmingham

Introduction: Timely diagnosis and treatment of Proliferative Diabetic Retinopathy (PDR; ENSPDR grade R3) is essential to decrease blindness in the diabetic population. As such the NHS Diabetic Eye Screening Programme Quality Assurance Standards define key metrics for PDR assessment and treatment.

Purpose: Are PDR patients referred through our local pathway seen and treated in a timely fashion? To optimise the referral pathway to achieve this.

Method: A closed-loop audit. Initial audit: all PDR patients referred from Birmingham, Solihull and Black Country Diabetic Retinopathy Screening Service to Queen Elizabeth Hospital Birmingham (January - December 2011). Assessment of time from diagnosis to clinic appointment to laser treatment. Identification and implementation of change. Prospective re-audit (March - August 2012).
Results: Initial audit identified areas below national standards leading to review of the referral pathway. Changes comprised: dedicated PDR clinic slots ring-fenced for urgent referrals with matched same-day laser slots; a 'belt-and-braces' approach to communicating appointment times to patients by telephone, text and letter. Re-audit demonstrated improvement achieving national standards (initial 2011 audit results in parentheses): 93% (56%) of patients seen in clinic within 2 weeks and 100% (93%) within 4 weeks of PDR grading; mean number of days from PDR grading to clinic was 10.2 (95%CI 8.6-11.7) representing significant improvement ($p<0.001$). 100% (50%) received photocoagulation within 2 weeks of clinic appointment.

Conclusion: Implementation of dedicated one-stop assessment/ treatment clinic appointments and prioritisation of communication can significantly improve the care pathway for patients with PDR.

28. Fluorescein and indocyanine green angiography adverse drug reactions– a 2 year prospective study report

A L Rees, J Nago, A Mapani, R Hamilton
Moorfields Eye Hospital

Introduction: Intravenous Fluorescein angiography (FFA) and indocyanine green angiography (ICG) are common outpatient procedures in the management of retinal diseases throughout the world. The last major survey of adverse reactions to FFA was performed in 2006 (Kwan), and there are no published surveys of adverse drug reactions (ADRs) to ICG

Purpose: It is important to review the current incidence of ADR in regular clinical practice related to these procedures.

Method: All data was collected prospectively. Consecutive FFA, FFA and ICG combined and ICG alone were recorded over a two year period with any ADR documented in the photographic department logbook. 5mls of 20% sodium fluorescein and 5mls of standard dose (25mg) ICG were used.

Results: Between August 2008 and August 2010 there were 9121 FFA only, 898 FFA and ICGs and 150 ICG only. There were 546 (6%), 126 (14%), and 0 ADRs in FFA only, FFA and ICG and ICG only respectively. Nausea was the most common ADR in both the FFA only (n=327, 3.6%) and the FFA and ICG groups (n=107, 11.9%). There were no deaths in any group.

Conclusion: FFA and ICG are relatively safe procedures. However our results reveal a higher percentage of ADRs than previous studies. There is an increased incidence of ADR in combined FFA and ICG (FFA and ICG 14% compared to FFA only 6%) and no ADRs if ICG was done alone, suggesting that FFA and ICG should be done on separate visits. Lower doses of sodium fluorescein or oral fluorescein should be considered in high risk patients.

29. Virtual monitoring of diabetic maculopathy in ophthalmic photography diabetic review clinic- Results of a repeat audit

E Luhishi, N Dhingra
Pinderfields Hospital

Introduction: In 2009, we reported that patients with isolated or group of hard exudates 1 disc area away from the foveal centre do not need to be assessed clinically and can be monitored virtually in OPDR setting. This re-audit was done to see if the guidelines in the OPDR clinic needed any further refinement.

Purpose: We have previously reported that eyes with group of hard exudates (HEx) ≤ 1 disc area (DA) from the foveal centre (FC) have a high possibility of fluid on optical coherence tomography (OCT). Since then we have been monitoring eyes, outside this criteria, virtually. This re-audit was done to check the validity of these findings.

Method: Patients referred, with M1 disease with Hex, were further divided into those with isolated or group (defined as presence of more than 2 HEx), location of the group (within or 1 DA away from the FC) and size (less than or more than 1DA). All the patients had OCT to look for fluid.

Results: Of the 108 eyes, 45 had isolated and 63 eyes had a group of HEx. Of the eyes with isolated HEx, fluid on was present in 6% only. In eyes with a group of HEx, 47 eyes had HEx ≤ 1DD away from FC, of which fluid was present in 85% where the HEx measured ≥ 1DD in size and in 40% where the HEx measured < 1DD in size. Of the other eyes where the HEx were ≥ 1 DA away from the FC, fluid was seen in 33.3% where the size was >1DA and in none where the size of the group was <1DA.

Conclusion: The results show that eyes with HEx < 1DD away from foveal centre have a high probability of having fluid and should be assessed clinically. Patients outside these criteria can be safely monitored virtually.

30. The trials and tribulations of individual funding applications for treatment of retinal disorders
A Dharmasena, E Sioras, S Kelly
Royal Bolton Hospital Foundation Trust

Introduction: NICE has to date only confirmed cost effectiveness of intravitreal ranibizumab for AMD and dexamethasone for retinal vein occlusion (RVO) patients. Access to such medications for indications other than those with NICE approval is problematic despite the clinical effectiveness and approval of such for other indications. Clinicians seeking to prescribe such can submit individual funding requests (IFRs) to primary care trust (PCT) commissioners.

Purpose: To reflect on the process and outcomes of IFRs submitted for retinal patients in a district general hospital (DGH).

Method: Qualitative description of IFRs submitted from DGH department since 2012 and presentation of clinical and patient reported outcomes.

Results: In total 26 IFRs were made to 4 PCT commissioners for visual loss secondary to branch RVO 50%; central RVO 23% and diabetic macular oedema (DMO) non-responsive to laser treatment 27%. Of IFRs submitted 87% were for dexamethazone and 13% for ranibizumab. The average time taken to receive a decision was 44 days. 8 IFRs for ranibizumab were rejected (2 for RVO and 6 for DMO) of which 3 were granted on Appeal. All patients denied IFR were nevertheless treated with the medication requested by alternate means and which is discussed. All patients showed both objective improvements in vision and or retinal anatomy following treatment and subjective satisfaction. Quality of life, where formally measured, improved in all such patients.

Conclusion: The IFR process is cumbersome but is one tool to improve quality and cost effectiveness of medication provision in retinal care. Implications for improvement and practice are presented.

31. Payment By Results: an assessment of the lost revenue of unrecorded activity
S N Rajak, K Wilcox, E H Hughes
Sussex Eye Hospital

Introduction: Payment By Results (PBR) is the funding of hospitals by Primary Care Trusts (PCTs) through tariffs for individual patient episodes, calculated according to the complexity of the patient and the specific procedures conducted. It provides about 60% of a hospital's income. Un-coded activity will not be paid for. For example a follow-up appointment tariff is £67, unless a visual field test is conducted and recorded, increasing the tariff to £146. In the Sussex Eye Hospital (SEH) outpatients department, procedures are recorded on an Outcome Forms (OF) completed at the end of a consultation.

Purpose: We conducted a prospective audit of OFs in SEH outpatients department in order to calculate potential lost revenue to the hospital.

Method: The casenotes and OFs of all patients attending one clinic of each clinician at SEH were examined to determine the procedures conducted and whether they had been recorded.

Results: The notes of all 207 patients seen by 21 clinicians were audited. The OF was absent for 21 (10.1%) patients. 50 of 123 (40.6%) procedures were recorded on the outcome form. This corresponded to a revenue loss of £2761. As 34,755 patients were seen at SEH in 2010-2011, the lost revenue through PBR of uncoded procedures in outpatients is approximately £463,568/year.

Conclusion: Activity recording was very poor. Clinicians must be educated in PBR and made aware of the huge potential lost revenue to a hospital of uncoded work, which may have a material effect on future service provision and staffing levels.

32. Reduction in the incidence of acute endophthalmitis following cataract surgery after the introduction of an intra-cameral antibiotic regime - the experience of a District General Hospital

C Sheldrick
Essex County Hospital

Introduction: To look at the incidence of endophthalmitis post cataract surgery before and after the introduction of intra-cameral antibiotics.

Purpose: To reduce endophthalmitis rates post cataract surgery if a problem exists.

Method: A retrospective consecutive audit of all cases of acute endophthalmitis between April 2006 - March 2009 at Colchester Hospitals (England, UK)was undertaken. This represented predominantly 3 years when no intra-cameral antibiotics were used. A prospective consecutive audit was then undertaken April 2009 - March 2012 representing predominantly 3 years of intra-cameral antibiotic usage. I/C Cefuroxime 1mg in 0.1ml was given intra-operatively to patients who did not have allergy to Penicillin. I/C Vancomycin 2mg in 0.1ml was given to patients with Penicillin allergy.

Results: The incidence of endophthalmitis in the first untreated period was 1 in 247 (21 in 5,190)= 0.404% which was comparable with the untreated arm of the ESCRS endophthalmitis study. The incidence of endophthalmitis in the treated period was 1 in 5,866 = 0.017% (Chi squared P< 0.0001). This amounts to a 20 fold reduction in the incidence of endophthalmitis. The ESCRS study had showed a 5 fold reduction.

Conclusion: Endophthalmitis remains one of the most dreaded complications of modern cataract surgery. The incidence of post cataract endophthalmitis was dramatically reduced in our department when intra-cameral antibiotics were given to ALL cataract patients.

33. Professionals and Patients assessment of quality standards in paediatric ophthalmology services: survey using the RCOphth Quality Standards Instrument

B Manzouri, H Bunting, A Davis, J Rahi
Moorfields Eye Hospital

Introduction: The Royal College of Ophthalmologists (RCOphth) Quality Standards s Instrument is a self-assessment tool for the simple and inexpensive assessment of quality of clinical services.

Purpose: To assess the quality of the Paediatric Ophthalmology Service at Moorfields Eye Hospital (MEH), using a modified (RCOphth) Quality Standards Instrument independently completed by clinicians and patients.

Method: The RCOphth Quality Standards questionnaire was circulated to every relevant member of the paediatric ophthalmic staff at MEH. Additionally, five follow-up patients or their carers from each clinic were asked to complete a comparable self reporting patient questionnaire. Questionnaire scores were scored and professional and patient's perspectives compared.

Results: Sixty-six questionnaires were completed (70% response rate).
Professionals identified adherence to standards relating to:
- Appropriate assessment of children by qualified staff
- Specialist investigations
- Provision of clinic areas conducive to the needs of children.

Areas of service improvement identified by staff were:
- The lack of audit to assess clinical outcomes
- Support given to visually impaired children.

By contrast, patients (123 questionnaires completed, 85% response rate) reported their perceived lack of written communication (e.g. letters or handouts) to patients and other health professionals about diagnosis and management.

Conclusion: The RCOphth Quality Standards instrument assesses generic standards relating to processes of care (rather than disorder specific outcomes). We have found it effective in identifying areas for improvement. With modification, we were also able to use it to capture patients' views, enriching our quality assessment.

***34. Audit of the first 6,000 Lucentis injections given by a Nurse Practitioner**

B Kingett, P Simcock, B Gupta
West of England Eye Unit, Exeter

Introduction: Limited medical manpower and expanding patient numbers have stretched the resources of many eye units to provide a Lucentis injection service. This audit is to assess a new method of service delivery

Purpose: To evaluate the safety of Nurse Practitioner delivered intravitreal injections for treatment of wet age related macular degeneration

Method: A prospective evaluation of patients being treated with Lucentis injections by Nurse Practitioners was performed and complications documented

Results: Nurse Practitioners performed 6,383 injections in the first 50 months of the service. Two cases of endophthalmitis were noted (one culture positive and one culture negative) representing a 0.03% incidence for Nurse Practitioner injections. No cases of lens damage or retinal detachment were seen

Conclusion: A carefully selected and well trained nurse practitioner is able to deliver a safe and effective Lucentis injection service

35. Diagnosis and management of the ophthalmic presentation of embolic events

H Mehta, D Qatarneh, E Jones
Moorfields Eye Hospital

Introduction: It is essential that clinicians recognize ophthalmic embolic events. At our Ophthalmic Accident and Emergency we recommend prompt treatment in accordance with NICE published guidelines on the initial management of acute stroke and TIA for amaurosis fugax, CRAO and BRAO not just acute stroke and TIA alone.

Purpose: To assess level of compliance with 2008 NICE guidelines on diagnosis and initial management of acute stroke and TIA.

Method: Data collected prospectively for one month (June 2011) from patients presenting to Moorfields Eye Hospital casualty department with TIA, Amaurosis Fugax, Stroke, BRAO, CRAO.

Results: We were able to retrieve health records of 11 of the 13 patients fulfilling the diagnostic criteria. NICE expects standards of 100% relating to:

Screening of neurological symptoms using a validated tool (FAST score)-achieved: 36%
Categorising whether patient is at high risk of stroke using a validated tool (ABCD2)-achieved: 81%
Aspirin (300mg) started immediately- achieved: 18%
Stroke unit referral within adequate time-frame-achieved: 100%
Measures for secondary prevention-achieved: 100%

Conclusion: Clinicians were variable in their documentation of patients' neurological status and the initiation of aspirin for ocular vascular occlusive disease. To improve outcomes a visible flow chart has been introduced. All our patients were referred to stroke units and seen there in a timely manner. To prevent further morbidity and mortality we would recommend all ophthalmic embolic events are treated as recommended for TIA and stroke.

36. Outcome measures in Acute Angle Closure

B Shah, E Jones, P Foster
Moorfields Eye Hospital

Introduction: At Moorfields Accident and Emergency we have a Primary angle closure (PAC) protocol to relieve pain, treat the vision threatening episode and protect the second eye with laser iridotomy before discharge. Adherence with the protocol is a core outcome measure to audit the quality of care we deliver.

Purpose: To provide high quality care in PAC

Method: Over a period of 6 months 32 patients were identified with acute glaucoma from our electronic patient record. The records were scrutinised and secondary causes excluded.

Results: Case retrieval rate was 27/32. 19/27 were identified as true PAC: 18 acute, 1 chronic. The protocol was followed in 100% acute PAC, as opposed to 69% in 2007. All cases were discussed with a Glaucoma Consultant and YAG PI performed before discharge in both eyes in 16/18 (89%). The two without laser PI were not discharged but transferred to a medical unit for treatment of acute systemic problems.
Median time from triage to IV Diamox was 1 hour, less than 30-45 minutes in 4 and within 1 hour 30 mins in 16/19 (84.2%). Two patients had contraindications to diamox. Prioritization for IOP is done by our nursing triage for blurred vision, pain, headache, nausea or family history of glaucoma.

Conclusion: Early identification and rapid access to PAC treatment is possible and important to prevent pain and blindness. PAC outcomes can be used to assess quality of Ophthalmic Emergency care in general and specialist A+Es.

37. Use of the Leicester visual field protocol for assessment of ptosis and dermatochalasis

M J Maguire, S Wilton, P Baddeley
Worthing General Hospital

Introduction: In our region funding from PCTs for blepharoplasty and ptosis surgery is dependent on demonstrable visual field (VF) defects. There is little evidence to determine which VF test should be used for this assessment.

Purpose: A modified Humphrey 24-2 VF test, the LVFP, specifically assesses ptosis and dermatochalasis. We compare a standard Humphrey and LVFP for each suitable patient.

Method: Patients included were all those referred to Worthing General Hospital for ptosis or dermatochalasis between July 2011 and September.

The defect height for each test has been taken as the lowest point where there are three horizontal contiguous defects. Comparison of the two tests was made looking for evidence of VF defects in each.

Results: 5 of the 9 eyes tested had superior VF defects with the LVFP which were not detected by the Humphrey VF chart. All detected defects on the Humphrey were also detected by the LVFP.

Study numbers are small, as patients are not currently referred until a Humphrey demonstrates a significant defect.

Conclusion: The LVFP is more sensitive at detecting superior VF loss than a standard Humphrey test. As the LVFP is not currently standard at the point of referral, i.e. opticians, an unknown number of patients are currently being denied referral for surgery.

This weakness of a standard Humphrey in determining funding for surgery needs more publication to opticians, general practitioners and commissioning groups to ensure the NHS does not fail a significant patient cohort.

38. Clinical Engagement in Delivering the Quality Agenda: One Hospital's Story

M Hingorani, D Flanagan, B Manzouri
Moorfields Eye Hospital

Introduction: Although the phrase 'clinical governance' (CG) is often quoted, clinicians still struggle translating CG concepts into practice. With high quality care central to the new healthcare system, it is now mandatory to implement clinical governance within daily practice.

Purpose: To explore how Moorfields Eye Hospital (MEH), in responding to the challenge of delivering quality and safety for the modern era, has transformed its approach to CG and staff engagement.

Method: MEH had several elements of CG in place but no cohesive CG plan. Executive, operational and governance staff worked with clinicians to rectify this.

Results: Multiple changes were made including establishment of:
- Clinical leadership operational structure
- Training programmes in clinical leadership and management via recruitment of Darzi fellows
- Annual audit plan
- Regular reporting on core clinical outcomes for high level of quality assurance
- A Learning Information Group to analyze all adverse events together
- Combined Performance, Quality and Risk Dashboard for directorates
- Quarterly quality report
- Proactive analysis of quality and safety in each site and specialty via global trigger tool audits and safety walkarounds.

The achievement last year of NHSLA level 3 status demonstrates external validation of these efforts.

Conclusion: The ambition of clinical governance is to transform the service delivery of NHS organisations to ensure better, safer, more patient centered care. Our work demonstrates how we attempted this transformation and have placed quality and safety at the forefront of all our efforts.

39. Improving management of patients with proliferative diabetic retinopathy detected at screening: an audit

N R J Cronbach, S L Watson, A Smith, V J M Barrett
Royal Berkshire NHS Foundation Trust

Introduction: The NHS Diabetic Eye Screening Programme has recommended timeframes within which patients with proliferative diabetic retinopathy should be referred, seen in clinic and treated following their screening encounter. This audit assessed whether our regional service is attaining these standards and the impact of improvements made since 2006-7.

Purpose: The aims of this audit were to compare our regional service outcomes to the national standards, to ascertain the reasons for deficiencies between them, and to propose local service improvements.

Method: This audit cycle period was 1st February 2011-31st January 2012. Of 24,345 patients screened, 45 were referred to our service with untreated proliferative retinopathy requiring urgent laser treatment and included in the analysis. The audit standards were the NHS Diabetic Eye Screening Programme Standards for

the timeframes within which these patients should be referred, seen in clinic and treated following their screening encounter.

Results: 60% of patients were referred within 2 weeks of their screening encounter (Standard: 95%). 68.9% were seen in clinic within 2 weeks of referral (Standard: 60%), compared with 9.8% in 2006-7. 64.4% received treatment within 2 weeks of their clinic appointment (Standard: 90%), compared with 20% in 2006-7. 42.2% received treatment within 6 weeks of their screening encounter (Standard: 70%), compared with 10% in 2006-7.

Conclusion: Four key changes in practice led to significant improvements in our service outcomes. This audit has helped us determine areas of weakness in the service, demonstrated the success of changes made, and been a key tool in improving care for patients with proliferative diabetic retinopathy.

40. Selective Laser Trabeculoplasty Audit

J McHugh, S Shah
Sutton Hospital

Introduction: SLT is a development of laser trabeculoplasty designed to minimise thermal damage to the trabecular meshwork. Our unit has performed several cycles of audit of ALT, and re-audit was undertaken following our unit's switch to SLT.

Purpose: To measure the effectiveness of SLT performed in our unit, and to identify factors associated with better outcomes in order to optimise local treatment protocols.

Method: SLT treatments given over a period of 21 months were retrospectively examined. Data collected included laser settings, the angle treated, use of steroids, IOP and glaucoma medications used at each visit.

Results: 120 SLT treatments were given to 71 patients (109 eyes). 29% had undergone previous trabeculoplasty. There was considerable variation among surgeons regarding laser power, the angle treated, use of steroids, and follow-up intervals.

The median pre-treatment pressure was 20mmHg (IQR 17-23mmHg), with a median of 3 glaucoma medications (IQR 2-4).

27% had increased pressure 1 hour after SLT (highest rise 9mmHg). Median follow-up duration was 35 weeks (IQR 16 to 65 weeks) and median IOP decrease at the latest follow-up was 14.3% (IQR 27.5% to 0%), with 80% of eyes achieving IOP ≤18mmHg.

Greater pressure reduction following SLT was associated with higher pre-SLT pressure; no previous trabeculoplasty; treatment of 360° rather than 180°; titration of laser power according to bubble formation; and no post-SLT steroids.

Conclusion: SLT was effective in lowering IOP in patients using multiple glaucoma medications, especially when pre-laser IOP was higher. A revised unit SLT protocol has been introduced and re-audit is scheduled.

41. The 'QIPP' approach in management of AMD capacity challenge

D Varma, S Stanley, K Davies, C Allchin, K Stoddart
Sunderland Eye Infirmary

Introduction: Most units have been struggling to meet the capacity challenge generated by the exponential rise in intravitreal injection procedures for treatment of wet age related macular degeneration (AMD). We have used a novel approach in extending the role of our specialist macular nurses to meet this challenge.

Purpose: To audit the intravitreal injection procedures performed by specialist macular nurses at a busy eye hospital.

Method: Data including visual outcomes, intra and post operative complication rate and intra-operative pain score (scale 0 to 5, '0' being no pain to '5' being worst pain) was collected prospectively in consecutive wet AMD patients undergoing intravitreal injections.

Results: A total of 212 intravitreal Ranibizumab injections were performed by four specialist macular nurses over 2 months. Intraoperative complications seen included subconjunctival haemorrhage (n=6) and corneal punctate epitheliopathy (n=4). Majority of the patients (n= 202) gave a pain score of 0 or 1. Visual outcomes and complication rates were comparable to those patients in the department where intravitreal injections were performed by an ophthalmologist. No cases of retinal detachment, cataract or endophthalmitis were seen.

Conclusion: Intravitreal injections performed by specialist nurses did not pose a higher risk of complications compared to those performed by ophthalmologists. Patient choice and consultant judgement are key factors during the initial assessment review to determine the most appropriate care pathway.
This innovative approach has enhanced productivity while maintaining quality and preventing vision loss

through timely treatment. This is an excellent example of QIPP (Quality, Innovation, Productivity and Prevention) application in clinical practice.

42. Business Case for Optometry Combined Clinic in Paediatric Ophthalmology

S W Tung, J-S Barry
Russells Hall Hospital

Introduction: Our DGH had a traditional paediatric eye service where all patients referred from GPs were seen in a consultant clinic. Consultant initiative clinics were routinely performed due to a lack of capacity (week-day or Saturdays).

Purpose: Identify patients seen in consultant clinics who could be appropriately managed in orthoptic/optometry combined clinics (hereafter 'combined clinics') and assess the cost implications.

Method: A prospective audit of patients graded by the consultant paediatric ophthalmologist for assessment in a putative combined clinic. A cost-comparison of consultant initiative clinics versus combined clinics was made.

Results: In January 2012 27 referrals could have been assessed in a combined clinic.
The resulting extra consultant initiative clinics cost the Trust £540 extra per month (for weekday clinics, rising to £1053 per month for Saturday clinics) compared to equivalent combined clinics. The establishment of combined clinics as a result of this data helped reduce a list of 115 'breaching' patients to zero within 3 months with no consultant initiative clinics.

Conclusion: There is scope for reducing NHS budget-spend by optimally utilising the skills of different medical professionals and transferring successful initiatives between trusts. The extra cost (estimated £6,480 per year) spent on consultant 'initiative' instead of combined clinics ceased by increasing optometric capacity. There have been no concerns or adverse incidents recorded in these combined clinics. Robust clinical pathways are necessary to ensure consistent management of patients between medical professionals.
A patient satisfaction survey is now being conducted to compare patient satisfaction in combined versus consultant clinics.

43. Nurse review clinics for patients treated for choroidal neovascular membrane: Results from the first 6 months

M Mikhail, Z Koshy
University Hospital Ayr

Introduction: The increase in Anti-VEGF injection activity led to consequent increase in the number of follow up appointments needed in the medical retina clinics. Nurse led clinics have been designed to address this issue.

Purpose: To present the results and the model of a nurse review clinic for patients being treated for CNV.

Method: Prospective observational study.

Results: The model described is a two site service operated by teams of 4 nurses at each site, all of whom have been trained to elicit history, record vision, obtain optical coherence tomography (OCT) images and examine/photograph the fundus. The recordings along with the case notes are perused by the responsible consultant for decisions on future management.

This has been introduced in a phased manner where in phase I nurses record information and in phase II they will decide on which of the cases will not require intervention.

In the first 6 months of this pilot, 168 patients were reviewed. There were 14 patients who were flagged up for treatment, of whom 9 patients actually required treatment.
The false positive rate was 36% and the false negative rate was 0%.

Conclusion: Our series has demonstrated this protocol of nurse review of patients being treated for CNV to be safe and effective. It can prove to be an effective option for remodelling of Age-related Macular Degeneration services.

44. Audit on Ozurdex - efficacy, safety and OCT correlations

R V Vemala, S Patra
Whipps Cross Hospital,London

Introduction: Macular oedema(ME) is a common cause of vision loss in both BRVO and CRVO.
Dexamethasone intravitreal implant (DEX implant; OZURDEX, Allergan, Inc., Irvine, CA) is a treatment option for ME due to RVO when treatment with laser photocoagulation is not suitable or beneficial.

Purpose: To evaluate the safety and efficacy Ozurdex in ME due to RVO. OCT Characteristics were studied for correlations to visual outcomes.

Method: Audit of 25 eyes of 24 patients diagnosed with ME due to RVO treated with ozurdex between Dec 2011 and July 2012 at Whipps Cross Hopsital,London.The outcome measures were Best Corrected Visual Acuity(BCVA), Central Macular Thickness(CMT), Intraocular pressure(IOP) and adverse event recording at 2months and 4-6 months follow up.

Results: All eyes were treated at >3months disease duration. At 2 months Follow up visual gain of 11.19 letters, CMT change of -220±90 microns noted. Out of 11 eyes which had <10 letters gain, 7 (65%) had disrupted or absent IS/OS (Inner segment/outer segment) junction ± (internal limiting membrane) ILM. IOP raise seen in 5 patients (19.23%) subsequently controlled on medications.
At 4-6 months Follow up 22 eyes audited, 15 eyes gained VA with a mean of 10.46 letters, CMT change of -96±100 microns seen.

Conclusion: Dexamethasone implant can both reduce the risk of visual loss and increase the incidence of visual improvement as shown by Ozurdex Geneva study. This audit adds that IS/OS integrity helps explain visual outcomes.

45. An evaluation of the service provided by an ophthalmic nurse practitioner led glaucoma clinic
H E Sharma, S Sivakumar, C Atkins, V C Parthasarathy, S Mangat, A Negi
Heart of England NHS Foundation Trust

Introduction: To meet demand, we increased capacity within our glaucoma clinic by expanding the role of the ONP. By following a pathway, she diagnoses and manages new patients. We aimed to analyse the effectiveness of this ONP-led clinic in delivering care to patients at their initial presentation.

Purpose: To compare the care provided by the ONP-led glaucoma team with the doctor-led team. To analyse patient satisfaction with the service.

Method: We prospectively sampled 149 patients presenting consecutively to the ONP-led clinic. Following assessment, the ONP completed a datasheet noting clinical features, diagnosis and management. Two glaucoma doctors independently reviewed the history, anterior segment findings, visual fields and optic disc imaging and completed datasheets. The three datasheets for each patient were compared. We analysed the percentage agreement between observers and compared discrepancies with chi-squared tests. We analysed patient experience results from questionnaires.

Results: We found excellent correlation between ONP and doctors' outcomes. There was 1-3% (p=0.25) mismatch in interpretation of findings, none of which resulted in harm. There was no significant (p=0.21) difference in diagnosis. The ONP treated more, discharged fewer and arranged shorter follow-up times but this was not significant (p=0.21). 100% of the returned 108 questionnaires rated the service between good and excellent. 73% recommended the service to others, although 29% would prefer to see a doctor.

Conclusion: An appropriately trained ONP-led team can deliver an effective, safe and well-received service to manage new glaucoma referrals in secondary care.

45. Are General Ophthalmology Services being effectively commissioned?
R G Mathew, V Tah, G Ward, M Hingorani, A Marinescu
Moorfields Eye Hospital

Introduction: Primary Care contracting and commissioning has been identified as a national Quality Innovation Productivity and Prevention (QIPP) priority, and implementing General Practice (GP) led networks of care and outcome frameworks for GP are elements of NHS London QIPP priorities.

Purpose:
- To understand the nature of conditions presenting to General Ophthalmology Clinics (GOC).
- To determine outcomes following GOC review.
- To develop care pathways for ophthalmic conditions amenable to care pathways, allowing commissioning of services for the needs of the local population.

Method: A data collection proforma was designed in conjunction with local commissioners. Patient records review of new patients attending GOC in Nov 2011 was undertaken. Data was entered on to a Microsoft Access database and then analysed.

Results: 74 new referrals were reviewed. The referral sources were optometrists 47.3%, GP's 44.6%, hospital doctors 2.7%, no referral letter 5.4%. The average time from referral to hospital appointment was 45 days (range 4-120 days). 40.5% of patients presented with blurred or reduced vision. Investigations performed in GOC included visual field tests (13.5%), OCT 4.1%, refraction 4.1%, 4.1% orthoptics, 1.4% blood tests. The

commonest referrals were blepharitis 20.3%, cataract 13.5%, glaucoma 4.1%.
48.6% were referred to other ophthalmic specialties, 45.9% discharged, 5.4% were reviewed again in GOC.
45.9% of referrals were suitable for creation of a one-stop commissioning care pathway.

Conclusion: Appropriate referrals to GOC ensure an optimised streamlined service for patients. Periodic review of this invaluable service ensures inappropriate referrals to GOC and subspecialist services and are avoided.

47. Our experience with cataract best practice tariffs
A Beg, M Hodder, KN Amissah-Arthur, S Sandramouli
Wolverhampton Eye Infirmary

Introduction: The NHS has to save ' twenty billions' by 2014-2015. All ophthalmic units are under pressure to make efficiency savings. The Best Practice Tariff (BPT) for cataracts aims to incentivise ophthalmic units through the payments by results system. It encourages units to design an efficient and high quality streamlined pathway for cataracts as per the RCOphth cataract guidelines.

Purpose: To ascertain the level of compliance with DOH cataract surgery BPT guidelines.
- Unilateral cases treated and discharged within three clinical episodes.
- Bilateral cases treated and discharged within five clinical episodes.

Method: A retrospective audit of consecutive cataract surgery conducted over two months.

Results: Cataract surgery was performed in 419 patients. The mean age was 76±11 (44.8% male). After excluding patients with chronic or complex ocular diseases, general anaesthesia and out of area patients, 292 patients were eligible. 79 of 177 patients (44%) having single eye cataract surgery and 52 of 115 patients (45%) for bilateral surgery were compliant.

Conclusion: BPT potentially increases the efficiency of each unit and indirectly saves money by freeing up outpatient appointments for non-cataract patients. However, there is still plenty of work to be done in improving the pathway for cataract surgery, particularly in the referral quality and entry points into dedicated cataract clinics and decision-making in post-operative clinics. To achieve better compliance with BPT, closer cooperation between commissioners and providers needs to occur, to achieve improved efficiency and savings.

48. Hospital Optometrists led Cataract clinic in Scottish Highlands
P Tyagi, S Hodi, C Macleod, J Banks, S Hewick
Raigmore Hospital, Inverness

Introduction: In most hospitals across UK, the cataract clinics are run by Ophthalmologists. In NHS highland, a model for cataract assessment recently adopted involves two-stop cataract clinics run by hospital optometrists and patient meets the operating surgeon on the day of surgery.

Purpose: To audit the listing of cataract surgery by Hospital optometrists. To analyse the outcome of cataract referrals in various community optometrist practices, participating in a direct cataract referral scheme, in the catchment area of a District General Hospital.

Method: The data of all (558) cataract referrals seen by 3 hospital optometrists was collected prospectively over a year (Jan-Dec 2011).

Results: Out of 558 patients, 62.37% were listed for cataract surgery, whereas 37.6% were not listed for surgery. The reasons for not listing included, minimal cataract, asymptomatic, other pathology, declined surgery and complex cases.
A Consultant ophthalmologist opinion was sought in 23 (4%) cases for complex cataract (12) and other pathology (11)
Referrals from 23 community optometrist practices were analysed. All had >= 40% listing for cataract surgery. 3 had <50%, 15 had 50-75%, 5 had >75% listing.

Conclusion: Suitably trained hospital optometrists work in close liaison with ophthalmologists and understand the assessment requirements from surgical perspective. Majority of cases reached a decision in first appointment. Consultant opinion was sought for complex cases. This partnership can address capacity issues. Most referrals from Community optometric practices resulted in listing for cataract surgery. In order to improve the accuracy and consistency of cataract referrals feedback and training to community optometric practices can be utilised.

49. Evaluation of an eye emergency referral pathway in a London trauma centre
R Annoh, G Fleming, E J Hollick

Introduction: There is no national guidance on establishing an appropriate eye emergency patient pathway from accident and emergency (A&E) to the emergency ophthalmology department. We reviewed the eye referral pathway from A&E to ophthalmology at a London trauma centre, to identify any negative patient experiences and/or problems with the service. Changes to the pathway were then introduced and the service was re-assessed for evidence of reduced negative patient outcomes and improvement in quality of the service.

Method: We analysed 470 eye emergency admissions into A&E during a 3 week-study period before and after revision of the pathway. Data was collected in A&E using EDM online and Symphony software, looking at patient presentation to A&E, the consultation outcome, any follow-up given and negative patient outcomes documented. Subsequently, A&E and ophthalmology clinicians modified the existing pathway using clinical expertise and local guidelines.

Results: A total of 185 cases were evaluated before changes to the pathway and 165 cases after. The total number of patients successfully referred for specialist ophthalmic review rose from 23.7 to 52.7% (p=0.06). 5.5% of patients were still reviewed by A&E clinicians despite having ophthalmology referral letters (p=0.49). Poor patient outcomes were still evident with difficulties contact ophthalmology doctors rising from (3/20 vs. 5/15). Use of the referral decision guidance tool is sub-optimal with only 33% of chemical injury and 42.9% of retinal detachment emergencies being referred for urgent review.

Conclusion: Our results suggest some improvement in the eye emergency referral pathway. However, communication between A&E and on-call ophthalmologists is still an ongoing problem and the use of the referral decision guidance tool is not optimal. New measures taken to improve communication between both clinical teams and an assessment of the quality of referrals will aid a more developed and efficient service to provide optimum patient care.

50. The benefits of using an in house bank of toric lenses for cataract surgery at a district general hospital
F Harman, N Brennan, E Casswell, N Lee
Hillingdon Hospital

Introduction: Toric intraocular lenses can improve visual outcomes for patients with significant astigmatism (>2 Dioptres). This benefit is countered by; increased cost, administrative time, cancellations due to delay in delivery of lens, additional time in the peri-operative management of patient. The use of an in-house bank of toric lenses aims to reduce some of these shortcomings. With this in mind, Hillingdon hospital introduced a toric bank, one of the few centres nationally to do so.

Purpose: Evaluate whether using a toric bank increases the number of toric lenses inserted and reduces the quantity ordered and associated administrative input.

Method: Retrospective analysis of cataract surgery 3 months prior to, and 3 months after the introduction of the toric bank.

Results: Over a Six month period 776 cataract operations were performed. 40 toric lenses were ordered and 29 inserted. In the 3 months prior to the introduction of the bank, 36 lenses were ordered but only 8 were inserted. With the toric bank in place, 21 toric lenses were inserted and all but two lenses (sphere < 15D) were available from the bank. Overall 90% of the toric lenses inserted were available from the bank.

Conclusion: The administrative time, and the cost of unused ordered lenses can be reduced significantly by having an in house bank of toric lesnes.

51. An Audit on the Management of Corneal Abrasions in an inner city Emergency Department with a review of current evidence on treatment
S M Shahid, S Naqib, N Harrison, A Kulkarni
University Hospital Lewisham

Introduction: Corneal abrasions are a common cause for emergency department attendance in the UK. Despite this, there is a lack of national guidelines on how best to manage this condition and practice varies considerably amongst individuals and centres.

Purpose: An audit to assess various aspects of management of corneal abrasions in the emergency department at the University Hospital Lewisham (UHL), London.

Method: Data was collected retrospectively for the period Jan 2012 to March 2012. All aspects of management including history taking, examination, treatment and patient disposal were audited. A total of 76 patients were identified. A literature review was then performed to see how this compared to treatment guidelines from recent evidence.

Results: Results revealed that a pre-existing eye proforma was used in 84% of cases. 80% of cases were managed by an Emergency Nurse Practitioner (ENP) and only 14% by an A&E doctor. 84% of patients had a documented enquiry into contact lens wear, however, of the 5 patients who wore contact lenses none were given any contact lens advice prior to discharge. Visual acuity was documented in 95% of patients, although a slit lamp examination was only carried out on 74% of patients. All patients received either chloramphenicol ointment or drops as standard treatment. Eye patches were prescribed in 5 cases.

Conclusion: The use of an eye-proforma at UHL established uniformity in the management of corneal abrasions within the unit. A significant proportion of cases were seen by ENP's and as a result they were more confident and comprehensive in their history taking and examination skills compared to junior A&E doctors. Current evidence on management of corneal abrasions advocates the use of topical NSAIDs for pain management with topical antibiotics for prevention of secondary bacterial infection. The use of eye patches for pain relief is not advised in patients with simple corneal abrasions.

52. Audit of Uveitis Screening in Juvenile Idiopathic Arthritis

M El-Abiary, Z Lin, L Clifford, K May
Southampton Eye Unit

Introduction: The development of uveitis in patients with juvenile idiopathic arthritis (JIA) often manifests asymptomatically. Sight-threatening sequelae necessitate early detection and appropriate management.

Purpose: A retrospective audit to compare clinical practice at a university hospital with the Joint 2006 BSPAR and RCOphth guidelines, which are:
1. First ophthalmic screening examination within 6 weeks of referral
2. 2-monthly reviews for the first 6 months
3. Tri-annual follow-ups until the age of 11
4. Presentation of JIA after the age of 11 warrants a year of screening

Method: Data was collected on all JIA patients seen by paediatric rheumatology over a 12-month period (March 2010-March 2011). Referral letters, clinic letters and electronic records were analysed for temporal relationships.

Results: Demographics of the cohort's (n=55) clinical features were in concordance with literature. 27% (n=15) were not referred to ophthalmology. Of those referred, 57% (n=23) had initial screening within 6 weeks, whereas only 18% (n=7) had their first follow-up at 2 months. During this period, all patients who were discharged were older than 11 years. 25% of cases presenting with JIA after 11 years of age were screened for a year.

Conclusion: The primary audit results highlight the need for a trust-wide JIA screening protocol based on national guidelines. Consistent and timely referral from rheumatology is also necessary for adequate screening. Recommendations were made, and we plan to re-audit in a years' time (January 2013) to ensure good clinical practice.

53. Re-audit of glaucoma diagnosis and management in a district general hospital

F M Chew, A Cheung, S S M Fung , J Aboshita, R Obikpo
North Middlesex Universtiy Hospital

Introduction: NICE guidelines for the management of glaucoma were introduced in 2008. A previous audit in 2010 in North Middlesex University Hospital demonstrated poor compliance in the rate of gonioscopy in diagnosing glaucoma. Diagnostic proformas were subsequently introduced to improve the performance.

Purpose: This re-audit reassesses the rate of gonioscopy following the introduction of the diagnostic proformas. Additionally, the compliance of other aspects of NICE guidelines for diagnosing glaucoma, such as corneal pachymetry, dilated optic nerve examination and optic nerve imaging were reviewed.

Method: Medical records of all patients attending the glaucoma clinic during a 2-week period were reviewed. Data on the diagnoses, gonioscopy findings, corneal pachymetry, dilated optic nerve assessment and optic nerve imaging at any time since the diagnosis was collected.

Results: 105 patients were included. Among all patients (both new and follow-up), the rate of gonioscopy has increased compared to previous audit (from 74% to 86%). Corneal pachymetry was completed in 50.5%. Dilated optic nerve assessment was performed in 64.8% at the time of diagnosis. Optic nerve imaging (with optical coherence tomography) was obtained in 28.6%.

Conclusion: Compliance to NICE guidance on the diagnosis of glaucoma has increased but needs further improvement. Awareness of pachymetry and dilated optic nerve assessment needs to be raised. Optic nerve imaging should be encouraged even though it is not mandatory

54. Creation and testing of a new NHSLA tool to assess out-patient Ophthalmology standards

A Hussain, B V Kumar
Wirral University Hospitals NHS Foundation Trust

Introduction: The National Health Service Litigation Authority (NHSLA) serves to improve risk management practices within the NHS with the majority of these processes geared toward the assessment of in-patient services.

Purpose: To create a suitable out-patient NHSLA clinical record keeping assessment tool and test it within our department.

Method: Elements of the Clinical Record Keeping NHSLA tool and the Royal College of Physicians Generic Medical Record Keeping Standards were combined with assessment of factors such as availability of the full clinical record, correct patient identification, the format of the patient entry, clinician identification and documentation of patient communication through a retrospective audit of case-notes.

Results: A total of 79 case-notes were assessed with 23 consultant level entries, 26 at associate specialist level and 30 junior doctor entries. No entries lacked the availability of full clinical records and all had correct chronological order of the entry. Significant findings included a lack of entry of the time of consultation (79.7%), 41.8% of entries having both name and designation provided, 21.5% of entries stipulating the most senior clinician present and 32.9% of entries documenting that a communication event had occurred. Clinician seniority did not appear to significantly affect the attainment of these standards.

Conclusion: Good clinical record keeping is of central importance in the provision of modern healthcare. Our out-patient tool can be utilised for the purposes of NHSLA auditing with results demonstrating an effective platform on which to pursue improvement.

55. Improving management safety for ophthalmic patients in Emergency Department through staff teaching and clearer guidelines

C I Pereni, P Jarvis
Calderdale Royal Hospital

Introduction: Specific difficulties were identified in the management of ophthalmic patients presenting to emergency department (ED), such as recognising true emergencies, appropriate referral to the Eye clinic and discharges.

Purpose: to audit the effect of implementing new guidelines and teaching them to juniors on quality of ophthalmic management in ED.

Method: The notes of patients presenting to ED in one month with a discharge ophthalmic diagnosis were retrospectively audited for presenting complaints, clinical findings, diagnosis, emergency treatment, follow up. The impact of new guidelines on the number of immediate referrals,delayed referrals and discharges was quantified by comparing the management by ED to the one deemed appropriate if new guidelines would had been applied. Formal departmental teaching was carried out on ophthalmic emergencies and to role out the new referral guidelines and a re-audit was carried out to assess the impact of this intervention.

Results: 146 patients were audited in September 2010 and 129 in July 2011 post intervention. The number of patients appropriately managed increased from 74% to 86% after intervention. There was an overall reduction of the patients referred to the eye clinic from 41.01% to 28.7% . The absolute reduction of total inappropriate referrals was halved by introduction of guidelines from 15.1% 7.8% .
A 10% increase in appropriate discharges from the ED was achieved.

Conclusion: clearer guidelines and brief teaching was proven to increase patient safety and reduce inappropriate referral to the Eye clinic, releasing capacity to manage true emergencies and complex patients.

56. Improving amblyopia management through audit

S Bhansali, A Mars, S Kerrigan, J S Mars
Christopher Home Eye Unit

Introduction: This paper looks at the effectiveness of audit as a quality improvement tool.

Purpose: Outcome measures for amblyopia treatment are not commonly used to establish treatment plans. This audit used visual acuity at discharge to measure any improvement in our service.

Method: In 2009 we audited the visual outcome at discharge of our childhood amblyopes. The results seemed satisfactory and comparable to published data, but we wanted more!

We introduced a structured regime to include LogMAR acuity testing, 'best practice' occlusion regimes, contact with patients who "DNA'd" and referral to the Consultant clinic for second line atropine penalisation if the acuity failed to improve for 3 consecutive visits.

We completed the audit cycle and reaudited the discharge visual acuity in 2012.

Results: An audit of a random sample of 86 amblyopes discharged between 4/08 and 3/09 showed a visual acuity at discharge in the amblyopic eye of <0.2 LogMAR in 48% and < 0.3 LogMAR in 66%.

The reaudit of another random sample of 62 amblyopes discharged between 4/11 and 3/09 showed 86% achieved a discharge visual acuity of <0.2 LogMAR in the amblyopic eye and 94% achieved <0.3. Only 1 child did not achieve a visual acuity of 0.1 LogMAR in at least 1 eye.

Conclusion: Audit is a powerful tool. Knowing our discharge acuity results enabled us to reconsider the whole service. A reaudit of our new approach to amblyopia management showed a very significant improvement in discharge visual acuity for childhood amblyopia.

57. Should some diabetic eyes be screened every 6 months?

E T M Ting, J Harris, N Gregory, H L Cook
Hull and East Yorkshire Eye Hospital

Introduction: The NHS Diabetic Eye Screening Program (NDESP) is an annual screening program which aims to identify diabetic retinopathy that meets a referral threshold for assessment and treatment to prevent blindness. The Humber DESP has operated a Screening Plus (SP) Pathway to screen patients with more advanced retinopathy meeting specific criteria but not yet meeting the referral threshold (R1M0) every 6 months. With the commencement of the new National Common DESP Pathway from 01/04/2013, the SP pathway will have to be either stopped or transferred to Ophthalmologist supervision under the Ophthalmic Diabetic Retinopathy Review (OPDR) pathway.

Purpose: To evaluate the clinical efficacy of the SP pathway to justify discontinuation of the pathway.

Method: A retrospective audit looking at re-screen time and outcome of patients who entered the SP Pathway between mid-December 2009 and end-December 2010.

Results: 853 patients entered the SP pathway in this period. Data was available on 364/853 (42.7%) patients who were re-screened 6-7.5 months from entry onto the SP pathway. 328/364 (90.1%) patients continued with 6-monthly or annual screening (R1M0); 19 (5.2%) patients were referred to HES. Out of the 19 patients referred, data was available for 17/19. All 17 were referred back to DESP after HES (Hospital Eye Service) assessment and none needed laser treatment or lost vision.

Conclusion: This audit supports the recommended changes in the NDESP Common Pathway and showed no clinical benefit in 6-monthly screening. This pathway has been subsequently stopped, after approval by the Humber DESP board.

58. Endophthalmitis following intravitreal injections; a 4 year audit

A Rehman, K Fotis, H Eleftheriadis, A Cole, C Bailey, M A Majid
Bristol Eye Hospital

Introduction: Post surgical endophthalmitis is a devastating complication with poor visual prognosis. With the advent of new intravitreal pharmacotherapies the risk of post operative endophthalmitis has increased.

Purpose: The aim of the audit was to identify the incidence of post injection endophthalmitis. We also looked at the predisposing factors and other measures to prevent further cases.

Method: Cases of post injection endophthalmitis were identified from electronic patient records and other sources.

Results: From 2009 to present 15 cases out of 15355 intravitreal injections were identified. The estimated incidence for 2012 was 0.2%. The most common cause was Staphylococcus species, with few sterile cases. The mean pre-endophthalmitis vision was 58 ETDRS letters and the post-endophthalmitis vision was 56 ETDRS letters. The most common predisposing factors were diabetes mellitus and blepharitis.

Conclusion: The incidence of 0.2% was better than the landmark studies, that is MARINA (1.3%) and ANCHOR (1.4%). Measures were taken to reinforce the Royal College of Ophthalmologists guidelines to prevent post-operative endophthalmitis.

59. Audit Analysing Referrals From The Diabetic Screening Service To The Glaucoma Clinic At The West England Eye Unit– Can The Number Of Referrals Be Reduced?

L D Shanahan, M Blundell, M Smith
West Of England Eye Unit

Introduction: Due to apparent optic nerve abnormalities noted on routine diabetic retinopathy screening our unit was receiving referrals directly from the community diabetic retinopathy screening service (DRSS). Our impression was that these referrals rarely resulted in a diagnosis of glaucoma.

Purpose: To assess the number of referrals to the glaucoma clinic from the diabetic retinopathy screening service for apparent optic nerve abnormalities and to determine whether consultant triage of all retinal images reduced the number of inappropriate referrals.

Method:
15/07/09 – 14/07/10- Referral reason and outcome retrieved from notes for all patients referred to glaucoma clinic from DRSS.
01/06/11 -31/05/12 - All images with apparent optic nerve abnormalities reviewed by one of two ophthalmology consultants before referral to glaucoma unit, re-audit.

Results: Referrals to the glaucoma clinic reduced from 20 to 7.
Initial audit referral reasons: 13 disc margin haemorrhages (DMH), 1 branch retinal vein occlusion, 1 disc cupping, 1 disc cupping and DMH, 1 cataract, 1 unknown, 2 DNA.
Total referrals: 20.
Outcome: 2 confirmed glaucoma cases.
Re-audit referral reasons : 1 DMH, 1 haemorrhagic disc, 1 glaucomatous optic disc, 3 unknown, 1 suspicious optic disc.
Total referrals: 7
Outcome: 2 confirmed glaucoma cases.

Conclusion: Consultant triaging of retinal images from the diabetic retinopathy screening service reduces the number of inappropriate referrals to the glaucoma clinic resulting in maximized utilization of clinic resource.

60. Ophthalmic anaesthesia training in UK ophthalmology

S B Boukouvala, V S Sood, A T M Murray
Queen Elizabeth University Hospital of Birmingham

Introduction: Anaesthesia for intraocular surgery has rapidly shifted towards local anaesthetic techniques; topical and sub-tenon's anaesthesia (ST) are most commonly used. Administration of local anaesthesia is an integral part of surgical training for ophthalmic trainees.

Purpose: To evaluate the training in ST and peribulbar anaesthesia (PB) that ophthalmology trainees receive, and further assess their level of self reported competence.

Method: A questionnaire survey was conducted in the West Midlands deanery, where ophthalmology trainees were asked to feedback on their training experience in ST and PB.

Results: Fifty questionnaires were completed. 32 trainees were year 3 and above. Trainees' surgical experience was: 16 had completed <50 cataract operations, 13 between 50-300, and 21 >300. Previous experience of ST was: 8% had done none, 12% between 1-5, 8% between 6-10 and 72% more than ten. 84% said they had received specific training on ST and 10% only observed it and 6% received no training at all. Moreover, 88% felt competent to perform a ST by themselves and only 28% would like to receive more training on this technique. In comparison, 48% had done no PB, 22% between1-5, 6% between 6-10 and 24% above ten. 40% had specific training for PB in the past. Only 34% felt competent to perform PB unsupervised with 82% wanting further training.

Conclusion: PB is an important technique that ophthalmology trainees should feel confident performing. This study identifies some concern regarding the adequacy of training in this skill amongst ophthalmology trainees. Moreover, it highlights the variability in training received for ST.

61. Management of Congenital Epiphora – Is it Changing?

I Ashfaq, P Tiffin , L Gnanaraj
Sunderland Eye Infirmary

Introduction: Congenital epiphora is very common condition, resolving in 90% cases within the first twelve months. Those requiring intervention after this age will require a lacrimal procedure (Probing ± intubation) under general anaesthesia. Role of nasal endoscopy and thus an ENT surgeon in the management is debated

Purpose: To audit our practise (Probing ± Ritleng system intubation) for congenital epiphora against published evidence.

Method: Retrospective case note analysis of 85 consecutive lacrimal procedures in 60 patients treated over a 24 month period by two surgeons using the same technique.

Results: There were 62 patients; 2 pts who had a lacrimal fistula and punctual stenosis were excluded. The mean age at presentation was 18 months with history of epiphora from birth in 90%. There were no difference in sex and laterality. Primary intubation was performed in 64.7%; secondary intubation in 5.9% and 29.4% had probing alone. The tubes were removed in the clinic (90%) within 12 weeks. The mean follow up was 6.5 months. Overall success was 93.5% (Probing – 92% and Primary Intubation- 95%). Of the 5 failures, 2 had dysmorphism, 2 required further lacrimal surgeries and one patient had a nasal polyp requiring ENT referral. There were no complications.

Conclusion: Our outcomes are comparable to other studies. The Ritleng system is a simple, safe very effective procedure for treating most patients with congenital epiphora. In our group only two needed ENT referral for further management.

62. Use of patient satisfaction survey to improve the quality of care and service delivery in paediatric ophthalmology

R Chaturvedi, U Naveed, M Ugarte, A Maino
Stepping Hill Hospital

Introduction: Healthcare is now patient-centred and hence patient satisfaction surveys are a vital tool to its efficient delivery.

Purpose: To assess the level of understanding and satisfaction among patients/families undergoing strabismus correction and to tailor information to their requirements enhancing patients' experience.

Method: This is a 6 month qualitative survey (2010-2011) of patients undergoing strabismus correction. Patients (or carers) were interviewed telephonically. A structured, closed ended questionnaire (9 questions) was filled covering 3 domains:
1. Understanding of eye condition
2. Comprehension of treatment
3. Availability of Information

Results: 54 patients were included with a mean recall time of 5 months (range: 1-9). Only 50% of the patients had a clear understanding of their diagnosis. 80% of patients understood the treatment offered and the other options available. There was a lack of awareness into their possible side effects. 98% of the patients understood the post treatment care and expressed satisfaction with the information provided.

Conclusion: Understanding of treatment and post-treatment care were found to be satisfactory, but shortfalls were identified in understanding of diagnosis and awareness of surgical risks. Patients preferred consultant led information provided in an outpatient setting. As a result, our unit is designing a website due to poor reliability of websites available to patients. (61% of adults accessed online health information) and writing a leaflet about squint surgery (including associated risks and links to trusted sources which patient can access).

63. Clinical Care Pathway Coding in one Ophthalmology Unit

M R Parnell, L Ring, A E Linnell
Sutton Eye Unit

Introduction: Accurate coding is essential to ensure the financial viability for services within NHS trusts. In addition to service line reporting, clinical coding has provided accurate data on the risk profile for each subspecialty.

Purpose: To verify the profile of clinical care pathways in Ophthalmology outpatients and stratify high risk patients within each subspecialty.

Method: We introduced specific ophthalmology codes in 2010. Some subspecialties were then further subdivided into high risk / low risk patients (glaucoma), active treatment / monitoring codes (diabetic retinopathy, AMD, paediatrics) and complex / standard codes for cataract surgery.
Each patient episode is given a code as part of the outcome. Quarterly pathway data have been collected over 2 years for all activity.

Results: Pathway data for 90'000 coded outpatient episodes has been audited over 2 years.
Greatest outpatient activity was recorded for paediatrics (26.1%) and glaucoma (25.9%) followed by cataract (13.9%) and diabetic retinopathy (9.8%). Stratification of these subspecialties showed 58.8% of glaucoma to

be high risk; 46.0% of diabetic retinopathy to be active; 74.8% of AMD to be wet; 46.9% of cataracts to be complex and 72.9% of paediatric patients to be under active treatment rather than monitoring.

Conclusion: Regular review of pathway coding reveals the distribution of specialist outpatient activity enabling more efficient capacity planning of clinics. This continual audit also provides evidence as quality assurance that patients particularly with glaucoma, diabetic retinopathy and AMD are being managed in the appropriate sub-speciality clinics, as required by NICE and the RCOphth.

64. One stop or 2 stop ARMD/Lucentis clinic, results from a patient satisfaction survey

S Umeed, H Thynn, R Ahmad
Ysbyty Gwynedd

Introduction: Anti-VEGF treatments for wet macular degeneration is transforming the visual outcome of this otherwise devastating disease.
The AMD service at Ysbyty Gwynedd, Bangor, is a two-stop service. Patients referred with wet AMD are seen urgently and assessed with angiography and OCT scan.
Patients with treatable disease come to theatre on another day for administration of intravitreal injection. We are working towards providing our patients a one-stop service and have acquired funding for a new treatment room.

Purpose: Patient satisfaction surveys are valuable tools which can be used to identify areas that need improvement. We recently conducted a patient satisfaction survey for our ARMD service as we wanted to know how it is perceived by our patients and how we can improve and maintain a high quality service.

Method: Over 100 patients were given a questionnaire.Participation was voluntary. Patients were asked to complete the questionnaire during the course of their appointment. They were also informed that their answers will be completely anonymous.Questions included views on attitude of staff, communication of treatment, waiting times and facilities in the clinic. Patients were also asked whether they would prefer a one stop clinic with same day injection.

Results: Our survey showed high level of patient satisfaction towards attitude of staff, information received and communication of treatment. To our surprise 57% of patients would prefer a 2 stop clinic and with Lucentis injection on another day.

Conclusion: High level of patient satisfaction has boosted the morale of our staff. Providing our patients with a one stop service is high on the agenda. Advantages are timely treatment and reduced patient's visits. Disadvantages include long waiting times and unpredictable number of injections. Our patient's views have given us a dilemma as to whether we should work towards a one or two stop clinic or is it possible to provide both.

65. Audit of treatment of periocular Basal Cell Carcinoma at Countess Of Chester Hospital

J Bhargava, M Tsagkataki
Countess Of Chester Hospital

Introduction: BCC is the most common eyelid malignancy.

Purpose: To analyse the outcome of 2mm excision of peri-ocular BCC in COCH, including the recurrence rate and the histologic safety margin.

Method: Retrospective audit from November 2008 till November 2011. Inclusion criteria were all biopsy proven BCC. According to the local protocol all patients with biopsy proven BCC undergo a 2 stage reconstruction. Stage 1 includes a 2mm margin excision and Stage 2 reconstruction two days later when histological clearance is confirmed. If margins are affected or margin clearance<1mm then Frozen section (FSCT) is booked.

Results: A total number of 40 patients were analysed. Mean follow up period was 18.6 months. Thirty-five patients (83%) had a complete excision based on the histology report. In 21 patients the histological clearance margin was reported as 1mm or less. Fifteen of these patients had further excision. In three of these patients the histology of the second specimen was reported as positive for BCC. The BCC type was infiltrative in 2 cases and nodular in 1. Further excisions were undertaken until margin clearance was confirmed with frozen section in the 2 cases with infiltrative BCC. In the last case with nodular BCC only 1 further excision was undertaken with immediate reconstruction. The histology from the third specimen showed a small new focus BCC. Two years later there was no clinical recurrence. Overall recurrence rate was 0%.

Conclusion: We met our standards of 0% recurrence rate. Infiltrative BCC seems more difficult to achieve margin clearance therefore a wider>2mm excision is recommended

66. Changes in Certification Status of Diabetic Patients with Time
D K-H Ho, G Vafidis
Central Middlesex Hospital

Introduction: The key outcome of the Diabetic Eye Screening Programme (DESP) is a reduction in incidence of Certification of Visual Impairment (CVI). Brent DESP refers all sight-threatening retinopathy to the hospital eye clinic.

Purpose: In this retrospective cohort study we investigated the long-term clinical outcome of patients registered as sight-impaired (SI) or severely sight-impaired (SSI) to determine the validity of CVI incidence as an indicator of screening success.

Method: We examined departmental CVI records to identify patients certified visually impaired predominantly due to diabetic retinopathy (DR) between 2007 and 2010, then tracked their subsequent clinical courses on hospital patient databases. We recorded visual acuities, diagnoses and interventions. Annual Brent DESP returns provided data on registered diabetic population.

Results: Between 2007 and 2010, 165 patients received CVI. Of these 34(21%) were predominantly due to DR(25 SSI and 9 SI). The approximate annual incidence of visual impairment due to DR were 7/16800 (0.042%), 6/17600 (0.034%), 11/18200 (0.060%) and 11/19300 (0.057%) from 2007 to 2010 respectively. In 22(65%) cases the CVI status did not change with time. 2 patients worsened from SI to SSI but 10(29%) improved, with 6 no longer eligible for CVI status.

Conclusion: Although it is important to record incident diabetic visual impairment, our findings illustrate that this outcome varies with time and applies to very few patients. Measurement of vision loss from baseline would be a more meaningful outcome for patients and might be a better indicator of efficacy of DR screening and treatment.

67. Re-audit of Provision of Emergent Ophthalmic Care at the North Middlesex University Hospital
S S M Fung, F M Chew, S Jan, G Hay-Smith, J Raina
North Middlesex University Hospital

Introduction: In 2010, eye casualty at NMUH was reduced from 39 to 15 sessions monthly. A subsequent audit showed significant reductions of patients seen in eye casualty and eye clinics, and increased referrals to regional centres. Reestablishing the eye casualty service was therefore strongly recommended. In March 2012, the service was reinstated to 36 sessions monthly, prompting a re-audit.

Purpose: To evaluate the reinstatement of emergent ophthalmic care provision to the audit-recommended level in a District Hospital eye unit.

Method: Case records of all patients attending NMUH for emergent ophthalmic care in April 2012 were reviewed. Records were identified from electronic database using the following search terms: eye, vision, ophth*, conjunctiv*. Patients' time spent in department, diagnoses and outcomes were collected.

Results: 374 patients were identified. 72% were seen in eye casualty. Patients on average spent 27mins less in eye casualty than in Emergency Department before clinical decisions were made. Commonest diagnoses in eye casualty were blepharitis(13%), dry eyes(5%) and viral conjunctivitis(4%). Among those seen in eye casualty, 47% were discharged, 45% referred to outpatient clinics, 3% referred to tertiary units and 1% followed-up at local units. During Apr-Jun 2012, a 141% increase in eye casualty referrals to outpatient clinics was observed compared to the Apr-Jun 2011.

Conclusion: Reinstatement of eye casualty service improved accessibility to ophthalmic specialist care for patients, generates hospital eye service referrals and revenue for the department, and provides essential exposure of emergency eye care for trainees.

68. Audit of junior doctor confidence levels in the diagnosis of ophthalmic disease
M Jeffries, R Moosavi
Princess Royal University Hospital

Introduction: Non-ophthalmic junior doctors are frequently responsible for the diagnosis of ophthalmic conditions, yet many admit a lack of knowledge and confidence in this area.

Purpose: To measure junior doctor confidence levels in ophthalmic diagnosis, before and after a single ophthalmic teaching session.

Method: 24 foundation-year 2 doctors were asked to complete a 30-point questionnaire rating their confidence levels in topics covering three areas of practice: use of ophthalmic equipment, examination of ophthalmic

structures and diagnosis of common ophthalmic conditions. For each topic, confidence was graded at four levels, between 'very confident' and 'not at all confident'. These doctors then attended a 45-minute teaching session given by an ophthalmic trainee, and asked to repeat the questionnaire.

Results: Confidence levels were low for the majority of topics covered by the questionnaire before the teaching session. There was an average increase in confidence for all topics covered by the teaching session. Topics covering more anterior ophthalmic structures and diseases scored higher gains in confidence than topics covering posterior structures and diseases.

Conclusion: Our study highlights a lack in the amount and quality of training in ophthalmology, both at undergraduate and at foundation year levels. Both levels have a formal teaching curriculum, but neither curriculum specifies or requires the learning of ophthalmic topics or skills. We demonstrate how a short series of lectures at foundation-year level could improve the recognition of potentially quality-of-life threatening eye conditions in casualty and the community, and significantly reduce unnecessary morbidity.

69. Impact of virtual glaucoma clinic on waiting times for assessment and management of patients: a prospective review

E L Seow, D O'Duffy
Royal Gwent Hospital

Introduction: The virtual, nurse led, glaucoma clinic was introduced to increase capacity of the glaucoma clinic, to reduce the waiting time to initial assessment for new patients and to expedite the follow up and treatment for stable glaucoma/glaucoma suspect patients

Purpose: To evaluate the effect of the virtual glaucoma clinic on waiting times for new and follow up patients

Method: Information including intraocular pressures, visual fields, and stereo disc photographs is collected by the nurse practitioners, and reviewed by a consultant. A prospective case note review of all patients who were seen in the virtual glaucoma clinic by 1 consultant from 24th September 2012 to 10th October 2012 was performed

Results: 43 new patients and 25 follow up patients were seen. The mean time from referral to virtual clinic for new patients was 84 days (range 41-127 days). 49% of new patients were discharged. For follow up patients the mean time between appointments was 388 days. Previous audits showed a mean referral to clinic time of 131 days (21-232) in 2005 prior to introduction of the virtual glaucoma clinic, and a mean referral to clinic time of 52 days (20-121) in 2007 following introduction of the virtual glaucoma clinic

Conclusion: The virtual glaucoma clinic has reduced waiting times from referral to initial assessment, however the waiting times has increased over the last 5 years. The length of time between follow up for patients remain an issue

70. Cross-sectional survey of treatment patterns in a tertiary referral uveitis clinic

G Moussa, P I Murray
Birmingham and Midland Eye Centre

Introduction: Complex uveitis problems are likely to be seen in regional tertiary referral clinics. Patients often receive multiple therapies including systemic immunosuppression that require appropriate staffing and financial resources to be in place.

Purpose: To recognise what resources are required we undertook a study of the treatments prescribed to uveitis patients.

Method: Cross-sectional survey of 300 patients attending a tertiary referral Uveitis clinic. Case note review of anatomical classification, causes of uveitis, and treatment modalities.

Results: The majority of patients were female (165:135) with a mean age of 51 years. Anatomical classification: anterior 36%, intermediate 10%, posterior 9%, pan 45%. Uveitis was idiopathic in 47% and infectious in 9%. The commonest non-infectious diagnoses were HLA-B27 related and sarcoidosis. 53 patients (18%) were on no treatment, 207 (69%) on topical corticosteroid, 67 (22%) on topical dilation, and 86 (29%) on topical IOP lowering agents (between 1-4 different agents). 66 patients (22%) were on oral prednisolone (mean dose 10 mg/day), 48 (16%) were on an oral immunosuppressant, the commonest being methotrexate (mean dose 15 mg/week), and 9 (3%) were on a biologic.

Conclusion: Uveitis patients attending a tertiary referral Uveitis clinic are on numerous topical and systemic medications to control their intraocular inflammation and its complications. Up to 20% of patients are on immunosuppressants that require regular blood monitoring. Some of the drugs prescribed are expensive. It is

essential that health professionals with knowledge of systemic immunosuppression should staff these clinics, and processes put in place for the use of expensive drugs.

71. Appointment duration in the eye clinic: the same across different subspecialties?
H J Bunting
Princess Royal University Hospital

Introduction: Current trends in the NHS include work-force reviews, job planning, increased productivity, and greater clinic sub-specialisation.

Purpose: As outpatient services undergo organisational change, should we assume that the same number of patients can be seen across different ophthalmic subspecialties each clinic session?

Method: Appointment duration was recorded prospectively for consecutive patients of different subspecialties seen by a single doctor (consultant) over a 2-month period in a DGH setting. The face-to-face patient contact time was measured to the nearest second. Data was compared using the Mann-Whitney U test.

Results: The number of appointments totalled 364 (44.8% new patients). The mean appointment duration (minutes) was: glaucoma 11.2 +/- 5.0 (n = 55); adult general 12.7 +/- 6.2 (n = 53); paediatric 13.0 +/- 5.4 (n = 208); and adult motility 16.3 +/- 6.0 (n = 48). Compared to the duration distribution of glaucoma appointments, adult general appointments were not significantly different ($p = 0.25$), but paediatric and adult motility appointments were significantly different ($p < 0.05$). Glaucoma follow-ups (n = 46) averaged 10.4 +/- 4.9 minutes compared to paediatric strabismus reviews (n = 38) which averaged 14.8 +/- 6.2 minutes ($p < 0.05$).

Conclusion: Although the number of patients seen in a clinic session may depend on a number of factors, this analysis provides evidence that subspecialty type is key and must be taken into account in any outpatient service reconfiguration to ensure the continued quality and safety of patient care.

ORBIT & OCULOPLASTICS

72. A case of non-lacrimal, orbital immunoglobulin G4 (IgG4) disease
T A Farooq, S Sandramouli
Wolverhampton & Midland Counties Eye Infirmary

Introduction: Ocular adnexal IgG4 disease forms part of an emerging and evolving spectrum of pathology which once formed part of the sclerosing orbital inflammatory conditions under the subset of idiopathic orbital inflammation.

Purpose: This case reports for the first time, the presentation, histological findings and management of a patient with non-lacrimal orbital IgG4 disease.

Method: A 47 year old Caucasian lady presented with left superior tender orbital swelling and blurred vision. There was no orbital mass nor lymphadenopathy while extensive systemic investigations were normal. She was treated with steroids with a good response but later developed a recurrence with a well defined superior orbital mass. Orbital excision biopsy revealed benign lymphoid hyperplasia. Within 6 months another recurrence of a focal well defined mass in the same area appeared for which she underwent orbital excision biopsy.

Results: The second excision biopsy showed lymphoplasmacytic infiltration, lymphoid follicle formation, sclerosis, obliterative phlebitis, atrophy and destruction of orbital tissue. Immunohistochemical staining showed increased IgG4 cells. There was also an associated raised serum IgG4 . These findings supported a diagnosis of IgG4 orbital disease instigating a further systemic work up

Conclusion: This case illustrates for the first time that orbital adnexal immunoglobulin G4 needs to be considered in the context of an orbital swelling involving areas other than lacrimal gland. Long term follow up is also warranted in these cases as reports have shown links between IgG4 disease and lymphoma.

73. Ophthalmic manifestations of Xeroderma Pigmentosum (XP)– a UK case series
R Lim, S Morley
St Thomas' Hospital, UK

Introduction: XP is a rare DNA repair disorder that affects the skin, eyes and nervous system. The 7 complementation groups (XPA to XPG) and variant group (XPV) reflect the different genes affected.

Purpose: We present the ophthalmic features of the largest UK cohort of XP patients at their initial visit to our service. Further, we discuss correlations between ophthalmic phenotypes and complementation groups.

Method: This is a prospective observational case series of patients seen at the Nationally Commissioned Multidisciplinary XP Service between April 2010 and March 2012. Patients underwent a comprehensive slit-lamp assessment by a consultant ophthalmologist. Statistical analysis employed the Fisher's exact test.

Results: 53 patients were seen. The average age was 24.6 years (range 1.2 - 76.6 years).
6 patients were XPA, 12 XPC, 13 XPD, 2 XPF, 5 XPG and 7 XPV. 8 remained unclassified.
Common symptoms were photophobia (58%) and epiphora (30%). 19% of patients were using topical lubricants.
Frequent findings included blepharitis (53%), red eyes (42%) and pterygia (34%). 16% of patients had poorly reactive pupils and 10% had strabismus/abnormal eye movements. 8% had eyelid malposition.
Red eyes and lubricant use were higher in XPC ($p<0.05$). Poorly reactive pupils were more frequent in XPD ($p=0.0094$) and absent from XPC and XPV. No ocular malignancies were noted.

Conclusion: Ocular surface, oculoplastics and neuro-ophthalmological pathologies are common in XP. There is some segregation of ocular phenotypes to specific XP complementation groups, which mirrors the current XP dermatological and neurological literature.

74. In vivo optical coherence tomography (OCT) in peri-ocular basal cell carcinoma: correlations between in vivo OCT images and postoperative histology

L Pelosini, H B Smith, J Schofield, A Meekings, M Khandwala
Maidstone & Tunbridge Wells NHS Trust

Introduction: Optical coherence tomography (OCT) is a non-invasive imaging technique widely used in ophthalmology and currently investigated for dermatological diagnosis. VivoSight-OCT offers the potential to replace invasive diagnostic biopsies for skin cancers such as basal cell carcinomas (BCC).

Purpose: This study investigated VivoSight OCT for morphological and dimensional assessment of peri-ocular BCC.

Method: Consecutive patients with peri-ocular BCC were prospectively investigated with macroscopic lesion measurement, colour photography and VivoSight OCT imaging prior to surgical excision. Haematoxylin and eosin stained histology sections were compared to OCT images with regard to lesion measurements (horizontal (x, y) and vertical boundaries (z)) and histological features.

Results: A total of 15 patients with biopsy proven BCC were recruited. The OCT horizontal margins correlated positively with histology ($r= 0.8$ and 0.66, x and y axis) and could be identified in 3/15 (x axis) and 6/15 (y axis) cases. The vertical margin correlation was $r=0.43$ and BCC depth could be measured accurately in 9/15 cases. The following histological features of BCC could be accurately identified on OCT images: 1) lobular pattern (100%); 2) dilated blood vessels (80%); 3) reflective margins of tumour lobules (100%); 4) epidermal thinning overlying BCC lobules (100%).

Conclusion: OCT provided accurate dimensional measurement of lateral margins in nodular BCC of the eyelids, whereas the relation between OCT and histological measurements for vertical margins appeared weaker. VivoSight OCT produced high resolution images of BCC allowing to identify characteristic features of nodular BCC in all specimens. This study confirms OCT as a promising non-invasive diagnostic tool for peri-ocular BCC.

75. Myasthenia and eyelid surgery

A S Litwin, A A McNab, B Patel, J D McCann, R Malhotra
Queen Victoria Hospital NHS Trust, East Grinstead

Introduction: Approximately half of all patients with myasthenia gravis (MG) first present to an ophthalmologist, with ptosis and diplopia being the most common complaints. Medical management remains the first line of therapy, but in up to a third ptosis surgery is appropriate. Published evidence is scanty for clinicians managing this group.

Purpose: Report largest series of experience for ptosis surgery in patients with MG.

Method: Retrospective review. Eighteen patients, symptomatic despite medical treatment, undergoing eyelid surgery between 1992-2012. Outcome measures included improvement in lid height, length of success, need for further procedures and complications.

Results: Eighteen patients with MG underwent 39 eyelid procedures. The mean age at surgery was 59 years (range 8-75 years) and mean follow-up 32 months (range 3-112 months). 9/18 patients had ocular MG, 8/18 systemic and 1/18 congenital. 12 patients underwent ptosis surgery, with 7 undergoing bilateral procedures, resulting in 19 primary procedures. 11/19 were anterior approach levator advancements, 3/19 posterior

approach, 3/19 brow suspensions and 2/19 tarsal switch procedures. Postoperative symptoms or signs of exposure keratopathy occurred in 2 patients, necessitating eyelid lowering in 1 eyelid of 1 patient. 12/19 eyelids operated upon required further lid heightening surgery, after an average of 27 months (range 0.5-87 months).

Conclusion: Ptosis surgery can achieve eyelid elevation in patients with MG with only a low risk of exposure keratopathy as long as the aims of surgery are carefully addressed. This approach necessitates repeat surgeries in a large proportion of patients.

76. The management of Graves' Orbitopathy- an online survey
S Ameen, V Lee
Central Middlesex Hospital

Introduction: The 2009 Amsterdam Declaration on Graves Orbitopathy (GO) received widespread endorsement by clinicians. However the administrative and funding arrangements for the multidisciplinary management of this disfiguring and potentially sight threatening disease appear not to have been clearly identified in current NHS primary and secondary care provisions.

Purpose: To establish whether there is a preferred practice pattern among GO experts in the UK and to provide supportive evidence that aids in implementing the declaration.

Method: An online questionnaire was emailed to all members of the British Oculoplastic Surgery Society (BOPSS) and responses collected over 3 cycles sent out over a period of 4 months in 2012. This included questions about the preferred disease severity classification, immunosuppressive agents, use of orbital radiotherapy and multidisciplinary clinics.

Results: Sixty questionnaires were sent out to working emails obtained through the BOPSS website. 38 (63.3%) completed responses were received. 17 (43.5%) used CAS classification system. 36 (95%) used steroids as their first line immunosuppressant, with 36% oral, 13.5% peribulbar injections & 50.5% intravenous methylprednisalone. 1 (2.6%) clinician referred patients for orbital radiotherapy. 18 (47.8%) operated as part of a multidisciplinary team. 11 (29.2%) encountered difficulties with treating patients in a multidisciplinary setting.

Conclusion: The survey highlights that the treatment of GO patients is still varied across the country with less than 50% of BOPSS members participating in a multidisciplinary team. These results are shared with TEAMeD, the UK group responsible for implementing the Amsterdam Declaration, to help standardise our practice nationwide.

77. Frontalis sling surgery using the brow single stab incision technique, a closed loop audit.
Y W Wong, A R G Gibson, P S Severn
James Cook University Hospital

Introduction: To demonstrate the outcome of frontalis sling surgery using the brow single stab incision frontalis sling technique. This closed loop audit explains the technique and its advantages over the fox pentagon fascia lata frontalis sling. It summarises the outcomes after 5 years and aims to broaden the management of ptosis with poor levator function.

Purpose: To demonstrate the effectiveness of the brow single stab frontalis sling surgical technique over 5 years.

Method: An audit was completed in 2009 reviewing the outcomes of frontalis surgery using the brow single stab incision technique. A reaudit in 2012, using a proforma extracted data from the notes with regards to the patient's preop upper marginal reflex distance and the patient's happiness post surgery. The reaudit reviewed 17 patients who had undergone surgery by the same surgeon over a 3 year period.

Results: The audit completed in 2009 reviewed 11 patients of which one needed a revision due to infection. In 2012 the second audit cycle reviewed 17 patients with only one patient again requiring revision due to infection. Out of the 28 patients, 26 were more than satisfied with their surgical results.

Conclusion: Frontalis sling surgery using the brow single stab technique is a shorter operation in comparison to correcting ptosis with a fascia lata frontalis sling. Silicone rods are cheap and tolerated well. This closed audit cycle highlights the effectiveness of the brow single stab technique with a 93% patient satisfaction.

78. Visual outcomes following orbital biopsy
E G Kemp, A Jamison, M E Gregory, D A M Lyall
Tennent Institute of Ophthalmology, Glasgow

Introduction: The risks of orbital biopsy depend on the lesion's location and relationship with surrounding orbital structures. Complications include reduced vision, although visual outcomes following orbital biopsy are not widely reported.

Purpose: To determine the visual outcomes following orbital biopsy in Gartnavel General Hospital's Oculoplastic and Oncology Service.

Method: We retrospectively reviewed the casenotes of 50 consecutive patients undergoing orbital incision or excision biopsy between January 2006 and December 2010. Data collected included preoperative clinical examination, radiological and histological features, preoperative and postoperative visual acuity (VA) and surgical complications. The main outcome measure was change in VA. Mean follow-up duration was 1.32 years.

Results: Histological diagnoses following biopsy included idiopathic orbital inflammation (n=10), lymphoma (n=9), carcinoma (n=3) and vascular lesions (n=3). Of the radiologically defined lesions, 86.7% were extraconal (13.3% intraconal). Extraconal lesions were anterior in 59.0% and posterior in 41.0%. Mean preoperative LogMAR VA was 0.10 which was maintained at day one post-biopsy, indicating the absence of sight-threatening complications such as retrobulbar haemorrhage or optic nerve compression. There was reduction in VA at first follow-up visit (P=0.008) and final follow-up (P=0.015) although in the five patients significantly losing VA (≥2 Snellen lines) this was due to co-morbid pathology or complications of adjuvant treatment rather than biopsy itself. Further analysis of change in VA showed no difference between: extraconal and intraconal lesions; incision and excision biopsies; anterior and lateral surgical approaches.

Conclusion: This study demonstrates that following orbital biopsy VA is retained for one year and that significant visual loss is a very rare complication

79. Success Rate of Nurse-Led Everting Sutures for Involutional Lower Lid Entropion

B R Mohammed, R L Ford
Aberdeen Royal Infirmary

Introduction: Involutional entropion represents a significant proportion of oculoplastic workload. Previous studies have established that surgical methods that address horizontal lid laxity provide longer-lasting entropion correction than everting sutures (ES) alone, but such techniques are more complex than ES and utilise theatre time. Outpatient ES performed by ophthalmic nurses offers a rapid, cost effective alternative provided its safety and efficacy can be demonstrated.

Purpose: To evaluate safety and long-term recurrence rate of entropion in patients having ES by ophthalmic nurses in a real clinical setting.

Method: Retrospective notes review of all patients having outpatient ES by nurses in our hospital from 2007-2008 inclusive. Outcome measures were complication and recurrence rates. Those with less than 3 years' recorded follow-up were contacted by paper questionnaire.

Results: 90 lids of 82 patients analysed. Mean age 78 (range 54-97). 82% had no entropion surgery before, while 13% had previous ES and 5% one or more other procedures. Questionnaires were sent to 38, with return rate 81%. Recurrence rate was 23% after 36-60 months follow-up from nurse-performed ES, with mean time to recurrence 15 months (SD 13 months). 32% of patients died during follow-up period. Mean time between procedure and death is 20.5 months. When ES were repeated twice (11 patients), recurrence rate was still 20%. No patients had any complications

Conclusion: Everting sutures can be safely performed by ophthalmic nurses, with success rate comparable to the same technique performed by ophthalmologists.

80. Single session Argon Laser photocoagulation for xanthelasma palpebrarum: case series with 3, 6 and 12 month follow-up and patient satisfaction survey.

E R A Millar, D Tejwani
Royal Alexandria Hospital

Introduction: Surgical xanthelasma excision is no longer funded within many healthcare trusts. We present this as a safe, well tolerated, efficient and economically viable alternative to be offered to patients in the out-patient setting.

Purpose: The use of argon laser for the treatment of xanthelasma palpebrarum was first described in 1995. Unlike previous case series, our patients were treated in one session with non-continuous argon laser photocoagulation (500um, 300-350mW 3sec bursts to cover the whole lesion).

Method: We present a single session, single surgeon, and single laser case series of 30 upper and lower eye lids in 16 patients with 3, 6 and 12 month follow-up. Photographs were taken for objective cosmetic outcome and a patient satisfaction survey was performed for subjective cosmetic results.

Results: One lesion required re treatment within the 12 month period. However, the overall patient satisfaction at 12 months was >85% good-very good.

Conclusion: In collecting this data we hoped to highlight this technique as a safe, well tolerated, efficient and economically viable alternative to surgical xanthelasma excision to be offered to patients in one sitting in the out-patient setting.

81. Slit-lamp punctoplasty for congenital or acquired punctal absence or stenosis
F E Mellington, R Khooshabeh
Wycombe Hospital

Introduction: External punctal absence or stenosis is a frequent cause of epiphora in ophthalmology outpatient clinics. It has a multifactorial aetiology which includes developmental, inflammation (e.g. chronic blepharitis), infection (e.g. herpes virus),aging and topical and systemic medications. Chronic inflammation of the external punctum causes gradual fibrotic changes in the ostium and progressive occlusion of the duct.

Purpose: These patients are conventionally evaluated in clinic then referred for surgical treatment with 1-, 2-, 3-, or 4-snip punctoplasty in a minor ops clinic or operating theatre. Assessment of canalicular patency and more distal lacrimal drainage is thereby delayed until then.

The 1- to 4-snip punctoplasties involve full thickness incisions of the ampulla and/or vertical and horizontal canaliculi and have variable success rates. Disadvantages include: destruction of normal anatomy with subsequent disruption of the lacrimal pump mechanism, which is essential for normal tear drainage; delayed evaluation of any associated canalicular stenosis (present in up to 45% patients with punctal stenosis); and obstruction of nasolacrimal duct requiring DCR.

Method: We describe a novel method of punctoplasty, performed in clinic at the slit lamp under topical anaesthesia, which specifically targets the fibrotic band in the ostium of the punctum.

Results: This procedure is well-tolerated and avoids subcutaneous local anaesthesia, full thickness incisions of the punctum, ampulla or canaliculi.

Conclusion: Other benefits include: same-session syringing to exclude more distal obstruction, reduced extrusion of adjunctive stents; reduced patient visits and treatment delays incurred in referring patients for punctoplasty.

82. Two new cases of metastatic basal cell carcinoma from the eyelids.
J O Li, A S Litwin, S D Shah-Desai, R Malhotra
Queen's Hospital, Romford

Introduction: Basal cell carcinoma (BCC) is an extremely common malignancy. Unlike other skincancers, it very rarely metastasises.

Purpose: We present two cases of advanced BCC on the eyelids that metastasized to the parotid region after local excision and simultaneously encourage colleagues in reporting such experiences to contribute to the relative paucity of available evidence.

Method: Case 1: Following excision of locally invasive lateral canthal BCC with post-operative MRI showing no residual disease, a 68-year-old patient re-presents a year later with a mandibular mass confirmed to be BCC on histology.

Case 2: Parotid invasion was detected on surveillance MRI following excision with subsequent Moh’s surgery and adjuvant orbital radiotherapy in an 86-year-old patient with lateral canthal BCC, 33 months after initial presentation.

Results: These cases meet the criteria for true metastasis, with histological confirmation of tumour localisation within the gland, rather than being there sult of tumour extension during reconstruction.

Conclusion: We review the limited evidence of patients with metastatic BCC originating from the eyelids, and propose that metastasis in the older age group appear sooner than the more commonly seen protracted course of 9-18 years in younger patients. Moreoever, the shorter time to metastasis of eyelid BCCs may be the consequence of proximity to and thus ease of orbito-sinus spread, particularly in inadequately treated or neglected tumours. Adjuvant radiotherapy may be considered in metastatic disease although higher level evidence supporting its use may never be achievable for this rare condition.

83. Inferior and Lateral Approaches to Orbital Surgery: An Anatomical Study
A Ali, H Naveed, A Messiha
St George's, University of London

Introduction: Zygomatic-maxillary-complex (ZMC) fractures account for 24% of all craniofacial fractures, 47% of which have significant orbital involvement. Orbital exploration is imperative in such cases to prevent postoperative enophthalmos. Orbital surgeons rely on identifying orbital landmarks via the lateral and inferior approaches as they triangulate to the orbital apex.

Purpose: We present an anatomical study that identifies geometrical relationships between fixed orbital landmarks as encountered by the surgeon during the lateral and inferior orbital approaches.

Method: Fifty orbits from 20 dry skulls and 5 cadavers were analysed using a surgical ruler. Geometric relationships between the fronto-zygomatic suture (FZS), fronto-zygomatic-sphenoid suture (FZSS), superior orbital fissure (SOF) and optic canal (OC) were mapped along the lateral approach. Distances between the edge of the inferior orbital fissure (eIOF), intersection point (IP) between inferior orbital groove and fissure, and OC were measured along the orbital floor. The mean measurements were used to calculate geometric angles and create three dimensional models.

Results: For the lateral approach, the mean distances between the FZS, FZSS, SOF and OC were 14mm (σ=2.6mm), 21mm (σ=4.0mm) and 13mm (σ=3.1mm) respectively. For the inferior aspect; the measurements from OC to eIOF and IP were 24mm (σ=2.7mm) and 35mm (σ=2.4mm) respectively.

Conclusion: We have described novel geometric relationships of the lateral and inferior orbital walls which can be used in conjunction with radiology to plan orbital surgery and as an intraoperative navigational aid during orbital floor reconstructions to assess proximity to key neurovascular structures in the congested orbit.

84. Calibre Persistent Artery of the Eyelid
K Wong, U Mulla, F Roberts, C Diaper, P Cauchi
Southern General Hospital

Introduction: The term calibre persistent artery (CPA) was first used by Voth in 1962 to describe an abnormal vessel protruding through a gastric mucosal defect. The vessel was a primary arterial branch which extended into the submucosa without reduction in its calibre. It is best recognised on the skin of the lower lip.

Purpose: To report 3 cases of calibre persistent artery presenting in the eyelid.

Method: A case series describing three patients with vascular lesions of the eyelid. One case was bilateral. Diagnosis was made based on biopsy results in all three cases.

Results: All three patients presented with a painless red lesion on the eyelid. These were on the lower eyelid in two patients and the upper eyelid in one patient. For the bilateral case the lesions were both on the lower eyelid. Histological examination of all four biopsies showed a large calibre artery within the dermis extending almost at right angles to the skin surface and consistent with calibre persistent artery.

Conclusion: These are the first reports of calibre persistent artery of the eyelids, an entity that is most commonly recognised on the lips. Clinicians should consider this entity in the differential diagnosis of patients presenting with a painless, vascular lesion of the eyelid.

85**. Glomus jugulare: a rare cause of facial nerve palsy**
A Kovacova, S Ghazi-Nouri
Department of Ophthalmology, Broomfield Hospital, Chelmsford

Introduction: Glomus jugulare tumours occur with an estimated annual incidence of 1 case per 1.3 million people. We report a case where this rare diagnosis occurred in two family members. Furthermore, one of them was diagnosed in an oculoplastics clinic after an unusual development of facial nerve palsy.

Purpose: To report a case of an unusual presentation of a glomus jugulare tumour

Method: Case report

Results: Glomus jugulare is a very rare brain tumour that usually presents with tinnitus, hearing loss, dysphagia and hoarseness. We report a case where this extremely rare diagnosis presented quite differently, with ipsilateral proptosis and subsequent facial nerve palsy. Furthermore, the sibling of the presented case had also been diagnosed with the same tumour.

Conclusion: There have only been a few case reports in the literature describing facial nerve palsy in the context of a glomus jugulare tumour. This case highlights that although paragangliomas are exceedingly rare causes of facial palsy, they should be included in the differential diagnosis.

86. IgG4 Disease: A revised diagnosis of sarcoidosis after 36 years of treatment
J T S Yu, T J Hall, S U Kale, A M Phillips, S N Madge
Wye Valley NHS Trust

Introduction: IgG4-related disease is a recently recognised systemic disease characterised by IgG4-positive plasma cell tissue infiltration, often with high serum-IgG4. It presents with an enigmatic myriad of seemingly unconnected symptoms and remains a considerable diagnostic challenge, unless specifically considered.

Purpose: We describe a 63-year-old gentleman, with a slowly enlarging right supra-orbital mass present for 36

years. He originally presented age 27, when positive Kveim-testing and orbital biopsy was suggestive of sarcoidosis. He received long-term glucocorticoids that reduced the mass growth, however, it slowly encroached upon his visual field measuring 2.5cm in diameter and extending 3cm beyond the orbital rim, highly atypical of sarcoidosis.

Method: The steroids were tapered and excision biopsy performed, during which the supra-orbital nerve was sacrificed as it coursed through the centre of the mass. Histology revealed a thickly encapsulated nodule of lymphoid tissue with mature plasma cells and inconclusive immunohistochemical-staining. The regional lymphoma MDT decided it likely represented an inflammatory pseudo-tumour.

Results: He subsequently developed hoarseness of voice, difficulty swallowing and upper-jaw pain. False vocal cord and large hard palate lesions were discovered; multiple biopsies confirmed a reactive lymphoid process. Tertiary centre referral was made and IgG4-related disease was diagnosed after biopsies revealed >50/high-power-field IgG4-positive plasma cells. Serum immunoelectrophoresis confirmed an IgG4 subset increase of 12-fold.

Conclusion: This case highlights the importance of considering this elusive and novel disease. It has numerous presentations and is easily mistaken for alternative diagnoses. The prognosis remains uncertain, however, efficient multi-disciplinary team-working is pivotal. Long-term glucocorticoids, with or without immunomodulation, remain the mainstays of management.

87. Clinical outcome following laissez fairre approach for periocular tumours

D Trivedi, B Lakhani, R Sampath, J Burns
University Hospitals of Leicester

Introduction: Primary Goals of periocular tumour excision is complete extirpation of the tumour and satisfactory final functional and cosmetic outcome

Purpose: To determine clinical signs and symptoms following laissez fairre approach for periocular tumours

Methods: retrospective, observational audit of 51 patients who underwent excision biopsy of periocular tumours involving lowerlid (n=40) and medialcanthus (n=11) were allowed to heal by secondary intention based on patient preference between 2005-2011

Results: average age of 74.39 years (range, 39-95 years) in 25male and 26females. 28 patients were asymptomatic(54.90%), 4 itchy eyes (7.84%) during the initial healing phase 2 were allergic to topical antibiotic cream, 1 allergic to medpore, lid notch 2(3.92%) due to asymmetrical healing out of which one had notch excision and the other was asymptomatic and not keen on surgical intervention, ingrowing eyelashes in 6(11.76%) all of them preferred to have epilation done when required and didn't opt for any surgical intervention, punctual ectropion in 8(15.68%), granuloma 2(3.92%) which resolved with topical steroid, medial canthal excision had webbing 4(7.84%) and 3 with lower lid excision had contracture (5.88%) which improved with massage and topical lubricants, anklyoblepharon 1(1.96%), retention cyst (1.96%), 6 patients had punctate epithelial erosion (11.76%), 15 patients had watery eyes (29.41%) from combination of reasons mentioned above which were alleviated by topical lubricants in most of the cases. None had infection

Conclusions: Laissez fairre technique is a safe, patient favoured approach with acceptable cosmetic and clinical outcome comparable with the reconstructive procedure.

CORNEAL AND EXTERNAL EYE DISEASE

88. Long-term follow-up of riboflavin/ultraviolet A (370nm) corneal collagen cross-linking to halt the progression of keratoconus

T Q Kwong, D O'Brart, P Patel, R J McDonald, N A O'Brart
St Thomas' Hospital, London

Introduction: Corneal collagen cross-linking (CXL) is the first treatment that halts the progression of keratoconus. Whilst clinical studies support the efficacy of CXL, there is a paucity of long-term data.

Purpose: To determine long-term efficacy of riboflavin/ultraviolet A corneal cross-linking

Method: 29 patients who had undergone CXL following epithelial removal 4-6 years previously had treated eyes (29 eyes) and untreated fellow eyes (24 eyes) examined. Clinical examination, scanning slit corneal topography, placido-disc video-keratography and central corneal pachymetry were performed. Paired student t-tests were used to compare pre and post-operative outcomes within treated and untreated groups.

Results: At 1 year, mean spherical equivalent error (SEQ) increased by +0.7 diopters (D) ($p<0.002$), best spectacle corrected visual acuity (BSCVA) improved ($p<0.005$), mean simulated keratometry (Sim K) reduced

by 0.27D (p<0.04), cone apex power (CAP) reduced by 0.4D (p<0.02) and secondary astigmatism improved (p<0.03) compared to pre-operative values. At 4-6 years, mean SEQ increased by +0.8D (p<0.002), BSCVA improved (p<0.03), mean Sim K reduced by 0.73D (p<0.0001), CAP reduced by 1.16D (p<0.0005) and root mean square (RMS) (p<0.0001), coma (p<0.0001), secondary astigmatism (p<0.005) and pentafoil (p<0.05) decreased compared to preoperative values. At 4-6 years mean Sim K reduced by 0.46D (p<0.0005), CAP reduced by 0.76D (p<0.02), RMS (p<0.001), coma (p<0.002) and secondary astigmatism (p<0.02) reduced and central pachymetry increased (p<0.05) compared to 1 year. No treated eyes progressed. None lost >1 line of BSCVA. Ten untreated fellow eyes progressed.

Conclusion: CXL is an effective and safe treatment with up to 4-6 years follow-up. Improvements in topographic and wave-front parameters evident at 1 year continue to improve at 4-6 years

89. Corneal Nerves In Eye Bank Preserved Corneas
V K Dhillon, H S Dua
University of Nottingham

Introduction: This is the first and largest study to provide histological evidence that corneal nerves can in fact be preserved in donor corneas when kept in the conventional organ culture storage for several weeks prior to corneal transplant surgery.

Purpose: We aimed to investigate the state of corneal nerves in eye bank preserved corneas using the acetylcholinesterase (AChE) technique.

Method: 22 eye bank corneas that were preserved via organ culture storage for 4 weeks and more at the Manchester Eye Bank were available for this study. All corneas were stained as whole mounts using the AChE technique; and then scanned enface using the Hamamatsu Nanazoomer digital pathology microscope to view corneal nerves in multiple layers.

Results: A total of 15 of the 22 corneas (68.2%) had AChE positive stromal nerves entering peripherally; of which centrally extending nerves were seen in 8 samples. Many stromal nerves were seen to terminate abruptly. No sub-basal nerves were detected in any of the samples.

Conclusion: Following penetrating keratoplasty, it has been reported that stromal nerves do not contribute to epithelial re-innervation and most sub-basal nerves are seen to regenerate peripherally from the host. Therefore, it has been assumed that the stromal nerves seen in grafts also regenerate from the host. However, since stromal nerves are seen to be present in 68.2% of eye bank corneas prior to transplantation, it is possible that Schwann cell elements from host nerves may guide them to regenerate with donor nerves.

90. Topography-guided Photorefractive Keratectomy and Cross-linking for Ectasia After Laser Assisted In Situ Keratomileusis
S H Holland, D L Lin, G M Moloney, J T Tan
University of British Columbia

Introduction: This study demonstrates an alternative treatment for highly symptomatic patients with post-LASIK ectasia and contact lens intolerance, potentially avoiding a cornea transplant

Purpose: To evaluate early results of topography-guided photorefractive keratectomy (TG-PRK) with simultaneous collagen cross-linking (CXL) for ectasia after laser assisted in situ keratomileusis (LASIK).

Method: Patients with post-LASIK ectasia underwent TG-PRK with simultaneous CXL. 29 eyes of 41 were treated using Allegretto Wavelight laser (AW) and 12 eyes with iVIS laser. Trans epithelial PRK and custom Topographical Neutralization Technique (TNT) . Pre and post-operative assessment of symptoms, uncorrected visual acuity (UCVA), best spectacle corrected visual acuity (BSCVA), manifest refraction (MR) predictability, and safety accessed.

Results: 18 of 27 eyes treated by the AW laser had sufficient data at 6 months for analysis – 13 of 18 (72%) showed UCVA of =20/40. 8 (44%) gained two or more lines of BSCVA while 1 (6%) lost two or more. Mean reduction in astigmatism (RIA) was 2.52D. 7 of 14 patients treated by the iVIS laser had sufficient data at 6 months for analysis - 4 of 7 (71%) had UCVA of =20/40. 2 (28%) gained two or more lines of BSCVA while none lost two lines or more. Mean RIA was 1.70D. Combining results for both lasers, all but 3 patients symptomatically improved.

Conclusion: Early results demonstrate that custom TNT TG-PRK with CXL shows promise as an effective and safe treatment for post-LASIK ectasia All but 3 patients had improved symptoms. Most patients treated by AW laser recovered UCVA of 20/40 and also improved BSCVA.

91. Percentage Endothelial Cell loss and Complication rates with combined Descetmets Stripping Endothelial Keratoplasty and Cataract Surgery

S M Jones, M Fajgenbaum, E J Hollick
Kings College Hospital NHS Trust, London

Introduction: There are differences of opinion as to whether cataract surgery should be performed concurrently or sequentially in patients requiring both cataract surgery and Descetmets Stripping Endothelial Keratoplasty (DSEK).

Purpose: To report six month endothelial cell loss (ECL) and postoperative complications in a large series of patients undergoing either combined phacoemulsification and DSEK or DSEK.

Method: Patients undergoing DSEK with or without concurrent cataract surgery were included in this prospective interventional case series over a seventy seven month period. Main outcomes measured included post-operative complications and percentage ECL at six months.

Results: DSEK was performed in 202 patients and combined with cataract surgery in 76 patients. ECL data was available for 86/126 patients undergoing DSEK, and 55/76 patients undergoing combined procedure. Mean percentage ECL at six months was 44.38 ±14.33 in the DSEK group and 42.14 ±16.48 in patients undergoing combined procedure. Patients with Fuchs endothelial dystrophy with atraumatic endoglide graft insertion and no other anterior segment co-morbidity had a mean ECL of 38.19 ±9.52 in the DSEK group and 37.00 ±16.76 in the combined group. Graft dislocation, re-bubble and graft rejection occurred in 18 (14.29%), 14(11.11%) and 16 (12.70%) patients respectively undergoing DSEK and 11 (14.47%), 11 (14.47%) and 5 (6.58%) patients undergoing combined procedure. Primary graft failure occurred in one patient with known inflammatory glaucoma.

Conclusion: ECL at six months and complication rates were comparable in patients undergoing concurrent DSEK with cataract surgery and those undergoing DSEK.

92. Management of patients with Herpes simplex virus eye disease undergoing cataract surgery in the United Kingdom: A survey

R Karim, E Sykakis, D Parmar
WhippsCross Hospital

Introduction: Ocular manifestations of Herpes Simplex Virus are one the leading infectious causes of corneal blindness in developed countries.

Purpose: Our aim was to gain consensus in the management of patients with herpetic eye disease who are undertaking cataract surgery.

Method: A questionnaire was sent to each member fellowof the Royal College of Ophthalmologists (UK) registered as a cornea consultant with a subspecialty interest in cornea. Contact details were obtained from the institution and consultants contacted by post. A stamped, self-addressed envelope was sent with the questionnaire. Questionnaires could be completed on paper or using an online password protected version.

The questionnaire consisted of 25 questions with space for comments. The survey was designed to ascertain clinician's management of patients with known history of Herpes Simplex ocular infection undergoing cataract surgery. Specific questions were asked regarding pre, peri and postoperative treatment protocolsprior to, during and after cataract surgery were askedin these patients.

Results: The majority of responders agreed that disease stability was required before offering cataract surgery. 62.3% responded they would operate on patients who had quiescent disease for over 3-6 months. The decision for prophylactic antivirals divided our respondents with 58.8% in favour of starting antiviral treatment. Of those in favour of preoperative treatment, 85% responded they would start treatment 7 days before surgery. Most consultants (72.46%) did not start topical antiviral treatment. In regards to changing topical steroid use post operatively 80.9% of responders replied they would not change their routine regimen. 92.5% of the consultants choose oral Aciclovir as their first line treatment.

Conclusion: This study highlights the need for further clinical research regarding pre-, peri- and postoperative prophylaxis for patients with a history of ocular Herpes Simplex virus disease undergoing cataract surgery. Antiviral prophylaxis is common clinical practice with little change in routine postoperative steroid use.

93. Intraocular lens opacification after Descement stripping automated endothelial keratoplasty

M A Ahad, K Darcy, P J Jaycock, S D Cook, D M Tole
Bristol Eye Hospital

Introduction: Intraocular lens (IOL) opacification is a serious but rare problem that may necessitate exchange of the lens. This phenomenon has now been described in various cases requiring use of intraocular gases including descement stripping endothelial keratoplasty, (DSAEK) which also involves injection of air in the anterior chamber

Purpose: To report anterior opacification of IOLs as a potential complication after DSAEK procedures

Method: Single centre, retrospective case review study of all the patients undergoing DSAEK with or without cataract surgery and lens implant. Clinical data of all the cases with opacified IOL was analyzed and possible risk factors identified

Results: Out of total 175 DSAEKS performed, data of 147 procedures was available for review. 147 DSAEKs were performed on 136 eyes of 120 patients. All the IOLs implanted in the centre during this period were hydrophilic acrylic Akreos AO®. In 49 cases IOL was implanted at the time of surgery. A total of 11 (8%) eyes developed IOL opacification characterized by an unusual pattern of opacification limited to the anterior IOL surface in the pupillary area. Median time interval from keratoplasty to first notice of IOL opacification was 19 months (minimum 4 months, maximum 26 months). The only identifiable risk of IOL opacification was rebubbling of detached endothelial graft. Rebubbling was done in 45% (5/11) of the cases with opacified IOL as compared to 23% (28/124) with no IOL opacification (p=0.09)

Conclusion: This is a first study to report the incidence of IOL opacification after DSAEK surgery. Although the exact mechanism is not known, but this may be related to multiple injections of air into the anterior chamber.

94. Oral acyclovir prophylaxis for recurrent Herpetic corneal diseases; Outcomes
O C Erikitola, V Shankar, A Reddy
Aberdeen Royal Infirmary

Introduction: Herpes Simplex Viral (HSV) keratitis remains one of the biggest causes of corneal blindness. Recurrent HSV keratitis is common. Long-term oral acyclovir in the dose of 400 mg twice daily has been the mainstay to reduce recurrence rates.

Purpose: To compare the recurrence rates of HSV keratitis in patients treated with oral acyclovir in Grampian region with published reports including the Herpetic Eye Disease Study (HEDS)

Method: This is a retrospective case note review of patients started on oral acyclovir (400mg twice daily) in the NHS Grampian region between August 2008 and February 2012 for suspected HSV related corneal disorders. Data was collected from the Pharmacy dispensary database and the medical records for these patients were reviewed and analysed.

Results: A total of 67 patients (71 eyes) were identified using the search criteria above. Of these 58.21% were females. The mean age was 52.73yrs.
The indication for oral acyclovir therapy was recurrent HSV epithelial keratitis in 64.18, recurrent disciform/stromal keratitis in 19.40% and HSV kerato-uveitis in 13.43%.
In patients with recurrent HSV epithelial keraitis, 81.40% of patients had more than 2 recurrences per year prior to acyclovir treatment, compared to only 46.51% of patients after prophylactic acyclovir started.
In Stromal/Disciform Keratitis, 23.08% of patients had more than 5 recurrences per year and 70% had 1-2 episodes per year prior to acyclovir treatment, and this was significantly reduced to less than 2 episodes per year in 100%.
In patients with HSV Kerato-uveitis, 66.67% of patients had recurrence rate of 1 to 2 episodes per year prior to oral acyclovir therapy. This reduced to 33.33% once oral acyclovir was commenced.

Conclusion: Recurrence rates of HSV epithelial, stromal and keratouveitis in this cohort of patients treated with oral acyclovir compare favourably/or better than those reported in the HEDS trial.

95. Topographically-guided photorefractive keratectomy for irregular astigmatism following penetrating keratoplasty (PK)
G M Moloney, S H Holland, D L Lin, J T Tan
University of British Columbia

Introduction: Management of irregular astigmatism after penetrating keratoplasty is challenging. Improving techniques of Topograghy guided PRK may offer both both uncorrected and corrected vision

Purpose: Evaluate efficacy and safety of custom topographic neutralization (TNT) in topographically-guided photorefractive keratectomy (TG PRK) for irregular astigmatism following penetrating keratoplasty (PK)

Method: Retrospective case series. 47 eyes with post keratoplasty astigmatism underwent TG PRK with Allegretto Wavelight (AW) laser using a custom Topography Neutralization Technique (TNT) to modify the manifest refraction based on the refractive changes predicted from the plano TG treatment. After treatment mitomycin C 0.02% was applied in all cases followed by standard post-PRK management. Data obtained at 1, 3, and 6 months including uncorrected visual acuity (UCVA), best spectacle corrected visual acuity (BSCVA), refraction, keratometry (K), topography and haze on a 1-4 scale are evaluated.

Results: 28 eyes completed 6 months follow-up. 13 of 28 (46%) had UCVA of 20/40 or better while the best UCVA prior treatment was 20/50. 12 (43%) had BSCVA improved, 7 (25%) gained 2 lines or more, while 3

(11%) lost 2 lines or more. Pre-operative cylinder ranged from -0.75D to -13.50D, and post-operative cylinder ranged from zero to -4.50D. Mean astigmatic reduction was 2.90D. Delayed epithelialization beyond one week in 4 and corneal haze of greater than 2/4 in 3. Retreatment for residual astigmatism was performed in 2 eyes.

Conclusion: Topographically-guided PRK for irregular astigmatism after penetrating keratoplasty using topographical neutralization offers promising early results with good efficacy and safety. Almost half of the subjects achieved 20/40 or better UCVA compared to none preoperatively, with 43% had BSCVA improved.

96. Refractive outcomes of Topography-guided photorefractive keratectomy with simultaneous cross-linking for keratoconus

D L Lin, S H Holland, G M Moloney, J T Tan
Pacific Laser Eye Centre

Introduction: This study demonstrates an alternative treatment for keratoconic patients and contact lens intolerance, potentially avoiding cornea transplant.

Purpose: Evaluate refractive outcomes, efficacy and safety of simultaneous topography-guided photorefractive keratectomy (TG-PRK) with collagen cross-linking (CXL) for keratoconus (KC) using a neutralization technique and determine degree of hyperopic effect of CXL induced keratometric flattening after first year

Method: Retrospective case series. 207 eyes with contact lens intolerant KC that underwent TG-PRK with Allegretto Wavelight (AW) laser using custom TNT with simultaneous CXL. Trans-epithelial, riboflavin 0.1%, UV irradiation 370nm 8-15 minutes, 3mW/cm2 - 5.4 J/m2 , hypotonic riboflavin if less than 400um, bandage contact lens, standard post PRK management. Treatment with minimum residual stromal depth of 300 microns with target correction of -1.25 diopters (D). Symptom score (10 point) , uncorrected visual acuity (UCVA), best spectacle corrected visual acuity (BSCVA), keratometry (K), efficacy, and safety were evaluated at 12 months.

Results: 110 eyes completed 12 months follow-up. 49/110 (59%) had UCVA of 20/40 or better. 63 (57%) had BSCVA improved, 37 (34%) gained 2 lines or more, 7 (6%) lost 2 lines or more. Average symptom score improved from 6.7 to 4.2 (rating from 0 to 10, 10 is worst). Mean astigmatism decreased from -2.82D preoperatively to -1.28D postoperatively. Mean postoperative refractive spherical equivalent (SE) regressed from -0.89 at 3 months post-operatively to -1.14 at 12 months with 14 (13%) having hyperopic progression. 4 eyes had hyperopia spherical equivalent >1.50D. Complications included one herpetic keratitis, 5 delayed epithelial healing beyond 1 week, one requiring penetrating keratoplasty for advanced haze

Conclusion: Early satisfactory refractive outcomes were obtained with simultaneous topographically-guided PRK with CXL. Progressive hyperopia probably related to crosslinking, occurred in 4 eyes. 12 months follow-up showed more than half of the eyes achieved UCVA of 20/40 or better and a third improved BSCVA.

97. Casino Royale Syndrome: "My eye bleeds doc!"

K Naderi, J Myerscough , J Sheldrick
Essex County

Introduction: We present an interesting case series of two patients with presenting complaints of haemolacria.

Purpose: The first case is a 38 year old male who presented with a several month history of intermittent frank blood noted originating from his right eye. He had been examined on numerous occasions by different doctors with no further investigations or management instigated. Our second case is that of a 19 year old female presenting with similar symptomatology who had also been seen and managed in similar fashion.

Method: When seen in our clinic, lid eversion of both patients revealed upper tarsal conjunctival erythematous lesions. Shave biopsy and cautery in both cases yielded a diagnosis of squamous conjunctival papilloma.

Results: Conjunctival squamous papillomas are benign lesions strongly associated with human papillomavirus (HPV) types 6 and 11. They may spontaneously regress or require management with cryotherapy or surgical excision. The differential diagnosis of a conjunctival squamous papilloma includes malignant conditions such squamous cell carcinomas and conjunctival lymphomas.

Conclusion: These cases highlight the importance of (i) a non-dismissive approach to uncommon symptoms; and (ii) complete examination of all patients in which haemolacria is the presenting complaint, including lid eversion to visualise the tarsal conjunctiva. This ensures the exclusion of more sinister differentials, and the initiation of timely diagnosis and management.

98. Xerophthalmia – A Potential Epidemic On Our Doorstep?
S McLaughlin, J Welch, E MacDonald, S Mantry, K Ramaesh
Tennent Institute of Ophthalmology, Glasgow

Introduction: Xerophthalmia refers to the ocular manifestations associated with Vitamin A deficiency. Hypovitaminosis A is a well-recognised condition in developing countries, but is rare in the developed world.

Purpose: The prevalence of xerophthalmia is likely to increase in the developed world due to the increasing popularity of bariatric surgery and the increasing burden of alcoholic liver disease. It is thought, by some that we are on the verge of a potential epidemic. We hope that by increasing the profile of this important public health issue, we may be able to influence future prevalence of hypovitaminosis A.

Method: We present a case series of patients who attended our local eye department in Glasgow with gradual, severe, bilateral visual loss. They all underwent serum vitamin A assays.

Results: All three patients had hypovitaminosis A on biochemical testing and responded dramatically to oral vitamin A supplementation, resulting in an improved final visual outcome.
This series demonstrates that prompt recognition and treatment of xerophthalmia can lead to rapid recovery and avert significant visual morbidity.

Conclusion: We believe that hypovitaminosis A and its consequences are an important public health issue. By raising the profile of xerophthalmia, clinicians will hopefully be able to recognise and treat keratomalacia at an earlier stage and commence vitamin A supplementation in a timely fashion.
This will undoubtedly improve visual morbidity significantly, as demonstrated in our case series.
We hope that by highlighting alcohol abuse and subsequent hypovitaminosis A as an important cause of xerophthalmia, prompt recognition and treatment of keratomalacia will significantly reduce visual morbidity in these patients.
On a larger scale, local governments in conjunction with the Department of Health must not be allowed to lose momentum in tackling this difficult public health issue.

***99. WITHDRAWN In vivo analysis of corneal inflammation and tissue loss in bacterial keratitis (BK).**
A Konstantopoulos, M Tsatsos, D Anderson, M Christodoulides, P Hossain
University of Southampton & University Hospital Southampton

Introduction: BK is a leading cause of visual impairment. The associated inflammatory process causes tissue destruction and scarring; however, understanding of the aetiopathogenesis of BK is limited.

Purpose: To investigate and quantify in-vivo corneal tissue loss and inflammation in Gram negative(-ve) and Gram positive(+ve) BK.

Method: Patients with clinical BK had Visante anterior segment OCT imaging on presentation and after resolution of infection. Using a standardized scanning and analysis protocol, corneal thickness(CT), infiltrate thickness(IT) and infiltrate width(IW) were measured. CT, IT and IW at presentation and final CT after infection resolution were compared in Gram–ve, Gram+ve and culture–ve groups (Kruskal Wallis test) and correlation analyses carried out.

Results: Forty-four patients/eyes (21 Gram-ve, 12 Gram+ve, 11 culture -ve) were prospectively recruited. Mean[95% CI] presentation CT was larger in Gram-ve than Gram+ve and culture-ve BK (1122[1038-1207] vs. 844[774-844] vs. 783[739-830] m, $p<0.001$). Similarly, presentation IT and IW were larger in Gram-ve BK (533[447-618] vs. 373[229-518] vs. 309[232-386] m, $p=0.001$ and 3112[2443-3781] vs. 2268[916-3619] vs. 868[550-1185] m, $p=0.02$ respectively). Final CT was less in Gram-ve BK (442[396-488] vs. 587[508-665] vs. 608[549-668] m, $p=0.001$). All Gram-ve cases and 1 Gram+ve case had presentation CT≥1000 m. Overall, final CT correlated negatively with presentation CT, IT and IW (Spearman's $r=-0.637, p<0.001$; $r=-0.512, p=0.009$; $r=-0.788$, $p<0.001$, respectively).

Conclusion: Presentation CT≥1000 m was highly indicative of Gram–ve etiology. Corneal tissue loss was associated with Gram–ve infection and corneal inflammation at presentation. Better understanding and treatment of the inflammatory process may improve outcomes in BK.

100. Ultrathin Manually Dissected DSEK
M Tsatsos, C MacGregor, A Konstantopoulos, P Hossain , D Anderson
Southampton University Hospitals NHS Trust

Introduction: DSEK has revolutionised the treatment of endothelial dysfunction due to faster visual rehabilitation and improved structural integrity compared to penetrating keratoplasty

Purpose: To describe our novel technique for the dissection of ultrathin donor lenticules for DSEK and compare it to our previous technique

Method: Our novel technique consists of presoaking the donor lenticules for 30 mins in saline solution and dissecting the corneal plane based on the centra corneal thickness

Results: The mean lenticule thickness 1 month post-op was 88.4 microns compared to 142.87 with our previous technique. The mean duration of corneal dissection was 6.82 mins. There were no perforation in this cohort of patients

Conclusion: We descibe a novel technique for the ultrathin dissection of donor lenticules for DSEK. Our techique is quick, safe and reproducible leading to consistently thin corneal donor lenticules. We believe it will be of particular benefit to parts of the world where a keratome is not readily available

101. Central Corneal Thickness as an Objective Measure of Endothelial Rejection following Descemet's Stripping Endothelial Keratoplasty

M G Georgopoulos, M Georgopoulos, M Fajgenbaum, E J Hollick
King's College Hospital, London

Introduction: Graft rejection following Descemet's stripping endothelial keratoplasty (DSEK) is a clinical diagnosis. The signs are often subtle and if missed survival can be compromised. Central corneal thickness (CCT) is an objective measurement, which can be taken quickly and accurately in clinic. We hypothesise that CCT, if measured regularly at follow-up visits, may have potential as an objective marker of graft rejection

Purpose: To determine whether measurements of CCT change in a predictable manner during episodes of corneal graft rejection in DSEK patients; and whether such a change might be used to screen for rejection.

Method: Retrospective, consecutive, single-institution case series of 20 DSEK grafts with documented rejection episodes between 2007-2012, more than 3 months post-postoperative.

Results: Average CCT before rejection 675 m (stand dev 69 m); CCT at the time of rejection diagnosis 779 m (stand dev 120 m). Mean increase in CCT 104 m; mean percentage increase 15.6% (range -0.6% to 52.5%, median 11.7%, 0.95 CI -6.0% to +37.2%). Using a threshold value of 3% increase in CCT-measurements as a level for suspicion of graft rejection, 16/20 eyes with rejection met the criteria (80% sensitivity)

Conclusion: Our study confirms the trend towards increased CCT thickness during rejection episodes. Using 3% increased CCT thickness as a threshold screen, the sensitivity is 80%. Due to small study numbers, this trend towards increased thickness could not be proven at the 95% level of confidence. Further studies will be required to include CCT changes in non-rejection DSEK eyes

102. Herpes Simplex versus Herpes Zoster Keratitis: Comparison of Disease, Treatment, Prophylaxis and Recurrence in the South East region of the UK

H Ali, M A Nanavaty
East Surrey Hospital

Introduction: We often see patients with herpetic keratitis presenting with flare up despite of prophylaxis with good compliance.

Purpose: To compare the demographics, treatments, prophylaxis and outcomes in patients with herpes simplex keratitis(HSK) versus herpes zoster keratitis (HZK) in the South-East region of the UK.

Method: A retrospective chart review of 149 patients with HSK or HZK [HSK(n)=100; HZK(n)=49)] requiring at least one follow-up appointment between January 2006 and August 2012 at East Surrey Hospital, Redhill, UK was performed. Demographics, anterior segment complications, treatment and surgical procedures were documented at each follow-up appointment. Documented outcome measures were visual acuity, anterior segment complications, intraocular pressure(IOP), treatment and further surgical treatment.

Results: HZK patients were older than HSK patients (65.5 Vs 58.4years, P=0.01), more likely to develop increased IOP≥22mmHg at presentation (P=0.01) and secondary uveitis (P =0.00). At the latest follow-up visit, no differences were seen in visual acuity, cataracts, band keratopathy, neutrotrophic keratopathy or perforation. Majority of HZK were treated with topical steroid only(P=0.02) and HSK with topical aciclovir only (P=0.02). Prophylaxis with antivirals was greater for HSK(P=0.00) while topical steroid only prophylaxis was greater for HZK (P=0.00). Flare-ups were greater with HSK(P=0.04), but flare-ups whilst on prophylaxis were equal between the groups(54% and 47%)(P>0.05).

Conclusion: Anterior segment complications occur equally in HSK and HZK but HSK results in more flare-ups despite of Aciclovir prophylaxis with good patient compliance. Further studies needed to look at the resistance patterns of Aciclovir when given as prophylaxis and introduction of stronger antiviral for prophylaxis in the National Health Service.

103. Temporal Spatial Resolution Of Corneal Inflammation
A Mak
University of Southampton

Introduction: Microbial keratitis (MK) can lead to corneal perforation and visual loss. Measuring the temporal resolution of MK in different locations of the cornea can help identify any differences in the rate of resolution between them.

Purpose: To assess the rate of resolution of keratitis using the Anterior Segment OCT (AS OCT), and its capability to evaluate the outcomes of cyanoacrylate adhesive application on patients with corneal perforations.

Method: 27 Patients with suspected MK were scanned using the AS OCT as part of their routine clinical assessment. 4 Scans were performed over a period of 14 days. The infiltrate thickness (IT) and corneal thickness (CT) were measured. The cornea was divided into three circumferential zones, and the location of IT was labeled and the rate of resolution was calculated based the reduction in CT and IT. The gradient values of the 3 zones were then compared using the ANOVA test. 2 Patients with corneal perforation was treated with cyanoacrylate adhesive. Pre and post operative AS OCT scans were performed to show the outcomes of treatment.

Results: The overall average rate of decrease in CT was -19.81µm/day. Average for Zone 1 was 26.18 µm/day; Zone 2: 18.44 µm/day; Zone 3: 15.98 µm/day. The P-value for ANOVA test = 0.445; hence no significant difference was found between the 3 Zones. For corneal perforations, the AS OCT images allowed visualization of the stroma underneath for glue patch, and was able to show the signs of resolution

Conclusion: No significant difference in the rate of resolution of MK was found between Zone 1, 2 and 3. However this could be due to a small sample size. Cyanoacrylate adhesive can be used as a definitive treatment for corneal perforations, and the AS OCT is a useful tool for evaluating outcomes.

104. Study of the VEGF / HIF-1 Angiogenesis Signaling Pathway in Ophthalmic Pterygium with Application of Liquid-Based Cytology, Immuno-Histo-Chemistry and Digital Image Analysis
C D Dimitriou, E Tsiambas, G Vilaras, A Kandarakis, E Brouzas, E Georgalas, D Papaconstantinou
University of Athens

Introduction: Pterygium is an enigmatic multifactorial ocular surface disease, strongly correlating with exposure to ultraviolet radiation. Recurrence rates following various techniques of surgical excision of pterygium are still at considerable levels despite advancements in its current therapeutic approach.

Purpose: The purpose of our study is to evaluate possible involvement of VEGF / HIF-1 angiogenesis signaling pathway in the pathogenesis of primary and recurrent pterygium.

Method: In this randomized perspective study 8 patients with primary or recurrent ophthalmic pterygium (Tan stage 2-3) and 16 healthy individuals with normal ocular surface disease index (control group) were recruited. In the above patients smear from the nasal and temporal conjunctiva was obtained utilizing a special brush (Rovers Cervex-Brush Combi) and placed in a specific preservative fluid for specimens processed with liquid-based cytology (Liqui-PREP). Immuno-histo-chemistry and light microscopy image analysis through a sophisticated system of digital processing (Nikon NIS-Elements AR) were applied to illustrate the expression of VEGF and HIF-1 angiogenesis co-factors.

Results: In the control group there was no statistically significant difference between the expression of either VEGF (M.I.:149.56) or HIF-1 (M.I.:142.76) in neither the nasal nor the temporal side of the conjunctiva, whereas in patients with both primary and recurrent ophthalmic pterygium there was overexpression of the afore-mentioned factors (VEGF-M.I.:131.66 / HIF-1α-M.I.:118.78) at the conjunctival site where pterygium was clinically evident. [RGB GreyScale 0-255 Mean Intensity (M.I.) / Molecules expression intensity is inversely proportional to the calculated values].

Conclusion: Numerous reports in the literature emphasise the role of ultraviolet radiation in promoting both oxidative stress and angiogenesis. Our study confirms the previously reported increased levels of VEGF in conjunctival tissue and illustrates for the first time the overexpression of HIF-1α in pterygium growth. Further investigation is needed to demonstrate the possibility of eliminating pterygium recurrence rate with combined methods of surgical excision and peri-operative administration of anti-VEGF and/or HIF-1a inhibition

molecules.

105. Endopthalmitis two hour treatment target: Is it achievable and does it improve outcome?
T F Somerville, R M K Stewart, R Cheeseman, M C Briggs
St Paul's Eye Unit, Royal Liverpool University Hospital, UK

Introduction: Endophthalmitis is an ophthalmic emergency requiring rapid intravitreal antimicrobials. To

improve management we introduced a two hour diagnosis to treatment time target.

Purpose: To assess the achievability of a two hour diagnosis to treatment time target for suspected endophthalmitis and the effect of time to treatment on clinical outcome.

Method: All patients with newly presenting suspected endophthalmitis at a UK teaching hospital in the 17 month periods both preceding and post introduction of a two hour treatment target time were included. Clinical details and treatment times were collected from case note review and clinic/theatre databases.

Results: 46 eyes of 44 patients were included: 27 eyes pre- and 19 post two hour target. Diagnosis to treatment times varied from 56mins - 7hrs 56mins (mean 3hrs 34mins) pre two hour target and 32mins - 8hrs 12mins (mean 2hrs 58mins) post two hour target. 14.8% (4/27) and 36.8% (7/19) eyes were treated within 2 hours pre and post two hour target respectively. Of those with no other preoperative visual comorbidity, final best corrected visual acuity of 6/9 or greater was achieved in 7 (100%) of those treated under 2 hours, 11 (78.6%) treated 2-4 hours and 3 (42.9%) treated over 4 hours (p=0.043).

Conclusion: A two hour treatment time is hard to achieve. The introduction of a target however reduced treatment times and improved outcome. In patients with no other preoperative visual comorbidity shorter treatment times achieved better final best corrected visual acuity.

106. Antibiotic Resistance in Streptococcus pneumoniae After Azithromycin Trachoma Treatment: A Systematic Review

C K Sawicki, D K-H Ho, N C Grassly
Imperial College School of Medicine

Introduction: Trachoma is the leading infectious cause of blindness world-wide for which azithromycin is the antibiotic of choice. However, there are concerns regarding the possibility of antibiotic resistance development in nasopharyngeal Streptococcus pneumoniae, when mass azithromycin is provided to populations.

Purpose: To examine the evidence for the selective pressure exerted by mass azithromycin on Streptococcus pneumoniae.

Method: A systematic review was conducted by searching keywords on electronic databases MEDLINE and WebOfScience to identify relevant studies. Clinical trials of mass trachoma treatment with azithromycin that examined the prevalence of pneumococcus and its resistance against azithromycin were selected.

Results: Seven clinical trials were identified, with follow-up periods ranging from 90 days to 2 years. Three studies included control groups.

Prevalence of pneumococcus carriage in six of the seven studies, as detected by laboratory culture, ranged from 68.35% to 85.03% initially, which fell within days after azithromycin administration and returned to original values from 2 months onwards. One study maintained below 15% prevalence throughout 6 months.

For resistance, all studies except one recorded low baseline values (0% to 5.26%), with all figures below 20% by 6 months and below 5% by 12 months. Only one study maintained above 20% throughout 2 years.

Conclusion: Our systematic review demonstrates that in communities with low baseline pneumococcal antibiotic resistance, mass azithromycin administration only transiently increases resistance with normal levels present again after one year. The lack of long-lasting pneumococcal resistance is therefore reassuring for azithromycin-based trachoma eradication programs worldwide.

107. Opacification Of Intraocular Lens Implants Following Endothelial Keratoplasty

N E Habib, J C Park
Plymouth Royal Eye Infirmary

Introduction: Descemet stripping automated endothelial keratoplasty (DSAEK) is now recognised as being the operation of choice to treat endothelial failure in pseudophakic patients (typically due to Fuchs' endothelial dystrophy or pseudophakic bullous keratopathy). However, little is known relating to the longterm complications of this procedure.

Purpose: To report intraocular lens (IOL) implant opacification following DSAEK surgery, which is the first case series of its kind in the UK.

Method: Case series reporting 3 eyes with IOL implant opacification that occurred following DSAEK.

Results: Three pseudophakic patients had routine DSAEK for endothelial failure. Two of these patients had hydrophilic acrylic IOLs, and one patient had an IOL of unknown material (previous cataract surgery performed in different eye unit). All patients showed IOL surface opacification, and this is clearly demonstrated on anterior segment photography. The opacification may require IOL explantation if it becomes more symptomatic.

Conclusion: This is the first UK case series of IOL implant opacification following DSAEK. This is a relatively new late complication of endothelial keratoplasty and is difficult to treat since IOL explantation is challenging and can jeopardise the transplant viability. Further surveillance is required to establish its incidence, severity and possible causative mechanisms.

108. Congential blepharitis- pathognomic of pseudohypoaldosteronism.
H Abeysekera, J R Ainsworth
Birmingham Children's Hospital

Introduction: Blepharitis is not present at birth, except in meibomian gland dysfunctionon in the rare life-threatening and treatable condition of pseudohypoaldoseronism (PHA). We review series of cases to highlight the importance of this striking eye sign in the diagnosis of PHA, discrepancy between published cases and our clinical experience and to add for the first time in this condition describe long term follow-up and evidence for treatment.

Purpose: To ascertain the mechanism of meibomian gland dysfunction in PHA, relationship between causative mutation and the presence of eye signs, what is the natural history and whether the condition responds to treatment.

Method: Retrospective review of case records of five children with genetic and biochemical diagnosis of PHA were reviewed. Histology and genotype, course of disease and documentation of the effects of treatment specific to the meibomian gland dysfunction were analysed.

Results: All children demonstrated distension of all meibomian glands at birth, with stalks of rubbery white material extending from all the meibomian glands. The disease evolved into a more typical chronic aggressive form of blepharitis over the first 2 years of life. Unique extreme meibomian gland dysfunction we document is the first and only clinical sign of PHA and appears to be pathognomic.

Conclusion: Conventional medication for blepharitis has proven ineffective in this condition.

To date the role of mineralocorticoids in meibomian gland dysfunction has not been studied. Meibomian gland dysfunction in PHA suggests a possible therapeutic role of agents in the metabolic pathway of glucocotricoids.

109. Corneal endothelial cell count: the effects of proton beam irradiation.
P J Glasman, P McCann, B E Damato
St Paul's Eye Unit, Liverpool

Title: Corneal endothelial cell count: the effects of proton beam irradiation.

Introduction: This is a retrospective cohort study of patients treated with proton beam irradiation for iris melanoma.

Purpose: The study examines the effects of irradiation on corneal endothelial cell count.

Methods: A cohort of 18 consecutive patients was identified from the oncology service database. Post-treatment endothelial cell counts were obtained, using the non-treated eye as a control group. The results were analysed using Student's t-test.

Results: Mean cell density was 2605/mm^3 in the treated eye and 2768/mm^3 in the non-treated eye. This did not represent a statistically significant difference (p=0.088). In a subgroup analysis, mean inter-eye difference was 213/mm^3 in eyes that had undergone subsequent phacoemulsification, which was not statistically significant (n=3, p=0.46).

Conclusions: The corneal endothelium would seem to be a relatively radio-resistant tissue and proton beam irradiation is probably safe even in known corneal endothelial disease.

CATARACT & REFRACTIVE SURGERY

110. Visual and Refractive Outcomes Following Hydrophilic Acrylic Toric Intraocular Lens Implantation in Eyes with High Corneal Atigmatism (>3.0D)
D A M Lyall, J Y Ng, S Srinivasan
University Hospital Ayr

Introduction: Pre-existing corneal astigmatism may adversely affect post-operative visual outcome following cataract surgery.

Purpose: To report the visual and refractive outcomes following implantation of a hydrophilic acrylic toric intraocular lens (IOL) during cataract surgery in patients with corneal astigmatism greater than 3.00 dioptres (D).

Method: Prospective interventional case series. 39 eyes of 29 patients found to have pre-existing corneal astigmatism greater than 3.00D and visually significant cataract underwent phacoemulsification and implantation of a customised toric IOL. Pre and post-operative assessment included uncorrected and corrected distance visual acuity (UDVA and CDVA), manifest refraction, optical biometry and slit lamp biomicroscopy.

Results: There were no intraoperative complications. Mean UDVA (LogMAR) improved from 0.84 ±0.29 pre-operatively to 0.15 ±0.13 ($p<0.001$) post-operatively. Mean CDVA also improved from 0.53 ±0.20 to 0.04 ±0.11 ($p<0.001$). Mean pre-operative corneal astigmatism was 3.90 ±0.68D (range 3.06 – 6.15). Mean post-operative refractive cylindrical error was 0.43 ±0.44D. There was a significant reduction in variance of Cartesian astigmatic co-ordinates, J0 ($p<0.001$) and J45 ($p<0.001$), post-operatively with an overall reduction in astigmatism towards 0. Mean surgically induced astigmatism was 0.32D. There was no rotation of any IOL greater than 5 degrees requiring secondary repositioning.

Conclusion: Implantation of a hydrophilic acrylic toric IOL is a safe and effective, providing good post-operative visual acuity and reduced refractive astigmatism in subjects undergoing cataract surgery with greater than 3.00D of pre-existing corneal astigmatism.

111. Lens-iris diaphragm retropulsion syndrome during phacoemulsification in vitrectomised eyes

S Ghosh, K Best, D Steel
Sunderland Eye Infirmary

Introduction: Lens-iris diaphragm retropulsion syndrome (LIDRS) occurs in varying frequency during cataract surgery as observed in several studies specially in eyes with myopia and in patients who had previous vitrectomy

Purpose: To find the incidence and associations of LIDRS, also referred to as reverse pupillary block (RPB) during phacoemulsification in patients who have had previous vitrectomy.

Method: Seventy five eyes of 75 patients who had previous vitrectomy were evaluated during subsequent phacoemulsification cataract surgery. Age, type of cataract, pupil size, time between vitrectomy and cataract surgery, indication of vitrectomy, indentation used or not, axial length (AL), anterior chamber (AC) depth were analysed to see if there was association with any of these variables and LIDRS.

Results: Out of the 75 eyes, no evidence of LIDRS was seen in 35 (46.7%) eyes, whilst 40 (53.3%) eyes had some degree of LIDRS. Mean [standard deviation (SD)] age of the patients were 65.2 (9.4) years, mean (SD) AL was 23.6 (1.5) mm and the mean (SD) anterior chamber depth (ACD) was 3.2 (0.4) mm. Age ($P = 0.001$), extensive vitrectomy ($P=0.003$), AL ($P < 0.001$), ACD ($P=0.002$) and male patients ($P=0.007$) and moderate/small size pupil ($P=0.035$) had a significant association with LIDRS. There was no other significant association with the variables tested in the study.

Conclusion: LIDRS occurs frequently in eyes with previous vitrectomy. Age, AL, ACD, extensive vitrectomy, male patients and moderate/small pupil had significant association with LIDRS. These findings help in the preoperative counselling of patients and also help the surgeon during the procedure to take adequate steps to prevent complications.

112. Optimizing the intraocular lens formula constant (A-constant) according to intraocular lens diameter

A R El-Khayat, B S Redmill, B Attrup
Lincoln County Hospital

Introduction: A single plate haptic intraocular lens (IOL) design may vary in size in discrete steps across the range of diopteric powers. These IOL sub-types might be expected to differ in their post-operative position in the capsule bag, in turn affecting the refractive outcome of cataract surgery. Within one IOL model, different size sub-types may require separate optimized lens formula constants.

Purpose: To assess whether IOL size sub-types result in differences in refractive outcome, and to calculate lens formula constants for each sub-type.

Method: Data for one IOL design (Bausch & Lomb Akreos AO MI-60) from a two year period during on-going audit of cataract surgery in one unit was analysed. Using a customized computer database, post-operative refraction was compared to prediction from SRK/T calculations using IOL-Master biometry. For each of the three size sub-types, mean biometry errors and SRK/T A-constants were calculated. One-way ANOVA was used to compare sub-types.

Results: Three sizes of MI-60 lenses are produced: 11.0mm (10.0 - 15.0D), 10.7mm (15.5 - 22.0D) and 10.5mm (22.5 - 30.0D). The numbers of each used were 70, 589 and 472 respectively. The mean biometry errors were -0.076, -0.023 and 0.075 ($P = 0.0014$). The optimized A-constants were 118.98, 119.13 and 119.32 ($P < 0.0001$).

Conclusion: Within one IOL design, sub-types may result in small but significant differences in refractive outcome. Separate optimized lens constants should be considered in lens power calculations.

113. Prevalence of Corneal Astigmatism and Fellow Eye Biometric Correlations in Patients Undergoing Cataract Surgery in NHS

J Y Ng, D A M Lyall, S Srinivasan
University Hospital Ayr

Introduction: The prevalence of corneal astigmatism is an important consideration when evaluating potential cost implications of toric intraocular lens (IOL) use during cataract surgery.

Purpose: To establish i) the prevalence of corneal astigmatism, ii) changes in astigmatism and biometry measurements with age and iii) correlations of such measurements between eyes in patients undergoing cataract surgery.

Method: Prospective observational study. Biometry data measured by partial coherence interferometry (IOLMaster, Carl Zeiss Meditec) of 2444 eyes of 1275 patients undergoing cataract surgery was analysed.

Results: Mean age was 74.7±10.1 years. Mean corneal astigmatism was 1.03±0.23 Dioptres(D). 19.4% and 5.0% of eyes had corneal astigmatism greater than 1.5D and 2.5D respectively. A positive increase in corneal astigmatism with age ($p=0.009$) was found with a significant increase in the prevalence and magnitude of against-the-rule astigmatism ($p<0.001$). A negative correlation exists between axial length (AL) ($p<0.001$), anterior chamber depth (ACD) ($p<0.001$) and “white-to-white” distance WTW ($p=0.011$) with age. Paired analysis of fellow eyes found a positive correlation to exist for corneal astigmatism, AL, ACD and WTW ($p<0.001$). 10.0% of patients with more than 2.5D of corneal astigmatism in one eye had more than 2.5D of astigmatism in the fellow eye.

Conclusion: Between 5% and 20% of patients may benefit from correction of astigmatism at the time of cataract surgery. Patients with visually significant astigmatism in one eye are more likely to have a significant level of astigmatism in the fellow eye. Against-the-rule astigmatism should be treated more aggressively during cataract surgery as this is likely to worsen with age.

114. The stress of cataract surgery - a second off your life?

A Arif, H A Usmani, S A Sadiq
University of Leicester

Introduction: We present a study of changes in heart rate as a measure of stress in cataract surgeons.

Purpose: To assess the stress levels of different grades of ophthalmic surgeons during cataract surgery.

Method: Prospective observational study. The pulse rates of three ophthalmic surgeons (a middle grade specialist registrar, a cataract fellow and a non-anterior segment consultant) were measured during each stage of uncomplicated phacoemulsification procedures. Change in pulse rate was measured from the baseline. Results were compared amongst the three surgeons using the one-way ANOVA test.

Results: The change in heart rate was different for each surgeon for each stage of the procedure (incision [$p=0.455$], capsulorhexis[$p=0.007$], hydrodissection [$p=0.031$], phacoemulsification[$p=0.000$], irrigation/aspiration [$p=0.018$], lens implantation[$p=0.002$] and wound closure [$p=0.149$]).

Conclusion: There was a statistically significant difference in the change of heart rate from the baseline between the 3 surgeons. We feel this change can be translated to reflect the degree of stress a surgeon undergoes whilst performing cataract surgery, and may be attributed to the difference between their experience and skills.

115. Eighteen Year Follow-up of Excimer Laser Photorefractive Keratectomy (PRK) with 6.00mm Optical Zone

Z Shalchi, D O'Brart, P Patel, R McDonald, J Marshall
St Thomas' Hospital

Introduction: Laser refractive surgery is one of the most common surgical interventions performed worldwide, but there is little long-term data on modern, large optical zone treatments.

Purpose: To evaluate the long-term refractive and topographic stability of excimer laser photorefractive keratectomy (PRK) with 6.00mm optical zone surgery.

Method: Forty four patients underwent clinical assessment 18 years after myopic PRK with 6.00mm optical zone. Only one eye per patient was selected for analysis. The pre-operative mean spherical equivalent (MSE) refractive error was -4.80D (range -2.75 to -7.38D) with mean programmed correction -4.37D (range -2.50 to -7.00D).

Results: At 18 years, the MSE refraction was -0.74D (range -4.63 to +1.50D), with 25% of eyes within 0.5D and 54% within 1.0D of intended correction. There was no difference in MSE between 1 and 18 years (p=0.06). However, patients aged 60 years or younger at 18 year review (n=22) showed mild myopic regression (-0.62D, p<0.01) which was not true for those aged over 60 (n=22) (+0.03D, p=1.00). The efficacy index was 0.65 and safety index 1.01. 95% of corneas were clear, with 2 showing only trace haze. There was no evidence of ectasia on Scheimpflug topographic examination.

Conclusion: Excimer laser PRK shows refractive stability between 1 and 18 years. There is mild myopic regression in younger patients. The procedure is safe with no long-term sight-threatening complications.

116. Monofocal or multifocal intraocular lens implants: patient choice within the National Health Service

A Jamison, S Nabili
Department of Ophthalmology, Hairmyres Hospital

Introduction: The NHS currently uses monofocal intraocular lens (IOL) implants in cataract operations which, although safe and cost effective for use within the NHS, require the use of reading spectacles for near vision tasks. Multifocal IOLs allow focusing to both near and distant objects but are more expensive than monofocal IOLs.

Purpose: To determine whether NHS patients currently awaiting cataract surgery would value the ability to make decisions regarding their own treatment, in this case, the choice of IOL.

Method: The views of 83 patients listed for surgery at one-stop cataract clinics were collected in November 2010 by three trained members of staff using a pre-defined data collection form. All patients attending this clinic within the study period were included in the study.

Results: Over half (55.4%) of participants may have opted for multifocal IOLs had they been given the choice as part of their NHS cataract surgery, with 26.5% stating that they would have been willing to pay the cost difference in IOL price of £250 per eye. Of the twelve participants still of working age and currently employed, eleven (91.7%) were interested in paying the cost difference in lens price to benefit from multifocal IOLs.

Conclusion: A significant number of patients awaiting cataract surgery are interested in the opportunity to choose between different IOLs, even where this may involve making a financial contribution. There may be scope to offer patients a choice of IOLs, allowing them to tailor their medical treatment to their own preferences without significant expense to the National Health Service.

117. Topography-guided laser for the Management of Cornea Abnormalities after Anterior Segments Surgery

D I Bouzoukis, M Tappin, R Jayaswal
Ashford and St Peters NHS Trust

Introduction: Corneal surgery with excimer laser offers a very accurate tool to reshape the cornea and correct refractive errors. Topography guided ablation of the cornea could be used to treat other corneal abnormalities and to optimize the visual outcomes.

In this paper we present a case series of topography-guided laser treatment in patients with corneal abnormalities of different origins after anterior segment surgery following the same technique and using the same excimer laser platform.

Purpose: To report a series of topography-guided laser treatments for the management of corneal abnormalities after anterior segment surgery

Method: We present three cases of patients with visual symptoms related to corneal abnormalities, treated with topography-guided laser. This case series included one patient (one eye) with irregular astigmatism after ethylenediaminetetraacetic acid chelation for band keratopathy, one patient (one eye) with induced astigmatism after cataract surgery and one patient (one eye) with abnormal corneal astigmatism after multiple refractive procedures.

All patients had treatment with topography-guided LASEK

Results: All patients showed reduction of corneal astigmatism, resulting in improvement of visual symptoms, uncorrected and corrected visual acuity. No intra- or postoperative complications were reported.

Conclusion: Topography-guided laser treatment could be considered an effective and safe procedure to enhance corneal abnormalities of different origin with consequent improvement of visual quality and contact lens tolerance.

118. Visual outcome of toric Lentis Mplus multifocal intraocular lens implant.
P J T Chiam, A Walkden, C O'Donnell, C Gore, S A Quah
Leighton Hospital, Cheshire

Introduction: The Lentis Mplus is a multifocal refractive IOL. The technology involved is slightly different from other multifocal IOLs due to the lenses' sector-shaped near vision section which has been shown to provide higher definition, better contrast sensitivity, no image jumps, and excellent distance and near BCVA compared to some multifocal IOLs.

Purpose: To evaluate the visual and refractive outcomes of a customised toric multifocal intraocular lens (IOL) implanted following refractive lens exchange and cataract surgery.

Method: Thirty four eyes of 23 patients underwent phacoemulsification with toric Lentis Mplus multifocal IOL implantation. Preoperative corneal astigmatism was measured using Zeiss IOLMaster 500. Monocular uncorrected distance (UDVA), intermediate (UIVA) and near (UNVA) visual acuities were recorded pre- and 6 weeks post-operatively. Complications, residual refractive astigmatism and reported spectacle independence were evaluated.

Results: The mean±SD age was 59.6±9.2 years. The preoperative UDVA was logMAR 0.77±0.51, UIVA 0.41±0.25 and UNVA 0.78±0.21. Postoperative UDVA was 0.10±0.11 logMAR ($p<0.01$), UIVA 0.07±0.15 ($p<0.01$) and UNVA 0.17±0.13 ($p<0.01$). The preoperative corneal astigmatism was 2.15±0.63D and postoperative astigmatism was 0.30±0.43D ($p<0.01$). Post operatively, 97% of eyes achieved UDVA 20/40 or better, 80% eyes achieved UIVA of 20/25 or better and 88% of eyes achieved UNVA of J3 or better. Ninety four percent of eyes had residual astigmatism of ≤1D. There were no complications recorded during the operations or at the postoperative visits. Spectacle independence for distance, intermediate and near vision was achieved in all patients.

Conclusion: Implantation of the toric Lentis Mplus multifocal IOL following phacoemulsification proved to be an effective and safe way to manage pre-existing corneal astigmatism. All eyes achieved satisfactory distance, intermediate and near visual outcomes.

119. Prediction error and accuracy of autorefraction following cataract surgery
S Tiroumal, W Meacock, J Watts, A Macleod, N Hall
Royal Hampshire County Hospital, Winchester

Introduction: Prediction error (deviation from postoperative predicted refraction) following cataract surgery depends on the accuracy of biometry values and surgeon related factors. Many eye units depend on autorefraction values to approximately evaluate the postoperative refraction results before discharging the patients to opticians.

Purpose: To evaluate deviation from predicted post-operative refraction and determine the accuracy of autorefraction following cataract surgery.

Method: The study involved two groups of patients. First group included retrospective data from Medisoft of 459 consecutive patients who underwent phacoemulsification over a 6 month period. Second group involved a prospective study in which autorefraction and subjective refraction were performed in 50 patients at the postoperative visit of two weeks following cataract surgery.

Results: In the first group, prediction error was <0.50D in 65.5 % of patients, 0.51D to 1.00D in 26.5 % and >1D in 8 % of patients. In the second group, spherical equivalents were compared between autorefraction and subjective refraction. 62% of autorefraction readings were <0.5D, 24% between 0.5D and 1D and 14% >1D of subjective refraction values. We also found that some of the operative and postoperative complications contributed to higher prediction error in group 1 and inaccurate autorefraction readings in group 2.

Conclusion: We have achieved acceptable level of prediction error of <1D in 92% of patients. However autorefraction is not a reliable method of evaluating postoperative refraction. If time constraint is a factor, then postoperative subjective refraction should be performed atleast in patients where the discrepancy between predicted refraction and autorefraction is >1D.

120. Does acute impairment of stereopsis limit ophthalmic operative performance?
M Ziaei, J McHugh, C Timms, P Sullivan
Moorfields Eye Hospital

Introduction: It is widely believed that ophthalmic surgery requires good stereoacuity, but there is no published evidence to confirm that impaired stereopsis is detrimental to surgical performance.

Purpose: This study simulated the impact of complete loss of stereopsis on the surgical performance of trainees.

Method: Ten ophthalmic trainees with good visual acuity and normal stereoacuity were recruited. All participants completed ten attempts on each of three modules using the EYESi ophthalmic surgical simulator. Alternate attempts were performed monocularly.

Results: Median number of years of ophthalmic experience was 4 years (IQR 3-5.75) and median completed phacoemulsification procedures was 263 (IQR 185-375). The mean total score decreased when operating monocularly from 88.6 to 81.3 (Wilcoxon p=0.07) for the forceps 4 module; 59.7 to 50.6 (p=0.08) for capsulorhexis module 1; and 61.3 to 52.5 (p=0.12) for I&A module 3.

Operating monocularly resulted in significantly higher scores for lens injury (p=0.002) and corneal injury (p=0.001) in the forceps module, and a non-significant increase in rhexis run-out scores for the capsulorhexis module (p=0.08). There was an increase in zonule injury (p=0.07) during monocular I&A, while posterior capsular injury occurred 22 times more frequently under monocular conditions (p=0.0004).

Conclusion: Operating monocularly was associated with a non-significant decrease in overall score with all three EyeSi modules, and with statistically significant increases in the incidence of several complications. This pilot study represents a first step towards evidence-based decisions on whether ophthalmologists with acquired visual disturbance can safely operate.

121. Eliminating preventable blindness: The knowledge, attitudes and practice of the elderly, cataract blind population in Pune, India

A Balcombe, R Kapse, A Cassels-Brown, M Ba-Break, K Dole
Leeds University

Introduction: Given the size of India, few studies have addressed the knowledge, attitude and practice of the elderly cataract blind population. The elder population are reported as being more vulnerable and disadvantaged in terms of access to cataract surgery. Increased surgical uptake will most probably be influenced first and foremost by modifying attitudes in the local community to the benefits of cataract surgery.

Purpose: To analyse the knowledge and attitudes towards cataract disease and treatment and how these factors influence self-care practice in elderly cataract patients in Pune, India, so that measures can be put in place to reduce the burden of cataract associated disease.

Method: 21 participants were identified through purposive sampling following attendance at H V Desai Eye Hospital or an outreach-camp. Patients were referred if they fulfilled the inclusion criteria; 65 years or over, had an un-operated cataract with a visual acuity of less than 6/60 in patients willing to have surgery and 6/18 in patients unwilling. Semi-structured interviews were then transcribed and analysed using thematic content analysis.

Results: Views were contrasted from camp (free) and paying patients. A multitude of factors influence the decision to seek treatment, more marked in paying patients . Cost and family are heavily entwined in these factors, compounded by age.

Conclusion: A more targeted campaign to promote cataract-surgery to the elderly population and their family is needed to encourage patients to come for cataract-surgery much earlier.

122. WITHDRAWN Diffuse Lamellar Keratitis- confocal microscopy features of delayed onset disease

P Adhana, M Rana, B Ilango
Royal Wolverhampton Hospital NHS Trust

Introduction: Diffuse lamellar keratitis is a fairly uncommon complication of LASIK that usually occurs within 1 week of surgery. It is described as an inflammatory reaction in the lamellar interface characterized by a diffuse, white granular lamellar keratitis. Progression of the keratitis can result in scarring and significant visual loss

Purpose: To describe confocal microscopy features of a delayed presentation of diffuse lamellar keratitis after LASIK procedure.

Method: We report a case of bilateral diffuse lamellar keratitis (DLK) with delayed onset of 3 months after a bilateral laser in situ keratomileusis (LASIK) procedure.

A thorough history revealed no pertinent medical history or risk factors for delayed-onset DLK after LASIK. Although a diagnosis was made clinically, confocal microscopic examination of both corneas was done to confirm the diagnosis. Due to poor resolution interface washout was carried out. After treatment with prednisolone acetate 1% the DLK resolved in both eyes with residual faint, diffuse, corneal haze.

Results: Confocal microscopy demonstrated a large number of activated keratocytes in the flap interface, particulate debris of variable size distributed throughout the interface, and scattered inflammatory cells with some areas of a linear pattern arrangement.

Confocal microscopy was repeated after the interface washout was carried out and there was complete resolution of inflammatory cells and reduction in the particulate/ inflammatory debris at the interface.

Conclusion: The presence of inflammatory cells along with interface debris was noted in our case, which is unusual in stage 3 diffuse lamellar keratitis with a delayed presentation. Although it is difficult to confirm without histology the type of inflammatory response seen, it is advocated that delayed presentation should also be treated quite intensively with steroids and any progression should be dealt with lifting up of the flaps to carry out interface washout.

123. Checklists in Cataract Surgery

L Steeples, S P Kelly, R Smith, A Azuara-Blanco
Royal Bolton Hospital, Aberdeen Royal Infirmary,Stoke Mandeville

Introduction: The World Health Organisation (WHO) has identified patient safety in surgery as an important public health matter and advises use of a surgical checklist. This is mandatory in the NHS. The College launched a bespoke checklist for cataract surgery in 2010.

Purpose: To investigate use and attitudes towards checklists in cataract surgery in 2012.

Method: An anonymous online survey was sent to College members who were asked to respond to key questions relating to checklist and team brief use. Specific questions targeted opinions on the content, value and time-efficiency of a checklist. Free text comments were analysed.

Results: The respondents (n=496, 18% response rate) worked in the UK (93%), the Republic of Ireland (1%) or overseas (6%). 94% of all respondents consider use of a checklist of merit in cataract surgery and 85% of respondents say that they always use a checklist. 67% of surgeons stated they undertake a pre-operative team brief. 36% use a cataract surgery checklist developed locally, 18% use the College's bespoke cataract surgery checklist and 2% use the WHO checklist. The checklist type used per UK region is detailed. Overall 43% of surgeons report they do not use a checklist specific to cataract surgery or at all (4%) in their hospitals.

Conclusion: Most respondents use a surgical checklist and team brief. We recommend wider adoption of checklists which address risks relevant and specific to cataract surgery. Implications for practice are discussed.

GLAUCOMA

124. Comparison of Management Decisions by Optometrists and a Glaucoma Specialist in patients attending a glaucoma review clinic – a Hawthorne effect compliant study.

S A Vernon, O K Vernon
University Hospital Nottingham

Introduction: Previously most studies assessing agreement in chronic glaucoma management between optometrists and ophthalmologists have failed the Hawthorne Effect "test" i.e. the optometrists have known they were under active scrutiny when decision making.

Purpose: To assess optometrist/ophthalmologist agreement in glaucoma management utilising a Hawthorne Effect compliant protocol in a mixed severity glaucoma review clinic.

Method: A glaucoma specialist, masked to optometric management decisions, examined the records of 241 "routine review" patients seen by two trained optometrists between June 2011 and February 2012 in an Optometry Lead Glaucoma Assessment (OLGA) clinic, making decisions utilising similar data to that available to the optometrists. A graded decision tree was constructed to assess agreement via quadratic weighted kappa (QWK) with decisions ranging from "progressing/discuss" to "discharge". QWK and mean review times were calculated.

Results: Absolute agreement in management occurred in 66% of the five-stage decision trees. The QWKs on the 100 and 141 patients seen by the two optometrists were 0.66 and 0.72 (both "good" agreement) with mean review times for the optometrists being 0.03 and 0.89 months earlier as compared with the ophthalmologist.

Conclusion: Trained optometrists seeing glaucoma review patients independently make decisions that compare favourably with those of a glaucoma specialist ophthalmologist, even when unaware performance monitoring is ongoing. Further training in review strategies may reduce frequency of follow-up in OLGA clinics.

125. Cost Analysis of Goldmann and Tonosafe Disposable Prism Heads.

K M Jasani, N Sattar, K Mercieca, J Morarji, A Bhargava
Royal Preston Hospital

Introduction: A recent USA based study showed almost equivalence of cost between the use of disposable Tonosafe heads and Goldmann prism heads.

Purpose: The authors feel that this analysis is flawed due to assumptions including that departments replace their Goldmann tonometer heads after 100 uses and have recalculated the findings based on a survey of UK practice.

Method: A telephone survey of current UK practice with regards to use of disposable/non disposable heads was undertaken. Based on the findings a cost analysis was undertaken to compare the most cost-effective alternative.

Results: Initial findings show that the predominant UK practice is replacement of Goldmann prisms on damage or loss rather than after 100 uses. We also found a mean rate of replacement of prism heads of 37.5 % per department per year (range 15% to 100%). Based on this the 5 year cost of using Goldmann prisms was £13,440 compared with £62,000 for Tonosafe.

Conclusion: The authors feel this is a more realistic cost analysis of use based on current UK practice. The relative cost benefits may still be outweighed however by litigation over injury or infection sustained with use of non disposable prism heads.

126. Outcome Measures Used in Glaucoma Randomised Controlled Trials (RCTs)
R A Ismail, A A B Azuara-Blanco, C R Ramsay
Health Services Research Unit, University of Aberdeen

Introduction: In clinical trials the selection of appropriate outcomes is crucial to the assessment of whether one intervention is better than another. A variety of outcomes has been used and reported in glaucoma RCTs. We are developing a standardised set of core clinical outcomes for glaucoma interventions.

Purpose: To identify different clinical outcome measures used in glaucoma RCTs between 2006 and March 2012.

Method: A systematic review was conducted using standard methodology. Only studies in English language reporting RCTs on glaucoma were included. All measured and reported clinical outcomes were included with the exclusion of patient-reported, pharmacokinetic and economic outcomes.

Results: The search strategy identified 4323 potentially relevant abstracts. There were 315 publications retrieved, of which 233 articles were included. A total of 965 clinical outcomes were reported. There were wide variations in the definitions used to describe different outcomes and their domains. Intraocular pressure (IOP) was the most commonly reported measure with a total of 421 (44%). Among the IOP-related definitions, the most commonly used was mean IOP (n=143, 34%). Aqueous humour dynamics was the least commonly measured outcome (n=5). Safety outcomes were commonly reported (n= 346, 36%), whereas visual field domains were utilised 50 times (5%).

Conclusion: The process of selecting the most suitable outcomes to include in an RCT can be complex. The difficulty of selecting the most appropriate clinical outcomes to use is reflected in the fact that there is much heterogeneity among glaucoma trials regarding which outcomes to select.

127. Long term follow-up of Zonulo-Hyaloido-Vitrectomy for Pseudophakic Malignant Glaucoma
I M Madgula, N Anand
Calderdale and Huddersfield Hospitals NHS Trust

Introduction: Zonulohyaloidovitrectomy has been described for pseudophakic malignant glaucoma refractory to medical treatment.

Purpose: To report long term follow up of Zonulohyaloidovitrectomy via anterior approach for pseudophakic malignant glaucoma refractory to medical treatment.

Method: Medical records of 9 patients who sought treatment for aqueous humor misdirection refractory to medical treatment from May 2008 trough February 2009 were reviewed. All patients underwent anterior vitrectomy, hyaloido-zonulectomy, and peripheral iridectomy via an anterior approach. Main outcome measures were preoperative and postoperative visual acuity, intraocular pressure, medications, slit-lamp examination , and fundus findings.

Results: 10 eyes of 9 patients (7F, 2M) who underwent Zonulohyaloidovitrectomy for refractory pseudophakic malignant glaucoma were included in this case series. The mean age of patients was 77.4 ± 9.0 years, mean follow up duration 50.2 ± 27.2. Recurrence of malignant glaucoma was noted in 40% (4 cases) after a successful ZHV on long term follow up.

Conclusion: Aqueous misdirection refractory to medical treatment can be treated successfully by an anterior segment surgeon by partial pars plana vitrectomy, hyaloido-zonulectomy, and peripheral iridectomy. This can be done via an anterior approach and patients require long follow up to rule out a relapse despite a successful outcome in the short term

128. Long-term outcomes in fellow eyes after acute primary angle closure in a UK urban population
W A Andreatta, I Elaroud, M Nessim
Birmingham and Midland Eye Centre

Introduction: To our knowledge no study has investigated long-term outcomes in fellow eyes post acute primary angle closure (APAC) in Western populations since bilateral laser peripheral iridotomies have been routinely performed.

Purpose: To identify the long-term outcomes in the fellow eye following an episode of APAC in the contralateral eye in a UK urban population.

Method: Retrospective case-series of 68 consecutive patients presenting with unilateral APAC. Socio-demographic variables were collected. Visual acuities (VA), intraocular pressures (IOP), gonioscopy findings, optic discs' appearance, visual fields, surgical interventions and causes of poor vision were documented.

Results: 56 subjects (84%) were Caucasians, 9 (13%) Asians and 2 (3%) African-Caribbean. 49 (72%) were females, 18 (28%) were males. The mean age was 69.6 ± 11.3 years. The mean final follow up period was 27 months (±15 SD). All eyes had YAG laser peripheral iridotomies while 22 (33%) eyes underwent cataract surgery. The mean presenting IOP was 17.4 mmHg (±5.3SD) and the mean final IOP was 14.7 mmHg (±3SD). Three eyes (4%) developed primary angle-closure glaucoma. Eight (12%) eyes had VA <6/12 at the final visit mainly secondary to cataracts. Two (3%) eyes developed VA <6/60 secondary to age-related macular degeneration.

Conclusion: In our series the majority of fellow eyes maintained an excellent VA. Very few eyes developed glaucomatous optic neuropathy (GON). Nevertheless, patients with APAC should be monitored for GON and cataract surgery should be offered when indicated.

129. Analysis of referral data from community optometrists to a hospital glaucoma service using an electronic patient record (EPR)
J S Foulds, R Sanders
Queen Margaret Hospital, Fife. Scotland

Introduction: A glaucoma EPR was designed using OASIS Siemens in 2000. In 2006, a new General Ophthalmic Services (GOS) contract was implemented in Scotland, with a mandate to perform contact tonometry, fundoscopy and automated perimetry in all patients.

Purpose: To evaluate trends in referral information from community optometrists before and after implementation of the GOS contract over 12 years.

Method: A retrospective electronic case analysis encompassing two six-year periods, 2000-2006 (Group1), and 2007-2012 (Group 2).

Results: 1622 patients were analysed. The majority were referred by optometrists (83.6% in Group 1) and (81.6% in Group 2). Patients were symptomatic of glaucomatous disease in 70.2% of referrals (Group 1), as opposed to 54% (Group 2), ($p<0.0001$). Optic disc documentation was made in 85.4%, Group 1, and 78%, Group 2, ($p=0.0001$). Visual fields were performed in 84.4%, Group 1 and 81.3%, Group 2 ($p=0.096$). Intraocular pressure was documented in 74.1%, Group 1 and 75.9%, Group 2 ($p=0.4$). An initial diagnosis of 'normal' was made in 37.6%, Group 1 and 24.1%, Group 2.

Conclusion: We show that patients appear to be referred earlier in the glaucomatous disease process with less false positive referrals.However there are still significant shortfalls in referral information. We discuss this in light of the impending electronic VPN community optometry connections, and new mandatory electronic glaucoma referral form to be implemented in Scotland .

130. Monitoring Vision Loss
M Hovan, A W King
Nottingham University Hospitals

Introduction: Does delaying filtration surgery have an adverse effect on the progression of glaucoma?

Purpose: We aimed to assess the vision and intraocular pressure (IOP) changes over time that led to the decision to perform surgery.

Method: Retrospective chart review of 40 patients who underwent trabeculectomy.

Primary outcome measures: Length of time and number of visits from diagnosis to operation. Change in visual field during the pre-operative period and mean IOP.

Secondary outcome measures: Number of medications tried, listing IOP and central corneal thickness (CCT).

Results: The time from diagnosis to filtration surgery in patients whose listing IOP was above 21mmHg was median 44.5 months versus 122 months for those with lower pressure. Our patients had average 15.5 follow-up appointments with higher vs. 23.5 with lower IOP. Despite fewer appointments more eye drop combinations were tried in the first group: median 6.5 vs. 4.5 drops. Visual field defects progressed -1.39dB mean deviation (MD) with higher while -4.86dB with lower IOP. Similarly pattern standard deviation (PSD) progressed more with lower pressures 1.6 vs. 3dB. Average IOP was 4.5mmHg higher among patients with CCT>540mikron compared to those with thinner corneas (24.7 vs. 20.2mmHg).

Conclusion: We found that patients with higher IOP were monitored for a shorter period prior to surgery and developed less advanced visual field changes. There is wide variability of the monitoring time interval in individual patients with a strong bias for high intraocular pressure as indication for operation.

131. Structural and functional subjective-objective assessments of glaucomatous damage
M A Eldaly
Ophthalmology Department Faculty of Medicine Cairo University

Introduction: The implications of objective-subjective tests that detect glaucomatous damage and how to get the best out of data they provide, need further studies.

Purpose: To evaluate the relationship between Retinal Nerve Fiber Layer (RNFL), clinical ophthalmological examinations and functional visual field changes in glaucoma patients.

Method: Patients with an established diagnosis of primary open angle glaucoma were included in this cross-sectional cohort study. They underwent optical coherence tomography (OCT) to study RNFL, in addition to pachymetry, clinical examinations of optic nerve heads and visual field testing. General linear model was computed to study the in between subjects effects regarding quadrantic retinal nerve involvement and the other variables.

Results: About Half of 126 included eyes showed quadrantic affection of RNFL scans of whom one third had glaucomatous notching of neuroretinal rims (NRR). Difference in C/D ratios between patients with/without quadrantic affection was significant. Similarly were mean deviation (MD) and pattern standard deviation (PSD) with/without quadrantic RNFL affection. The in between subjects effects of quadrantic RNFL affection was highly significant with C/D ratios, NRR notching, MD and PSD. Superior and/or inferior quadrants were the more frequently affected. Inferior quadrants involvement were more associated with decrease of MD while simultaneous affection of superior and inferior were associated with increase in PSD. Inferior quadrant was of highest sensitivity whether alone or when associated with other quadrants in the detection of NRR notching.

Conclusion: Quadrantic RNFL affections provide important evidence that help in mapping the structural-functional damage in glaucoma patients.

132. Generic latanoprost: does it matter which one?
U Mulla, D Lockington, M Caslake, H Flowers, A Rotchford, K Ramaesh
Gartnavel General Hospital

Introduction: Nineteen companies have been granted licences to produce generic latanoprost since January 17th 2012. Topical preparations are used long-term by many patients with glaucoma, with a potential impact on their ocular surface.

Purpose: We wanted to assess if there was variability in the composition of generic preparations. In particular we wanted to know if there is a difference in the intrinsic free radical content and the pH.

Method: 3 bottles of 5 generic preparations (Pfizer, Sandoz, Teva UK, Tubilux pharma, and Actavis) were examined for pH, redox potential and antioxidant status. We measured total antioxidant status (TAS) with a Randox Kit. pH was measured directly using a pH electrode calibrated with buffers at pH 4 and pH 7. The redox potential relative to a hydrogen electrode (Eh) was measured using a platinum spade electrode and calomel reference electrode.

Results: No TAS was detected in any of the preparations. pH was within a tight band ranging from 6.61 to 6.75 (median 6.74, mean 6.71). Redox potential was also within a tight band ranging from 458mV to 493mV (median 478, mean 473mV).

Conclusion: There were no significant differences between the TAS, pH or redox potential of the generic preparations we assessed. This suggests that the different preparations should be equally tolerable and their effect on the ocular surface similar. As more of the 19 companies that have been granted licences release drops further work will need to be done to assess all the available generic products.

133. Myocilin levels in the Aqueous Humor of Open-Angle Glaucoma Patients

A Ghanem
Mansoura Ophthalmic Center

Introduction: marked vulnerability of retinal ganglion cells in glaucoma has not been fully explained. To examine this mechanism, studies have analyzed the contributions of ocular blood circulation, and oxidative stress.

Purpose: To investigate the concentration of myocilin in the aqueous humor of open-angle glaucoma (OAG) patients, including correlations with glaucoma subtypes and intraocular pressure (IOP).

Method: The study comprised 85 patients with OAG. Glaucoma subtypes included 35 cases of high tension glaucoma (HTG), 25 cases of normal tension glaucoma (NTG), and 25 cases of exfoliation glaucoma (ExG)attending Mansoura Ophthalmic Center, Egypt. Forty-five patients with senile cataract were included as control. The concentrations of myocilin in the aqueous humor were measured by plotting the densitometry readings of the aqueous humor samples against a recombinant myocilin standard curve. Additionally, the relationships with the glaucoma subtypes, IOP, and glaucoma severity were analyzed.

Results: A significantly higher percentage of patients in the glaucoma subgroups were positive for myocilin compared with the cataract group. The mean myocilin concentrations among the glaucoma positive cases subgroups were not different (P = 0.326). Myocilin levels were significantly higher in human HTG compared with cataract group (P<0.05). No significant correlations between the myocilin concentration and the IOP or the severity of glaucoma.

Conclusion: Myocilin positive patients were significant in the glaucoma subgroups than in the cataract group, with a highly significant difference observed for HTG patients.

134. Does Phaco-Viscocanalostomy Work In Normal Tension Glaucoma?

C Hemmerdinger, C Rogers, M S Wishart
Warrington Hospital

Introduction: Others have reported success in the treatment of NTG with phaco-viscocanalostomy. This study was designed to establish the efficacy in our cohort of NTG patients.

Purpose: The aim was to establish the efficacy of phaco-viscocanalostomy in the treatment of NTG.

Method: Prospective study of 40 consecutive patients with a diagnosis of NTG undergoing phaco-viscocanaloplasty between August 2009 and November 2011. All patients had maximal IOP of 22mmHg or less. One patient who had previous surgery was excluded.

Outcome measures:
-IOP
-Need for further intervention
Data was prospectively collected and retrospectively analysed using the paired t test.

Results: Average length of follow-up was 15 months(range 12–30).
Average number of pre-operative topical medications was 1.87(1-4).
12 month mean IOP reduction was 25%.
No patient has been recommenced on topical medication or had further intervention.
Follow-up: Mean IOP,mmHg(+/-95%CI): p value
IOP at time of listing(n=39): 17.20(0.98):-
IOP at day 1 post surgery(n=35): 12.83(1.56): <0.0001
Week_1(n=36): 12.53(1.37): <0.0001
Month_1(n=34): 13.85(1.06): <0.0001
Month_3(n=31): 11.55(0.87): <0.0001
Month_6(n=28): 12.36(0.92): <0.0001
Month_9(n=17): 12.41(1.42): <0.0001
Month_12(n=39): 12.49(0.80): <0.0001
Month_18(n=10): 12.90(1.83): <0.0002
Month_24(n=4): 11.75(3.76): 0.1335
Month_30(n=2): 13.50(44.5): 0.1024

Conclusion: Phacoviscocanalostomy is effective in the treatment of NTG with no patients requiring topical medication during follow-up. A significant reduction in IOP was achieved at each time point up to and including 18 months following surgery. Although a reduction in IOP was maintained after this time the numbers of the sample were too small to reach significance and further studies are proposed by the authors.

135. Intravitreal Dexamethasone Implant (Ozurdex®) and Ocular Hypertension
C S Chambers, S Banerjee, B Lakhani, A Vardarinos
Leicester Royal Infirmary

Introduction: The increasing use of intravitreal dexamethasone potentially contributes to higher incidences of ocular hypertension which may influence long term visual outcome.

Purpose: To evaluate eyes for elevated intraocular pressure after intravitreal dexamethasone 0.7mg for macular edema and to determine the potential risk factors for this complication

Method: Retrospective review of case notes of patients who received Ozurdex® implant injection between December 2011 and August 2012 for macular edema. Intraocular pressure and visual acuity pre treatment, and up to 6 months post implantation were evaluated.

Results: Twenty seven eyes of 27 patients were reviewed. All received Dexamethasone intravitreal implant 0.7mg (Ozurdex®). The most common indication was macular edema secondary to branch retinal vein occlusion (55.6%) followed by central retinal vein occlusion (37%). Most patients received one implant (63%). Pre and post treatment visual acuity of 6/60 or worse was 50% and 30.8% respectively. At 1 and 3 months post treatment, the incidence of IOP rise (up to 30mmHg) was 20.8% (5/24). Fifty per cent of patients who received more than one implant had an episode of raised IOP during the course of follow up. The number of patients requiring long term ocular hypotensives for more than 3 months was 10/26 (38.5%). No other adverse events were reported.

Conclusion: Dexamethasone 0.7 mg intravitreal implant is one of the novel treatment options for macular oedema. It appears to be rather safe and effective but there is a potential risk of ocular hypertension with multiple treatments.

136. 2-year outcomes of combined glaucoma and cataract surgery: non-penetrating deep sclerectomy vs trabeculectomy
J Keller, E Millà-Griñó
Institut Clínic d'Oftalmologia

Introduction: Are combined glaucoma and cataract surgery results satisfactory?

Purpose: To analyse the outcomes of two types of combined filtrating glaucoma and cataract surgery.

Method: Retrospective review of consecutive eyes operated with either non-penetrating deep sclerectomy (NPDS) or trabeculectomy (TBC) combined with phacoemulsification and intraocular lens implantation (PIOL) by a single surgeon from 2006 until 2009. Survival rates were calculated over a 2-year period.

Results: There were 55 eyes, 42 (76.4%) underwent NPDS-PIOL. There were no significant pre-operative differences. 36 cases had primary open angle glaucoma, 13 pseudoexfoliation, 5 chronic angle-closure and 1 pigment dispersion. 2 NPDS cases had posterior capsule rupture, 2 Descemet's membrane remnants and 1 was converted to TBC. Mean preoperative IOP was 24.5 for NPDS and 24.8 for TBC. Mean pressure-lowering drugs were 2.7 for NPDS and 2.6 for TBC.

Median postoperative visual acuity was 6/7.5 for NPDS-PIOL and 6/9 for TBC-PIOL.

Mean IOP at 12 months were 15.6mmHg for NPDS and 16.9mmHg for TBC and at 24 months 16.3 and 16.1 mmHg respectively. At 12 months 75% of NPDS and 50% of TBC were controlled without medication and at 24 months the figures are 60.6% and 36.3% respectively ($p < 0.01$). There were no cases needing re-intervention.

28.4% of eyes with NPDS necessitated goniopuncture and 33.3% suturolysis compared with 38.5% of TBC. There were no instances of hypotony.

Conclusion: Both operations seem to provide satisfactory pressure control however NPDS seems to provide higher rates of absolute success.

137. Optic Disc Haemorrhage (ODH) Audit: Should Morphology Determine Referral
J Miah, P M Dodson, J M Gibson, M Clarke, S Ateeq, H M Wharton
Birmingham Heartlands Hospital

Introduction: Diabetic Retinopathy (DR) screening provides opportunistic identification of other ocular lesions such as glaucoma.

Purpose: To establish whether ODH morphology can be predictive of glaucoma.

Method: Retrospective analysis of 77 patients who presented with ODH at DR screening in the Birmingham and Black Country screening programme between June 2009-March 2010.

Results: Of the 77 referred, 34 patients were unassessed for possible glaucoma. Of the 43 patients that were assessed in the hospital eye service for glaucoma, 26% (n=11) were diagnosed with glaucoma. These glaucoma patients mostly presented with flame haemorrhages (64%) and tended to adjoin the margin of the OD. 36% had blot haemorrhages, all located within the OD. The OD cup/disc ratio (CDR) of the patients with glaucoma ranged from 0.33-0.57.

32 patients were confirmed as not having glaucoma. 75% of these patients presented with an ODH adjoining the margin, of which 83% were flame, and 17% blot shaped. Only 25% presented with an ODH in the OD, of which 75% were blot shaped.

One year follow up of the 77 referred cases revealed that the ODH resolved in 57% patients while 13% still had an ODH present. 21% were still under ophthalmology hence digital retinal photos were not available for assessment. 8% (age range 71-91 years) died within the year.

Conclusion: The results suggest that a significant number of patients with ODH have glaucoma and that the differing morphology of the haemorrhage is not a major predictor.

138. Manchester Royal Eye Hospital adult Baerveldt tube outcomes
K Yau, M Mustafa, K Yin, H Usmani, S Agrawal, E Nikkita, C Fenerty
Manchester Royal Eye Hospital

Introduction: In recent years, there is an increase in popularity of the use of aqueous drainage devices. In our unit the most frequently used is the Baeveldt tube.

Purpose: To investigate surgical outcomes and complications.

Method: A non-comparative retrospective study of adults that underwent the implantation of Baerveldt-250 glaucoma device between January 2005 to July 2012.

Results: In total 81 eyes were identified and intra-operatively all except 3 eyes had Mitomycin C applied.

The mean follow-up was 19 months. Pre-operatively, the mean visual acuity was 0.67 LogMAR, cup disc ratio was 0.8 and intraocular pressure (IOP) was 24.6. The mean number of drops were 3.3 and 40 took Acetazolamide tablets. The majority had open angled glaucoma. We include 27 eyes with uveitis, 9 aphakia eyes and 4 that required IOP management for corneal grafts.

At 12 months: 23 (43.4%) eyes had an IOP of ≤18mmHg without drops and 20 (37.7%) eyes with drops, 20 (37.7%) eyes had a reduction of IOP >20 % without drops and 17 (32.1%) eyes with drops. 14 (17.3%) eyes required interventions post-operatively, most commonly: tube tying, cyclodiode and anterior chamber reformation. Visually threatening complications were 2 mild, treated endophthalmitis, 1 loss of vision to perception of light and 1 cystoid macular oedema.

Conclusion: At 12 months the mean IOP was 13.9mmHg and number of drops was 0.98. The tube opened at 7.3 weeks. At 12 months our results are comparable to that of the Ahmed versus Baerveldt tube study.

UVETITIS

139. Retinal nerve fibre layer thickness and impaired contrast sensitivity in South African HIV-infected individuals: a case-control study
S Pathai, S D Lawn, H A Weiss, C Cook, C E Gilbert
University of Cape Town/LSHTM

Introduction: Abnormalities in visual function, such as reduced contrast sensitivity have been noted in HIV-infected individuals with effective viral suppression in the absence of retinal opportunistic infections (OIs). These changes may be mediated by HIV-associated 'neuroretinal disorder'.

Purpose: To investigate relationships of contrast sensitivity (CS) and retinal nerve fibre layer (RNFL) in South African HIV-infected adults compared with HIV-seronegative individuals.

Method: Case-control study of 225 HIV-infected and 203 HIV-seronegative individuals. Peri-papillary RNFL thickness was determined with spectral domain optical coherence tomography in four quadrants. CS was measured with a Pelli-Robson chart. Multivariable linear and logistic regression models were used to assess associations between HIV status and RNFL and CS, respectively

Results: The median age of both groups was similar (p=0.37). Among HIV-infected adults, 88% were receiving anti-retroviral therapy (ART); their median CD4 count was 468 cells/l. Superior quadrant RNFL thickness was greatest in ART-naïve participants relative to the HIV-uninfected group (p-trend=0.04). Longer ART duration was associated with decreased thickness of inferior and nasal RNFL quadrants (p-trend=0.03 and 0.04, respectively). Adjusted CS score was lower in HIV-infected participants compared to HIV-seronegative

individuals (1.76 vs. 1.82, p=0.002). Nadir CD4 count <200 cells/ul was independently associated with poor CS (OR=1.73, 95%CI:1.10-2.72, p=0.02). Independent predictors of poor CS in the HIV-infected group were positive frailty status and current HIV viral load >2 log copies/ml. Thin temporal RNFL was associated with lower logCS score (p=0.04).

Conclusion: The RNFL is affected in HIV in the absence of ocular OIs. Contrast sensitivity is also reduced and functionally associated with systemic frailty.

140. Dexamethasone intravitreal implant in paediatric non-infectious intermediate and posterior uveitis
V Liolios, L Joshi, E McLoone, S Lightman, O Tomkins-Netzer, A Bar, S Taylor
Royal Surrey County Hospital

Introduction: Children account for only about 5% of patients with uveitis, but disease in this age group is commonly associated with vision-threatening complications and has a high rate of visual loss. However, the management of posterior segment disease is challenging owing to the additional complications of systemic corticosteroid therapy in children.

Purpose: To report the outcome of the dexamethasone intravitreal implant in paediatric non-infectious intermediate and posterior uveitis

Method: Interventional case series of fourteen eyes of eleven children aged under sixteen years with non-infectious intermediate or posterior uveitis

Results: 13/14 eyes responded with control of inflammation and/or cystoid macular edema within one month of implant administration. Six eyes relapsed, with a Kaplan-Meier estimated median survival to relapse of eight months. There were no procedure-related adverse events, but four eyes of known steroid responders developed raised intraocular pressure. It proved possible to control the intraocular pressure safely in all four eyes. There was no evidence of cataract generation. Repeat injection in four eyes had similar efficacy with no increase in side-effect profile.

Conclusion: The dexamethasone intravitreal implant achieved a high rate of disease control in paediatric intermediate and posterior uveitis, with an increased duration of effect and reduced side-effect profile when compared to published data for intravitreal triamcinolone acetonide. These results suggest that this is a viable treatment option for the longer-term control of intermediate and posterior uveitis in children, and would support the development of a prospective study to determine definitively its place in the management of paediatric uveitis.

141. Idiopathic Intermediate Uveitis: A 25-year study of visual prognosis
W Tucker, E M Graham, P I Murray, M R Stanford
Guys & St Thomas' NHS Foundation Trust

Introduction: Idiopathic Intermediate Uveitis (IIU) is a chronic intraocular inflammatory disorder, which affects over 10% of the uveitis population.

Purpose: To identify the long-term outcomes and complication rates for patients with IIU.

Method: A retrospective review of 100 patients from two regional uveitis centres with a follow-up of between 5 and 25 years. The main outcome measure was maintenance of best-corrected visual acuity (BCVA) at 6/12 or better.

Results: The average age at onset of IIU was 38 years (range 4 - 73 years) and 41% were male. Mean follow-up time was 12 years with 26 out of 100 patients having more than 20 years follow-up. Baseline BCVA was recorded after 3 months of treatment with 89% at 6/12 or better, this level of BCVA was maintained over the follow-up period with 82% at 6/12 or better after 5, 10 and 15 years. BCVA was 6/12 or better in 85% at 20 years and 80% after 25 years of follow-up. There was a significant correlation between baseline BCVA and the BCVA at final follow-up with 84% maintaining visual acuity of 6/12 or better (Spearman's rank correlation coefficient = 0.502 ($p<0.0001$)).

Conclusion: The visual prognosis for patients with IIU is good with 84% maintaining vision better than or equal to 6/12. Patients who present with visual acuity at this level can be reassured they have a reasonable chance of keeping it long term.

142. The influence of diabetes mellitus on the visual outcome of patients with uveitis
L Talat, O Tomkins-Netzer, A Bar, H Isa, N Md Din, S Lightman, S Taylor
Moorfields Eye Hospital

Introduction: Steroid-induced diabetes is one of the common complications of systemic therapy for non-infectious intermediate, posterior and panuveitis. However, few studies have assessed the visual outcome in patients with uveitis and diabetes mellitus.

Purpose: To study the interaction between uveitis and diabetes mellitus in terms of their effects on visual outcome

Method: This was a retrospective study of 96 eyes of 52 patients with uveitis who developed diabetes whilst under the care of Moorfields Eye Hospital. Demographic and clinical data were collected for up to 10 years pre and post the diagnosis of diabetes. Strategies for uveitis treatment and the management of relapses were compared pre and post the diagnosis of diabetes

Results: The diagnosis of diabetes was associated with a significant fall in visual acuity from a median logMAR of 0.18 one year pre diagnosis to 0.24 one year post diagnosis (p=0.001). The main causes of reduced vision were cataract (13%) and cystoid macular oedema (10%). The mean dose of oral steroid was significantly lower post diagnosis (10 mg vs. 15 mg, p=0.03), and relapses were less often treated with oral steroid alone (15% vs. 22%, p=0.07); the use of local treatment in the treatment of relapses was similarly increased.

Conclusion: The concurrent diagnosis of diabetes mellitus in uveitis patients is associated with a reduction in visual acuity. Reductions in systemic therapy and increases in local therapy suggest that clinicians are adjusting their treatment protocols, but the causes of visual loss suggest that these treatment strategies may be less effective.

143. Long Term Clinical Outcomes among Patients with Birdshot Chorioretinopathy

O Tomkins-Netzer, S R J Taylor, S Lightman
Moorfields Eye Hospital

Introduction: Birdshot chorioretinopathy (BSCR) is a chronic, progressive intraocular inflammation. Treatment regimes remain unclear, with some patients receiving no treatment and others treated with combinations of oral steroids and 2nd-line immunosuppressive agents. However, as there is no uniform **method** to document progressive damage it remains unclear what is the most effective regime.

Purpose: To examine the long term outcome of patients with BSCR under different treatment regimes.

Method: We retrospectively examined sequential data from 96 eyes of 48 patients with BSCR who were HLA-A29+. Patients were divided into two groups, a short term treatment group that received either no treatment or local or short term systemic steroids, and a 2nd-line treatment group.

Results: Patients were followed for an average of 57.2±5.76months (20.83% follow-up over 10 years). Patients in both groups maintained a steady best corrected visual acuity (BCVA) with a difference only during the first six months. Some clinical indices correlated with worse BCVA, including cataract (p=0.05), leakage on fluorescein angiography (p=0.04) and abnormal Ishihara colour test (p=0.01). Serial visual fields demonstrated that while the short term group had no change in mean deviation (MD, Spearman's Coefficient: -0.19, p=0.21) and a worsening of pattern standard deviation (PSD, Spearman's Coefficient: 0.57, p= 0.003), 2nd-line patients' visual fields had MD improving (Spearman's Coefficient: 0.55, p<0.0001) with PSD stable (Spearman's Coefficient: -0.24, p=0.26).

Conclusion: Our results suggest that BCVA can be maintained, with some anatomical and functional findings correlating with worse vision. Patients on 2nd-line immunosuppression appear to have an improved outcome mainly reflected in peripheral retina function.

144. Evidence-Based Analysis for the Medical Treatment of Behçet's Disease

M Mubin, H Knott, B Markandey, N Joji, R Malhotra, A K O Denniston, P I Murray
University of Birmingham

Introduction: Behçet's disease (BD) is a multisystem, remitting-relapsing, potentially blinding disease of unknown aetiology. The mainstay of treatment is systemic corticosteroid and immunosuppression.

Purpose: We wished to quantify the available levels of evidence for the treatment of BD with regards to the different systems involved.

Method: We performed a Medline, EMBASE and CENTRAL literature search between 1975 - 2010 for papers on the treatment of BD. Inclusion criteria were: written in English, meta analyses, systematic reviews of RCTs, RCTs, cohort studies, case control studies, case series involving more than 20 patients, and expert opinion. Assessment of eligible studies included system involved, number of patients in study, level of evidence according to SIGN (Scottish Intercollegiate Group Network) criteria, and therapy used.

Results: From an initial scope of 2892 papers, 93 papers fulfilled the inclusion criteria. Only 25% were graded as SIGN 1 (meta-analyses, systematic reviews of RCTs, and RCTs). Treatments included corticosteroids, immunosuppressants and biologics. Many RCTs were poorly designed with small patient numbers and short follow up times. Just under 50% of the 93 studies included patients with ocular disease. Patients with orogenital ulceration and skin lesions comprised 31% and 23% of the 93 studies, respectively. Patients with musculoskeletal and vascular manifestations were each mentioned in about 15% of studies, with a paucity of studies on CNS disease.

Conclusion: BD has potentially sight and life threatening complications but the quality of current evidence for therapy is poor. A myriad of different treatments are being employed for numerous systemic manifestations.

145. What do uveitis patients know about uveitis?
A MacKenzie, H S Southworth, P I Murray
Birmingham and Midland Eye Centre

Introduction: The creation of an international uveitis patient group, INTUPIA has highlighted the importance of effective patient and public involvement. Collaboration between doctor and patient is vital for adherence to medical recommendations, and Clinical Commissioning Groups will also have duties to involve the public. Nevertheless for patients to be involved in decision-making they need to have an understanding of their own disease.

Purpose: We wished to find out how much uveitis patients know about uveitis.

Method: A questionnaire comprising 20 questions about uveitis was given to 200 consecutive follow-up patients attending a tertiary referral uveitis clinic after being trialled by four uveitis patient groups and modified according to their comments. It included questions on definition, epidemiology, causes, symptoms, complications and treatment, and used a 3-point Likert scale.

Results: 36/200 (18%) patients answered 0-5 questions correctly, 85/200 (42.5%) 6-10 questions, 70/200 (35%) 11-15 questions and only 9/200 (4.5%) patients answered 16 or more questions correctly. No patient answered all questions correctly. 80.5% of patients knew the meaning of uveitis, 56.5% were uncertain if using a computer would make uveitis worse and 33% believed treatment was life long. Patients who had attended the clinic more than 5 years were no more likely to get the correct answer as those who had attended for less than 5 years.

Conclusion: Uveitis encompasses a broad spectrum of symptoms, causes and treatments so it is not unexpected that patients knew little about the condition. Patient education is paramount for the success of patient involvement groups.

146. Uveitis refractory to mycophenolate mofetil: value & safety of switching or adding alternative non-biological agents
V Menezo, L Joshi, L Talat, S Sandhu, P McCluskey, S Lightman, S R J Taylor
Royal Surrey County Hospital

Introduction: Patients with uveitis may become refractory to treatment with immunosuppressive agents (ISAs) such as mycophenolate (MMF), but there is little data describing the outcomes of switching or adding another ISA. Such outcomes are important in the NHS, since the use of biological agents is expensive and requires application for funding, which takes time.

Purpose: To describe our experience in using switch or add-on ISA strategies in uveitis patients refractory to MMF.

Method: A retrospective review of notes of 70 patients on MMF for ocular inflammatory disease attending the uveitis clinic over a 2 year period.

Results: In 26 patients (37%), MMF was switched to another agent (switch-to regime) or another agent was added to it (add-on regime) because of ineffectiveness. The most commonly used switch-to regime was switching to MTX (13 patients) whereas 8 patients had CSA added onto MMF. There was no significant difference in the baseline characteristics between these 2 groups, except added-CSA patients being younger (26 years) than switch-to MTX patients (49 years). Remission (inactivity for at least 2 visits and Prednisolone <10mg) was achieved in 88% CSA-added patients and 43% switch-to MTX patients; the median time to remission between these two groups was 8 months vs 7 months, respectively (Kaplan-Meier estimate). There was a similar rate of short-term side-effects between the 2 groups (13% vs 15%, respectively).

Conclusion: In uveitis patients who are refractory to MMF, remission can be achieved in some patients by switching to MTX or adding CSA, although this can take time to take effect.

147. Subfoveal choroidal neovascularisation (Right eye) and macular hole (Left eye) secondary to endogenous Candida Albicans endophthalmitis
H K Kolli, A S Sharma, P S Stavrou
BMEC

Introduction: Macular hole and subfoveal CNV are rare complications of Candida Albicans endophthalmitis.

Purpose: We present a case of subfoveal CNV (Right eye) and macular hole (Left eye) secondary to endogenous candida Albicans endophthalmitis.

Method: Review of case notes.

Results: A 53 years old Caucasian female presented with a 3 week history of reduced vision in the right eye and three month history of floaters in left eye. She had previously been hospitalized elsewhere with septicaemia following complications after gastric band surgery. There was no information about aetiology of septicaemia and treated given.

Visual acuity was Right eye: 6/60 and Left eye: HM. There was bilateral panuveitis. OCT and FFA confirmed subfoveal choroidal neovascularisation (CNV) in the right eye and macular hole in the Left eye. Vitreous specimen taken at vitrectomy for left macular hole was positive for Candida Albicans DNA by PCR. The patients were treated with systemic antifungals and Lucentis X 3 intravitreous injections in Right eye. At 4 months follow up visual acuity improved to Right eye: 6/12, Left eye: 6/18. There was no active intraocular inflammation and the CNV appeared fibrosed.

Conclusion: Candida endophthalmitis remains undiagnosed in patients recovering after lengthy hospitalisation for complicated abdominal surgery. Subfoveal CNV and macular hole are relatively rare complications of Candida endophthalmitis. Visual outcome is dependent on early diagnosis and initiation of appropriate treatment.

MEDICAL RETINA

148. Ranibizumab for the treatment of choroidal neovascularisation (CNV) due to pathological myopia (PM). The REPAIR Study 12 month analyses.

Y Yang, The REPAIR Study Group
Wolverhampton Eye Infirmary

Introduction: Prospective, open label, single arm, multicentre, 12-month study, in eyes with active sub- or juxtafoveal myopic CNV treated with 1+ PRN intravitreal 0.5mg ranibizumab.

Purpose: To provide safety and efficacy data in 65 patients treated with ranibizumab for CNV due to PM.The primary end point was the mean gain in ETDRS letters from baseline at 12 months and the study was powered to detect a 10 or more letter gain.

Method: Retreatment followed a standardized pragmatic algorithm that was primarily driven by OCT morphologic changes.

Results: Mean visual acuity gain of 65 eyes of 65 patients was 13.8 letters at month 12 ($p<0.001$) with 95.4% of patients losing < = 8 letters, and 36.9% gaining > = 15 letters. Morphological improvements paralleled VA change with mean reduction in CRT on OCT of 135 µm and a reduction in the proportion of eyes with centre involving intraretinal oedema and subretinal fluid from 87.7% to 7.8% and 67.7% to 7.8 % respectively by month 12. The functional and structural benefits were obtained by a low number of injections (mean 3.6, median 3) , 21% patients required only the baseline treatment. No new safety concerns were identified and no retinal detachments occurred during the study

Conclusion: This study shows that ranibizumab using a simple, predominantly OCT driven retreatment algorithm improves mean visual acuity at 12 months, with low rates of serious ocular adverse in patients with myopic CNV.

149. Outer retinal transduction can be achieved following intravitreal delivery of AAV2 in conjunction with glycosidic enzymes.

J Cehajic Kapetanovic, M M Le Goff, A Allen, R J Lucas, P N Bishop
University of Manchester

Introduction: Gene therapies for retinal disorders, including current clinical trials, rely on subretinal delivery of adeno-associated viral (AAV) vectors carrying therapeutic DNA into outer retinal cells. Subretinal injection has many limitations over the less-invasive intravitreal route of vector administration. However, at present only limited retinal transduction can be achieved following intravitreal delivery of AAV vectors. We hypothesise that the inner limiting membrane and extracellular matrix proteoglycans act as a barrier to AAV vector entry into and movement across the retina. Therefore, glycosidic enzymes, which degrade these extracellular barriers, can improve retinal gene therapy.

Purpose: To investigate, in a mouse model, whether intravitreal delivery of AAV2 in conjunction with glycosidic enzymes enhances its ability to cross from the vitreous into the retina.

Method: The green fluorescent protein (GFP)-expressing AAV2 vector was co-injected intravitreally with chondroitin ABC lyase or heparinase III. The efficacy of the virus transduction was evaluated by visualizing fluorescence in histological cross-sections using fluorescent microscopy. We also analyzed safety of these treatments and retinal function using electroretinography.

Results: Both chondroitin ABC lyase and heparinase III led to a significant improvement in retinal transduction following intravitreal delivery. These enzymes markedly improved transduction of the outer retina, including photoreceptor cells. Electroretinograms survived at much higher doses of enzymes than were needed for optimal retinal transduction.

Conclusion: AAV2-mediated retinal transduction is improved by co-injection of glycosidic enzymes. Improved transduction efficiency may allow intravitreal injection to become the preferred route for delivering gene therapy to the retina in both pre-clinical and clinical settings.

150. Mutations in the RP1L1 gene are associated with a spectrum of inherited retinal diseases including retinitis pigmentosa and occult macular dystrophy.
P Sergouniotis, A E Davidson, G E Holder, A G Robson, A T Moore, V Plagnol, A R Webster
Moorfields Eye Hospital & UCL Institute of Ophthalmology

Introduction: Mutations in RP1L1 have been recently associated with occult macular dystrophy (OCMD), an autosomal dominant condition characterized by progressive foveal cone dysfunction and no apparent fundoscopic or full-field electoretinogram abnormalities. Intriguingly, the Rp1l1 knockout mouse has been shown to have a phenotype consistent with retinitis pigmentosa (RP). We have studied the prevalence of RP1L1 mutations in a cohort of OCMD patients and a cohort of patients with RP.

Purpose: The purpose of this investigation is to provide insights into the clinical and genetic characteristics of OCMD and to ask whether RP1L1 mutations cause RP in man.

Method: Twenty-eight individuals with OCMD and 286 individuals with recessive RP were recruited. Exome sequencing was performed in one consanguineous family with RP. Sanger sequencing of the RP1L1 and RP1 genes as well as haplotype and in silico analysis of RP1L1 variants were performed. Clinical investigations included autofluorescence, OCT and electrophysiology.

Results: Homozygous RP1L1 mutations were identified in two individuals with RP; one carried an early frameshifting (p.Lys203Argfs*28; identified by exome sequencing) and the other a missense (p.Ser546Thr) mutation. Ten of twenty-eight OCMD patients were found to harbour rare heterozygous RP1L1 missense variants. Analysis of family members revealed unaffected relatives harbouring the same variant. Linkage analysis excluded recessive inheritance, and sequencing of RP1, a photoreceptor protein that interacts with RP1L1, excluded a digenic mechanism.

Conclusion: RP1L1 has important functional roles in both the rod and cone photoreceptors. RP1L1 mutations cause RP in man. OCMD is a pathogenetically heterogeneous macular dystrophy and RP1L1 variants cause OCMD with incomplete penetrance.

151. Willingness to pay for predictive genetic testing for inherited retinal disease
M McKibbin, S Tubeuf, T A Willis, B Potrata, M Allsop, M Ahmed
University of Leeds

Introduction: Diagnostic tests are often evaluated according to how the results will change clinical management. Patients may value information even if management does not change.

Purpose: To investigate the willingness of patients with inherited retinal disease to undergo and pay for diagnostic testing in three hypothetical scenarios.

Method: Fifty patients were presented with three scenarios whereby testing provided increasing information, from confirming the diagnosis and inheritance pattern alone (scenario 1), providing additional prognostic information (scenario 2) and identifying a new treatment (scenario 3). Willingness to pay (WTP) was elicited using an iterative double-bounded, binary bidding game. The probability of agreeing to and paying for testing and the impact of individual characteristics were investigated using regression analysis. Respondents were encouraged to explain their decisions.

Results: Between 81-98% of participants would agree to genetic testing. This includes those who would agree only if testing were free. Scenario 2 was the least popular. A majority of respondents (between 67%-95%) would be willing to pay for testing. Scenario 3 yielded the highest WTP values. The average WTP was £650 (SD=867), £1,906 (SD=4706), and £8,545 (SD=17147) for scenarios 1, 2 and 3, respectively. WTP appeared to rise with age and professional occupation.

Conclusion: The study suggests that patients with inherited retinal disease would be willing to pay for diagnostic genetic testing and strongly value the information it may provide. However, several would prefer not to receive prognostic information and would be less willing to pay for testing that yielded such information.

152. Social deprivation as a risk factor for late presentation of proliferative retinopathy
M L Lane, P M Matthewson, H S Sharma, A D Denniston
Queen Elizabeth Hospital Birmingham

Introduction: Many inequalities in health have previously been associated with social deprivation.

Purpose: To determine if social deprivation is a risk factor for the late presentation of patients with proliferative diabetic retinopathy requiring urgent laser-therapy.

Method: A retrospective 2:1 case control study. Data was collected for 93 patients referred by the UK National Screening Programme to Queen Elizabeth Hospital Birmingham between 01/06/2010 to 01/06/2012.

The cases included 31 patients with proliferative (grade R3) retinopathy compared against a control group of 62 patients with lower retinopathy grades, Chi2 was used to validate the results. Social deprivation was scored using the Index of Multiple Deprivation (IMD2007).

Results: A significantly higher proportion of the case group (R3 patients) were in the lowest socioeconomic quartile when compared to the control population 73% vs 37%, ($p<0.0001$,chi2 = 38.770;3d.f.).

Significant racial variation was noted between the two groups; in the R3 group 52% were White-Caucasian, 45% Asian and 3% African-Caribbean vs. 85%, 13%, and 2% in the control group ($p<0.0001$,chi2 = 84.792;2d.f.).

Interestingly 80% of all Asian patients that were sampled were in the R3 group compared to only 35% of Caucasians and 66% of African-Caribbean patients.

Conclusion: Social deprivation and ethnicity appear to be associated with the late presentation of proliferative diabetic retinopathy.

Further research is needed to ascertain whether supportive measures (educational leaflets and translators) targeted at these high-risk groups would increase their access and uptake of care, reducing late presentations and subsequent need for laser-therapy.

153. Baseline characteristics of the UK wet age-related macular degeneration (wAMD) cohort of the LUMINOUS observational study.
C S Brand, M Musadiq, Y Yang, S R Taylor, R Gale, C Brittain, R Hamilton
Royal Hallamshire Hospital

Introduction: Although the efficacy and safety profile of ranibizumab (Lucentis®) has been well established in randomised controlled clinical trials, long term safety and effectiveness in the real world setting have not been widely documented.

Purpose: LUMINOUS is a 5 year prospective global observational study aiming to recruit 30,000 ranibizumab patients being treated for any locally approved indication.

Method: This abstract describes the baseline characteristics of the first 700 UK patients in LUMINOUS, following a pre-specified interim baseline analyses upon global enrolment of 2000 patients. Treatment-naïve (TN) or existing ranibizumab (ER) patients treated according to local routine clinical practice were enrolled upon providing informed consent.

Results: Of the 700 UK patients in the baseline interim analyses, 690 had wAMD. wAMD mean baseline demographics: age= 79.2 years (range 45-99); 73.3% 75+ years; 96.5% Caucasian; 60.3% female; 55% received ranibizumab prior to enrolment. wAMD mean baseline ocular characteristics (based on the primary treated eye; 4.1% bilateral patients): VA 55.5 ETDRS letters (TN 54.6, ER 56.3 ETDRS letters); 34.6% predominantly classic lesions; lesion size > 1DA in 63.6%; 57.5% PED, 3.2% PCV and 4.5% RAP. 344/690 wAMD patients had baseline CRT measurements, 85.8% via SD-OCT. Baseline CRT = TN 315.3 µm, ER 246.7 µm.

Conclusion: The baseline characteristics of the first wAMD patients enrolled into LUMINOUS are consistent with but more diverse that those recruited into the pivotal ranibizumab studies. Forthcoming data from LUMINOUS should provide insight into real world ranibizumab usage.

154. Predictive factors for poor central retinal thickness response to ranibizumab in wet age-related macular degeneration
J Guber, T Josifova, I Guber, P B Henrich
University of Basel

Introduction: Knowledge about prognosis and outcome after a treatment is of paramount importance in the clinical setting. Our findings contribute to a better understanding of the prognosis of several subgroups in wet AMD after Lucentis.

Purpose: To determine predictive OCT-based anatomical factors and clinical characteristics for poor central retinal thickness (CRT) response to ranibizumab in wet age-related macular degeneration (AMD).

Method: In this retrospective study, a total of 210 eyes of 182 consecutive patients treated with intravitreal injections of 0.5 mg ranibizumab for wet AMD in a pro re nata (PRN) modus were enrolled. Mean follow-up time was 1.34 years (SD ± 0.77). To identify predictors for relative mean central retinal thickness (CRT) change compared to a reference CRT (RCRT), a linear mixed effects model was performed. Analyzed factors were gender, age, initial best-corrected visual acuity(BCVA), prior photodynamic therapy, lesion type (classic/predominantly classic versus occult/minimally classic), type of macular edema (cystoid type or spongoid type of intraretinal fluid, subretinal fluid (SRF), pigment epithelium detachment (PED)) and the total number of performed injections.

Results: CRT reduction in women was significantly inferior to that in men (p=0.05). Patients with cystoid type macular edema had significantly greater reduction in CRT compared to patients with spongoid type macular edema (p<0.001), subretinal fluid (p<0.001) or pigment epithelium detachment (p<0.001). After six injections, further treatments led to no significant reduction of mean CRT. Age, initial BCVA, prior photodynamic therapy and lesion type had no effect on CRT response

Conclusion: Predictors for poor CRT response to ranibizumab include female gender, spongoid type macular edema, SRF and PED. After six injections, no significant CRT reduction could be observed.

155. Incidence and baseline clinical characteristics of treated neovascular age-related macular degeneration in a well-defined region of the United Kingdom

T D L Keenan, S P Kelly, A Sallam, Q Mohamed, R L Johnston
University of Manchester

Introduction: Accurate data on the incidence of patients with neovascular age-related macular degeneration (nAMD) requiring anti-VEGF injections are lacking.

Purpose: To analyse the incidence and baseline characteristics of patients with nAMD treated with intravitreal anti-VEGF injections in a defined UK region.

Method: A standardised dataset was collected prospectively using an electronic medical record (EMR) system from 1/1/2008 – 21/6/2012 for all patients living in Gloucestershire who received intravitreal anti-VEGF injections.

Results: Over the study period, 1321 eyes from 1122 patients began intravitreal anti-VEGF injections for nAMD. The incidence in the years after NICE technology appraisal 155 (TA155) implementation was stable at around 120 eyes or 100 people per 100,000 population. The most common indication was occult choroidal neovascularisation (52%). Median baseline VA was significantly higher for second treated than for first treated eyes (66 and 56 letters, respectively; p<0.0001). Median baseline VA of fellow eyes increased from 34 (2007) to 67 letters (2012; p<0.005). The proportion of patients with baseline VA better eye ≥70 letters increased from 27.6% (2008) to 51.4% (2012; p<0.0001), whilst the proportion eligible at baseline for full certificate of visual impairment decreased from 12.1% (2008) to 6.4% (2012; p<0.05).

Conclusion: The incidence of patients undergoing anti-VEGF therapy for nAMD increased substantially following NICE TA155 and has been stable since 2009. This equates to an annual UK incidence of 20,000 eyes, similar to NICE estimates. Binocular severe visual loss before treatment decreased by 47% from 2008-2012. Prospective data collection using an EMR system is essential for efficient monitoring of real-world clinical care.

156. Ranibizumab results in durable visual acuity (VA) responses and early change may predict longer term responses – an analysis of EXCITE

W Amoaku, Y Yang, V Chong, J Warburton, C Brittain, J Alsop, A Osborne
Nottingham University Hospitals NHS Trust

Introduction: Durable response to ranibizumab is an important aspect of maintaining VA in patients with wet age-related macular degeneration (wAMD).

Purpose: To evaluate: 1.best-corrected VA (BCVA) changes at 4, 8 and 12 weeks after ranibizumab 0.5mg; 2.early responses as a predictor of 1-year outcomes.

Method: EXCITE was a double-blind, phase IIIb study of wAMD patients randomised to three monthly injections followed by 9 months of 0.3mg or 0.5mg every 3 months(Q3M), or 0.3mg ranibizumab monthly(QM).

BCVA scores were evaluated to determine changes 4, 8 and 12 weeks after last injection with 0.5mg Q3M.

Based on BCVA change from baseline to month 3, four response groups (gained ≥15 letters [Cat1]; gained

5–14 letters [Cat2]; no change (±5 letters) [Cat3]; lost >5 letters [Cat4]) were also analysed.

Results: Mean BCVA changes were +0.9 letters at Week 4 (95% CI -0.4 to 2.2), +0.4 letters at Week 8 (–0.9 to +1.6), and -0.5 letters at Week 12 (–1.9 to +0.9).

Cat1 pts had no clinically relevant Month 12 difference (QM vs Q3M difference=-1.3 letters; p=0.63). Cat 3 pts were similar (diff.=-1.9; p=0.34), but not Cat2 pts (diff.=-4.8; p=0.002). In Cat4 pts, Q3M was less effective than QM (diff.=-10.1; p=0.12).

Conclusion: BCVA was maintained 8 weeks post injection. Eyes with strong early response may require less frequent treatment; eyes with initial loss may require more intensive follow-up, highlighting the importance of individualised treatment and monitoring.

157. Audit of Sheffield AMD Service: effectiveness of the "virtual review clinic"
H Abdulkarim, C Bennet, C Brand, N Acharya, M Freeman, F Quhill
Royal Hallamshire Hospital

Introduction: To maximise service capacity, Sheffield pioneered a nurse-led rapid access clinic where patients have colour fundus photography and SD-OCT, with a remote, consultant ophthalmologist-led 'virtual review clinic'. We undertook a 'grass-roots' level audit of this service over its first 5 years.

Purpose: This audit aimed to assess the effectiveness of the service in preventing vision loss in our population.

Method: The inclusion period was January 2007 to December 2011. Data including baseline and subsequent visual acuity, demographic information, and the number and frequency of visits and treatments, were prospectively collected.

Results: 331 eyes were seen and treated. The mean follow-up was 20.7 months (SD 11.3 months) with 8.6 visits per year (SD 1.8).

Over the entire group; 80% of eyes avoided 15 ETDRS letter loss at three years, 16% gained 15 letters.

If we removed those patients who did not fit the inclusion criteria for the PrONTO trial; 16.7% of our group achieved a 15 letter gain and 83.3% avoided 15 letter loss at 36 months.

We gave approximately 5 ranibizumab injections per patient in the first year, and less than 2 in both years 2 and 3.

Conclusion: The Sheffield AMD “virtual review clinic” has maximised service capacity whilst being effective in preventing vision loss at levels approaching those in clinical trials. Our data also suggests we are under treating in comparison to other units so we have changed our practice and now offer more injections if a patient shows instability.

158. Short term intraocular pressure (IOP) trends following intravitreal Ranibizumab injections for neovascular Age-related Macular Degeneration (nvAMD) – The role of oral Acetazolamide in protecting glaucoma patients.
C D Murray, D Wood, V Allgar, G Walters, R P Gale
York Teaching Hospital NHS Foundation Trust

Introduction: Intravitreal anti-Vascular Endothelial Growth Factor injection therapies are the standard of care for nvAMD. Transient high elevations of IOP immediately following treatment commonly occur. Repeated intravitreal injections expose glaucoma patients to risk of nerve fibre loss.

Purpose: To determine the effect of oral Acetazolamide on peak and duration of IOP rise in glaucoma and glaucoma suspect patients, following an injection of Ranibizumab.

Method: Open label, randomised, controlled trial. Eudract Number: 2010-023037-35. 24 glaucoma or glaucoma suspect patients were randomised to receive either no treatment or 500mg oral Acetazolamide, 60-90 minutes, prior to 0.5mg intravitreal Ranibizumab for nvAMD. The primary outcome measure was IOP immediately after injection (T0). ANCOVA analysis was used to compare groups, adjusting for baseline IOP (T-B). The study was powered to detect a 9mmHg difference at T0. A secondary outcome was IOP at 30 minutes (T30).

Results: The IOP at T0 was 2.3mmHg higher in the non-treated group (44.5 vs 42.2), but was not statistically significant after adjusting for baseline IOP (TB) (p=0.440). At T30, IOP was 4.8mmHg higher in the non-treated group (20.6 vs 15.8), which was statistically significant after adjusting for baseline IOP (TB) (p= 0.013).

Conclusion: 500mg oral Acetazolamide, 60-90 minutes prior to intravitreal injection, results in a significant reduction in IOP at 3O minutes post-injection.

159. Novel Minimally-Invasive Episcleral Brachytherapy for Neovascular Age-Related Macular Degeneration (nAMD): Twelve Month Results of a Prospective Phase-I Safety and Feasibility Study

K S Balaggan, R F Schindler, L Joffe, B Stea, P Patel, L Marsteller, A Tufail
University of Arizona

Introduction: Although anti-VEGF treatments have revolutionised nAMD management, they fail to significantly improve vision in most patients, with some patients demonstrating no response to treatment. As neovascular regression is not achieved, many patients will likely require lifelong and often frequent invasive intravitreal injections. Radiation has multiple angiostatic properties which could address these issues, and has recently been evaluated using both vitrectomy and stereotactic external beam delivery methods. These approaches, however, are either invasive with predictable adverse effects, or necessitate large complex expensive devices. A locally-delivered non-penetrating brachytherapy approach could overcome these limitations.

Purpose: Safety and feasibility evaluation of a novel episcleral brachytherapy device for nAMD

Method: 6 patients received 24Gy radiation directly to the macular CNV by positioning the brachytherapy probe adjacent to the macular sclera via a subtenon retrobulbar approach. The probe was removed after 5.5 minutes. Patients also received concomitant anti-VEGF injections with further readministration as-needed. Adverse effects, BCVA and macular thickness were evaluated monthly.

Results: The procedure was readily performed and was well tolerated with no serious adverse effects. By 12 months, 3 patients demonstrated sustained improvements or stability in BCVA (mean +7 letters), 2 of whom required no further anti-VEGF injections during follow-up. All patients demonstrated reduced macular thickness compared with baseline. 3 patients demonstrated reductions in BCVA.

Conclusion: This prospective study supports the safety and tolerability of this novel device, and its further evaluation in larger phase I/II trials.

160. Incidence and risk factors of retinal pigment epithelial detachment in age-related macular degeneration with intravitreal antiangiogenic drugs.

S W Ch'ng, T Empeslidis
Leicester Royal Infirmary

Introduction: Retinal pigment epithelium (RPE) tear is a visually threatening complication of pigment epithelial detachments (PED) in age-related macular degeneration (AMD). Anecdotal evidences have suggested an association between intravitreal injection of anti-vascular endothelial growth factor (anti-VEGF) and the occurrence of RPE tears. The reported incidence rate of RPE tears during anti-VEGF therapy is 0.7-17%.

Purpose: To study the incidence and risk factors for RPE tears following intravitreal anti-VEGF.

Method: A retrospective case analysis of patients who received intravitreal anti-VEGF for choroidal neovascularization (CNV) associated with AMD.

Results: Out of 4027 patients, 17 develop a RPE tear (12 with intravitreal ranibizumab and 2 with intravitreal bevacizumab). The incidence rate was 0.4%. 15/17 had a fibrovascular PED of less than 400 microns and developed a RPE tear within 6 months. 95% of these RPE tears resulted from wet AMD diagnosed as an occult CNV membrane on FFA. 80% of these patients developed a RPE tear within the first six intravitreal injections. 10/17 had Grade 4 RPE tears and poor visual outcomes. The remaining 5 patients had a slight improvement in vision despite continuing with anti-VEGF treatment.

Conclusion: This study shows that RPE tears occur less frequently than in other reported literatures. Risk factors includes occult CNV, fibrovascular PED, possibly older age and height of the PED on OCT. Continuation of anti-VEGF therapy may improve the outcome of this condition but randomised clinical trials will be required to establish this benefit.

161. Genotype-phenotype correlations and ocular involvement in Von Hippel Lindau disease

M G Gemenetzi, J S Singh, M S Sagoo, S L Lightman, S T Taylor
Imperial College Healthcare NHS Trust, Hammersmith Hospital

Introduction: Von Hippel-Lindau (VHL) is an uncommon oncogenic disorder which occurs as a result of genetic mutations on chromosome 3p. Retinal capillary haemangiomas and CNS haemangioblastomas have been well-characterised in genotypic-phenotypic analyses, but cystic visceral lesions are less common and have been less frequently studied.

One of our principal aims in performing this study was to see whether there was any association between visceral cystic lesions and ocular involvement.

Purpose: The aim of this study was to perform genotypic and phenotypic analysis of a cohort of VHL patients that developed cystic visceral lesions to determine whether their genotype differs from that seen in other manifestations of VHL and whether the ocular manifestations differ.

Method: This study reports a prospective case series of twenty-one patients identified from the Hammersmith Hospital Genetics Service database as having VHL mutations. Patients underwent regular ocular and systemic screening as well as genotypic analysis. The main outcome measures were the development of VHL lesions, either ocular or systemic.

Results: Cystic visceral lesions were detected in six of the 21 patients (29%). These included renal cysts in four patients, pancreatic cysts in three patients, and an epididymal cystadenoma in one patient. Renal cysts were not associated with any specific genotype. Pancreatic cysts appeared to occur in association with VHL gene deletions and all developed CNS haemangioblastomas. Only one patient developed ocular manifestations, which occurred in the form of two retinal capillary haemangiomas.

Conclusion: VHL gene deletions appear to be associated with pancreatic cysts and the development of CNS haemangioblastomas. Ocular manifestations were uncommon in this cohort of VHL patients.

162. Redefining the Management of Retinal Ischaemia using Ultra-Wide Field Fluorescein Angiography
S Subbiah, D Sharp, D Squirrell
University of Auckland, Auckland District Health Board

Introduction: Ultra-wide field fluorescein angiography (UWFFA) is able to obtain panoramic views, imaging up to 200 of the retina. Traditional angiography images approximately 75 with fundal mosaics.

UWFFA identifies regions of vascular leakage and presumed VEGF drive. Areas of peripheral neovascularisation can also be seen with UWFFA not seen with standard angiography. Fluorescein guided laser thus avoids unnecessary laser ablation preserving normal retina.

With UWFFA we must ask whether we are now under treating ischaemia in retinal vascular disease.

Purpose: The aims of this study were to define whether there was a greater extent of retinal ischaemia documented on UWFFA compared to traditional seven-field fundus angiography and whether this would alter management.

Method: 47 consecutive patients with diabetic retinopathy/ maculopathy requiring angiography had UWFFA performed using the Optos 200Tx (Dunfermline, UK). A seven-field overlay was placed over the ultra-wide angiogram image. Direct comparisons were made with regards to the degree of ischaemia by two different examiners.

Results: Management was altered for 36 patients, who received UWFFA guided argon laser to areas of active ischaemia as well as intravitreal Bevacizumab (depending on hospital prioritisation criteria). In cases that ischaemia was noted it was significantly greater on UWFFA compared to standard seven-field angiography (statistics in preparation).

Conclusion: UWFFA is superior to seven-field fluorescein angiography in delineating retinal ischaemia. UWFFA guided argon laser to areas of active ischaemia allows more focused treatment preserving viable retina whilst reducing VEGF release and its consequences of macula oedema and neovascularisation.

163. Diabetic Maculopathy (M1) referrals to hospital eye services – Are Ophthalmic Photographic Diabetic Review (OPDR) clinics the way forward?
A Ranganath, N Mathew, J Sardar
Royal Shrewsbury Hospital

Introduction: Digital diabetic retinopathy (DR) screening programmes has led to increase in referral to HES of patients with diabetic maculopathy (defined by National screening grading protocol–M1). These increased numbers led to capacity problems within diabetic eye services (Dodson report-2012).

OPDR clinics were first established in 2006 in Birmingham system to allow photographic care of patients with early referable DR in a virtual format. Subsequently, OCT has been added to virtual clinics, offering the opportunity to clearly define patients who really need slit-lamp examination by an ophthalmologist.

Purpose: To assess outcome of M1-referrals from DESP (Diabetic Eye Screening Programme) to diabetic eye clinic at Royal Shrewsbury Hospital

Method: Retrospective study of 100 diabetic patients referred from DESP with suspected M1 between Jan-Dec'2012.

Results: Patients referred from DESP in 2011-361
M1 referrals-312(86%)
Time from referral to clinic appointment:target met-68%(<13 weeks)
Outcome:
Discharged on first visit-43%

Follow-up-37%
Listed for laser at first visit (according to ETDRS criteria)-13%
Follow-up for other conditions (suspected glaucoma/cataract)-7%

Conclusion: Digital DR screening has caused increase referral to HES creating capacity problems and failure to meet time targets. This study shows that 87% of M1 referrals did not have clinically significant macular oedema and were not listed for laser at first visit.

OPDR clinics combine state of the art digital photography and OCT technology to deliver a comprehensive screening service thereby reducing waiting time and referral burden to diabetic eye clinics.

164. Verteporphin Photodynamic Therapy (PDT) in Idiopathic Polypoidal Choroidal Vasculopathy (IPCV)- one year outcome.
F Ghanchi, E Ruagh
Bradford Teaching Hospitals

Introduction: IPCV represents a subgroup of wet AMD cases, with varied clinical course and treatment response.

Purpose: To describe long-term clinical outcome of PDT in management of patients with IPCV.

Method: Retrospective analysis of an interventional case series of patients with IPCV treated with PDT, data for which was collected from Electronic Patient Records. Data on outcomes for best corrected visual acuity, HD OCT scans and retinal angiograms at one year was analysed. PDT and antiVEGF treatment data was collected from treatment register and the EPR.

Results: 37 eyes of 30 patients were included in the study (25 Caucasian, 5 Asians average age of 68.5).

22 (59.4%) eyes had previous AntiVEGF injections,15 eyes (35.1%) received PDT as primary treatment. 25 eyes (67.5 %) received one PDT. 9 (25.6%) eyes had two PDT, 3 eyes (8.1%) needed ≥ 3 PDT. 17 eyes (45.9%) did not require any treatment following PDT. 20 (54 %) eyes received combination treatment with antiVEGF injections.

21 eyes (59.4%) had stable or improved vision at one year; 8 eyes (21.6%) had improved vision ≥ 3 lines; 5 eyes (13.5%) had decreased vision (lost > 3 lines). 17 eyes (45.9%) showed no active lesions on ICG post PDT treatment, out of which 11 eyes (64.7%) had complete resolution.

One eye suffered post PDT macular haemorrhage, but no other patient had any side effect from PDT.

Conclusion: Verteporfin PDT is a safe and effective treatment option for patients with IPCV. PDT can be considered as primary or adjunctive treatment for patient with IPCV.

165. The impact of Diabetic Macular Ischaemia on Visual Acuity and Predictive Factors for Progression
D A Sim, P A Keane, M Fruttiger, C V Bunce, P J Patel, A Tufail, C A Egan
Moorfields Eye Hospital

Introduction: The natural history of diabetic macular ischaemia (DMI) and its effect on visual function is not well understood.

Purpose: To investigate the impact of DMI on visual acuity (VA), and predictive factors for ischaemia progression.

Method: Data were retrospectively collected over a six-month period. DMI severity was graded using Early Treatment Diabetic Retinopathy Study (ETDRS) protocols. Areas of capillary non-perfusion over the foveal avascular zone (FAZ), papillomacular nerve fibre layer bundle were quantified, and associations tested with VA. Fluoroscein angiograms, separated by a minimum time interval of 6 months, were used assess the relationship between FAZ enlargement rate (mm2 / year) and its clinical co-variates.

Results: 488 patients with Type 2 diabetes mellitus were included. Significant association of VA to FAZ area was observed in the moderate (=0.406, SE=0.101, p=0.001) and severe ETDRS-DMI grades. (=0.299, SE=0.108, p=0.006). A strong association with VA was observed with papillomacular ischaemia (= 1.123, SE=0.355, p=0.005), independent of FAZ size or macular oedema. The overall median FAZ enlargement rate was 0.023 mm2 / year (IQR, 0.001 to 0.060). Predictors for FAZ enlargement include, ETDRS-DMI severity grade, (OR=2.47, CI=1.21 to 5.05, p=0.02) and a VA progression rate of > 0.05 LogMar / year. (OR=4.98, CI=1.60 to 15.5, p=0.01)

Conclusion: DMI, in particular papillomacular nerve fibre bundle ischaemia, is associated with reduced VA in eyes with moderate to severe ETDRS-DMI grades of ischaemia but preserved in milder grades. A greater ETDRS-DMI grade and deteriorating VA were independently predictive for progression in eyes with established DMI.

166. Wide-Field Fundus Fluorescein Angiography in Diabetic Macular Oedema: a Study of Midperipheral and Peripheral Retinal Perfusion

A Sala-Puigdollers, S Caputo, Y Da-Souza, S J Charles, D B Henson, D McLeod, P E Stanga
Manchester Royal Eye Hospital

Introduction: The ischemia in Diabetic Retinopathy (DR) has been postulated to have an important role in the development of Diabetic Macular Oedema (DMO).

Purpose: To assess the location and surface area of retinal non-perfusion and its relationship with Central Macular Thickness (CMT) in patients with DMO.

Method: Retrospective review of 77 wide-field fundus fluorescein angiography (WF-FFA) images of patients with DMO using the Optomap® imaging system. Images were graded using custom software that takes into account image distortion and superimposes a grid over the WF-FFA image (each cell being one disc area of 1.77mm2). The image was divided into 3 zones: Central (an ellipse centered on the fovea, passing through a point one disc diameter from the nasal edge of the optic disc and including the vascular arcades); Mid-peripheral (centered on the optic disc and passing along the posterior edge of the vortex vein ampullae); Peripheral (beyond the mid-peripheral). Two independent graders classified each cell as: 1 (>50% perfused), 2 (<50% perfused), 3 (interface), 4 (not possible to classify.

Results: The mean CMT was 290µ (range:199-606µ). The average of non-perfusion areas in Mid-peripheral was 4.17 (range: 0-25). Correlation coefficient with CMT 0.349, p=0.019. The average of non-perfusion areas in Peripheral was 2.01 (range: 0-29). There was no correlation with CMT and peripheral non-perfusion areas.

Conclusion: Retinal non-perfusion associated to DMO seems to be mainly located in the mid-periphery. There is a weak correlation between CMT and mid-peripheral retinal ischaemia. Further studies are required as to ascertain the role of retinal non-perfusion in DMO.

167. Subconjunctival Lidocaine Or Topical Proxymetacaine For Intravitreal Anti-Vegf Therapy: What Would Your Patients Prefer?

E D Hawkes, S Hannan, S I Haider, F G Ahfat
Maidstone Hospital

Introduction: There are various methods of administering anaesthesia prior to intravitreal anti-VEGF injection. The goal is to allow the injection to be performed with least discomfort for patients.

Purpose: To evaluate a subjective analgesic effect of subconjunctival 2% lidocaine versus topical 0.5% proxymetacaine prior to intravitreal anti-VEGF therapy.

Method: A prospective patient survey was carried out at a district general hospital during September 2012 on 100 patients undergoing intravitreal anti-VEGF treatment. Patients were split into 2 groups of 50, one receiving topical proxymetacaine and the other receiving subconjunctival lidocaine prior the intravitreal injection. Post procedure patients were asked about the level of pain experienced using a seven point analogue scale ranging from no pain (0) to very severe pain (7). A two tailed t- test was used for statistical analysis.

Results: All patients agreed to participate in the survey. The mean pain score in the subconjunctival lidocaine cohort was 0.88/7 (range: 0-4) compared to 1.4/7 (range: 0-6) in the topical proxymetacaine group. This difference was statistically significant ($p<0.05$).

Conclusion: We have shown that subconjunctival lidocaine is a preferable anaesthetic for patient comfort during intravitreal injection. We therefore propose that this becomes standard clinical practice prior to intravitreal anti-VEGF therapy.

168. Structure-function correlation in macular oedema due to retinal vein occlusions.

R Gohil, R Akshikar, S Sivaprasad
King's College Hospital Nhs Foundation Trust

Introduction: Retinal vein occlusion (RVO) is the second most common retinal vascular disease after diabetic retinopathy. The two main causes of impaired vision are due to macular oedema and ischaemia induced secondary complications. Macular oedema can be quantified and characterised morphologically.

Purpose: In this study, we assessed the relation between structural changes at the macula and the visual acuity at presentation in patients with RVO.

Method: We retrospectively analysed all the Spectralis OCT images of 45 consecutive patients with retinal vein occlusion related macular oedema. The quantitative parameters recorded included central sub-field thickness, number of ETDRS zones with more than or equal to 300 µm thickness, residual macular oedema and log OCT. The qualitative parameters included the morphological type of oedema namely cystoid, diffuse, mixed, and subretinal detachment. Other parameters included the presence of external limiting membrane, ellipsoid layer,

outer digitations and choroidal thickness at the fovea. The presence or absence of these structures was correlated to visual acuity.

Results: The OCT images of 45 patients presenting with macular oedema were analysed. The graders were masked of the visual acuity. Visual acuity was best in eyes with subretinal detachment. Cystoid oedema presented with better visual acuity than diffuse oedema. The inner retina cysts carried better visual prognosis than outer retinal cysts. There was no correlation of vision with the amount of hyporeflective cystic spaces in the foveal and parafoveal area. The presence of ELM and ellipsoid layers were good prognostic indicators.

Conclusion: This study shows that it is best to consider composite score of quantitative and structural changes together to predict visual acuity scores.

169. 1 year experience with Dexamethasone intravitreal implant (Ozurdex) for macula oedema (MO) secondary to CRVO in routine clinical practice: A multicentre report
C Dinah, K Nenova, S Pushpoth, G Menon, I El Ghralby, D Varma, S J Talks
Royal Victoria Infirmary

Introduction: Ozurdex is the only NICE approved treatment for MO secondary to CRVO.

Purpose: Analyse the visual and anatomical response to Ozurdex intravitreal injections in treatment-naive patients with MO secondary to CRVO in clinical practice.

Method: Retrospective analysis of medical records and OCT images of 74 consecutive patients diagnosed with CRVO and treated with Ozurdex in 4 UK centres.

Results: The mean baseline BCVA was 43.6 (±17.1; range 4-75). Mean BCVA improved by 11.3 letters as early as Month 1 ($p<0.0005$), and remained statistically significant at month 3 (8.6 letters, $p <0.0005$). There was no significant difference in BCVA from baseline by Month 6. In the subset of patients with >6 months follow-up (40.5%), mean BCVA followed the same trend, increasing after 2nd injection of Ozurdex and returning to baseline levels by Month 12. Subgroup analysis of patients with baseline BCVA ≤34 (19/74) demonstrated good response with a mean gain of 21.3 and 16.3 letters at Month 1 and 6 respectively

60% of patients had no evidence of oedema on OCT by Month 1, 54.2% at Month 3 and only 23.8% at Month 6.

Elevation of intraocular pressure (IOP) peaked at Month 1, with IOP >10mmHg from baseline in 13.8%. No patient developed neovascularisation.

Conclusion: Ozurdex is effective for macula oedema secondary to CRVO in routine clinical practice with sustained benefits up to 3 months. We recommend shorter re-injection intervals to maximise benefit.

170. A study to determine the safety of nurse delivered intravitreal injections to increase clinic capacity
J DaCosta, R Hamilton, J Nago, B Pal, D Thomas, C Pavesio, D Flanagan
Moorfields Eye Hospital

Introduction: Intravitreal Ranibizumab has revolutionised the treatment of wet age related macular degeneration resulting in increasing numbers of patients requiring ongoing treatment. The constraints of limited numbers of medical staff combined with a requirement to provide increased capacity within medical retina clinics is a challenge.

Purpose: To provide increased capacity nurse practitioners were introduced to deliver intravitreal injections. A robust policy for this was approved by the Hospital Management Executive.

Method: A rigorous training schedule was developed for nurses before undertaking this procedure. A training log detailing procedures performed was recorded. Following training nurses underwent competency assessment. Patients were consented before the nurse practitioner performed the procedure. Capacity was measured as the number of extra sessions obtained from nurse injections performed.

Results: 602 consecutive nurse delivered intravitreal injections were recorded (n= 602) over a ten month period. This equates to an extra 50 sessions of clinic activity at no additional cost, assuming 12 injections booked per session. No vision threatening complications occurred. 28 (4.7%) patients were recorded with sub-conjunctival haemorrhage. 35 (5.8%) patients declined nurse delivered intravitreal injecting. Of these, 4% patients declined in the first month and 1% during the second month.

Conclusion: The results of this study demonstrate that nurses can safely deliver intravitreal injections to provide increased clinic capacity. The majority of patients were satisfied with a nurse administered intravitreal injection.

171. Outcomes of treatment with intravitreal Ranibizumab in patients of Wet Age Related Macular Degeneration (AMD) with visual acuity at baseline better or worse than specified in NICE TA155

S Arora, T Islam, N Hickley, D Gilmore, N Dhingra, L Downey, M Mckibbin
St James University Hospital Leeds, Hull Royal Infirmary

Introduction: Patients within the UK receiving ranibizumab for wet AMD are funded automatically in compliance with NICE TA 155. This specifies baseline acuities between 70 and 25 LogMar letters and was guided by initial clinical trials data. Since 2008 evidence has grown that treating patients with vision outside this range is beneficial.

Purpose: This study adds to the evidence base by reporting efficacy and safety of ranibizumab in patients with wet ARMD with visual acuities outside NICE treatment threshold used within NHS practice.

Method: Retrospective interventional case series from three treatment centres. Visual acuity and safety data was collected on a cohort of qualifying patients who were treated with loading dose followed by PRN schedule of 0.5mg of intravitreal ranibizumab.

Results: 42% and 53% of patients (n-43) with vision worse than 25 letters had an increase of 15 or more letters at 6(p-0.0001) and 12 months (p-0.000) respectively. The mean best corrected letter score at baseline, 6 months and 12 months was 16.7, 34 and 36 letters respectively. The mean change in the letter score was +20 letters at 12 months.

90% of patients (n-26) with vision better than 70 letters avoided loss of 15 or more letters at 12 months. Mean best corrected letter score at baseline, 6 months and 12 months was 75, 70 and 70 letters respectively (paired t test p-0.122). In this group, 64% of the patients had visual acuity equal or better than baseline.

Conclusion: Patients with visual acuities outside NICE treatment threshold may benefit from intravitreal ranibizumab treatment.

172. Systolic blood pressure and ocular perfusion pressure influence sub-foveal choroidal thickness in normal individuals

L T Sansom, M McKibbin
St. James's University Hospital, Leeds

Introduction: Sub-foveal choroidal thickness (SFCT) varies considerably in both normal and disease states. There is insufficient information to explain which factors influence SFCT.

Purpose: To record SFCT in normal eyes and investigate correlation with age, sex, intraocular pressure (IOP), systolic (SBP) and diastolic blood pressure, ocular perfusion pressure (OPP), refractive error, retinal thickness and axial length.

Method: SFCT was measured in both eyes of 50 normal individuals using Heidelberg Spectralis OCT in enhanced-depth imaging mode. Refractive error was measured by Nidek ARK900-S Autorefractor and axial length by Zeiss IOLMaster. Pearson correlation and multivariate analysis were used to investigate associations with demographic and ocular characteristics. Only right eyes were included in analysis.

Results: The mean age of the participants was 35.42 years and 23 were male. Mean SFCT was 257.7 m (SD=52.99 m) and 253.0 m (SD=45.1 m) in the right and left eyes. Retinal thickness at the fovea was 233.8 m (SD=31.8) and 228.1 m (SD=28.8) in the right and left eyes. A weak but significant correlation was seen between SBP and SFCT in the right eyes (R = -0.345, p = 0.014, R2 = 0.119). A non-significant correlation was seen between SFCT and OPP (R = -0.248, p = 0.082, R2 = 0.062). Associations were not independent.

Conclusion: Some variation in SFCT in normal individuals can be explained by differences in SBP and OPP. However, these data suggest that most of the SFCT variation in normal individuals is due to characteristics not investigated in this study.

173. Dexamethasone Implants and Neovascular Glaucoma in Central Retinal Vein Occlusion

A Lula, L Joshi, N Kirkpatrick, V Menezo, A Sallam, S L Lightman, S R J Taylor
Royal Surrey County Hospital

Introduction: Dexamethasone intravitreal implants (Ozurdex) are a NICE-approved therapy for the treatment of macular oedema in non-ischaemic central retinal vein occlusion (niCRVO), and have been reported to reduce the ischaemic complications of this condition. We present a case series of five patients who developed neovascular glaucoma (NVG) within twelve months of dexamethasone implant treatment for clinically-diagnosed niCRVO.

Purpose: To report that neovascularisation is still a clinical problem in niCRVO treated with Ozurdex implant, indicating that close observation for the development of NVG is still required in these patients.

Method: A retrospective case series study of patients with clinically-diagnosed niCRVO treated with dexamethasone intravitreal implants and followed-up for 12 months. The diagnosis of niCRVO was based on visual acuity, clinical features and the absence of a RAPD. NVG was diagnosed as neovascularisation of the angle (NVA) visible on gonioscopy associated with raised intraocular pressure.

Results: Five patients developed NVG, all within 8-12 weeks of their most recent dexamethasone implant. All had initially presented with clinical signs of niCRVO and VA 6/24-6/36 with no RAPD. In three patients, the diagnosis of NVG was preceded by the diagnosis of steroid-induced ocular hypertension (OHT).

Conclusion: Dexamethasone intravitreal implants do not prevent the development of NVG in patients with clinically-diagnosed niCRVO and careful monitoring is still required in these patients. The preceding diagnosis of steroid-induced OHT in some of these patients suggests either that subtle angle neovascularisation is easy to overlook in these patients, or that the steroid-induced OHT is a risk factor for the subsequent development of ischaemic complications.

174. Diabetic Macular Oedema (DMO): Identifying Patients Eligible for Treatment with The New Therapies
A Kirmani, M Mohamed, S Mann, T Ratneswaren
Guy's & St.Thomas' NHS Trust

Introduction: To assess number of patients eligible for new treatments in rapidly evolving DMO management landscape, to assist business planning and commissioning services.

Purpose: To estimate number of DMO patients potentially eligible for treatment with agents including Ranibizumab (Lucentis) under new NICE guidance (TA237), Fluocinolone Acetonide (Iluvien) and Fenofibrate (FIELD and ACCORD study data).

Method: Data was prospectively collected from all Diabetic patients (136, annual projected caseload 6,600 patients), attending a tertiary Medical Retina Clinic, sub-serving a screening programme of >30,000 patients over a 7-week period. A 14-point questionnaire was used to collect baseline demographic and medical information (diabetes duration, treatment, SD-OCT parameters such as central subfield thickness etc), to identify (a) patients eligible for Ranibizumab under NICE guidance (CRT >400µm) (b) patients with chronic DMO who may benefit from a Fluocinolone implant and(c) obtain an estimate of patients on Fenofibrate.

Results: 15 eyes of 14 patients with DMO>400µm would benefit from Ranibizumab (annual projected caseload of 96 patients). We identified 14 eyes of 13 patients with chronic DMO > 3 years, (annual caseload 89 patients), where laser treatment had failed in whom there may be potential for Fluocinolone implants. Fenofibrate usage remains low at 7%.

Conclusion: Using 'real world' data - rather than extrapolating from large population studies - we have identified a significant cohort eligible for the new strategies in DMO management; this data is essential for efficient planning of clinical services.

VITREO-RETINAL DISEASES & SURGERY

175. EpiRetinal brachytherapy In Treated AGE-related macular degeneration (MERITAGE): 24 month optical coherence tomography (OCT) and fundus fluorescein angiography (FFA) results.
R Petrarca, P Dugel, M Bennett, A Barak, D Weinberger, J Nau, T L Jackson
King's College Hospital NHS Foundation Trust

Introduction: Epimacular brachytherapy (EMB) involves pars plana vitrectomy and 24 Gray beta irradiation of the macula using an endoscopic Stontium-90 source (NeoVista, Newark, USA).

Purpose: To assess the safety and efficacy of EMB for previously-treated, neovascular age-related macular degeneration (nAMD).

Method: This prospective, interventional, non-controlled clinical trial recruited 53 participants with chronic, very active nAMD from 5 centers in the UK, USA and Israel . After treatment with EMB, participants were re-treated with ranibizumab administered monthly as needed, using predefined retreatment criteria. OCTs were undertaken monthly for 24 months. FFA were undertaken every 6 months. Images were evaluated by independent, central reading facilities. Outcome measures were: change in OCT centerpoint thickness and angiographic lesion size 24 months after EMB.

Results: Mean centerpoint thickness increased by 87 µm, from 186 to 274 µm. The FFA total lesion size increased by 5.83 mm2, from 14.69 to 20.46 mm2. Total choroidal neovascular (CNV) area increased by 2.70 mm2, from 12.57 to 15.27 mm2. The classic CNV area decreased substantially from 3.90 mm2 to 0.20 mm2 at 12 months and completely by 24 months. There was one possible case of non-proliferative radiation retinopathy.

Conclusion: In chronic, active, neovascular AMD, EMB is associated with non-significant changes in centerpoint thickness and FFA lesion size over 24 months. The angiographic and OCT response did not correlate with lesion size at baseline.

176. Anatomical and visual outcomes of surgery for traction retinal detachment (TRD) in familial exudative vitreoretinopathy (FEVR)
S C Wong, T Ranchod, C K Luo, L Ho, K A Drenser, A Capone, M T Trese
Beaumont Hospital

Introduction: FEVR presents in childhood, with a risk of TRD formation. Long-term follow-up data following surgery is limited.

Purpose: To review the outcomes of surgery for TRD in FEVR.

Method: A retrospective, noncomparative, interventional case series of 102 eyes of 71 patients with FEVR associated TRD requiring vitrectomy or scleral buckle surgery from 1984 to 2009. Patients with under 6 months of follow-up were excluded. Absolute anatomical success was defined as either partial or complete retinal reattachment. Qualified anatomical success was defined as nonprogression of TRD extent in stage 3 (macular-sparing) and 4 (macular-involving), and prevention of phthisis bulbi in stage 5 (total).

Results: Median age at primary surgery was 1.1 years (IQR 0.3-6.1). Median follow-up was 45 months (IQR 26-86). The number of stage 3, 4 and 5 eyes were 7% (7/102), 48% (49/102) and 45% (46/102), respectively. Overall, absolute and qualified anatomical success were 34% (35/102) and 80% (82/102), respectively, with a mean of 1.4 (SD 0.67) procedures; in stage 5 eyes, these were 39% (18/46) and 83% (38/46), respectively, with phthisis occurring in 2% (2/46). Overall, 45 eyes had visual acuity (VA) follow-up data; 40% (18/45) improved, 27% (12/45) remained unchanged and 33% (15/45) worsened. In stage 5 eyes, VA improved in 35% (7/20), and was light perception or better in 95% (19/20).

Conclusion: Vitreoretinal surgery appears to have a role in FEVR, with low risks of phthisis bulbi or no perception of light vision.

177. Effectiveness of Emergency Argon Laser Retinopexy Performed By Trainee Doctors : 10 Years Later
P Petrou, K S Lett
Birmingham & Midland Eye Centre

Introduction: Laser retinopexy remains the mainstay of treatment for retinal tears presenting to Eye Casualty. However, laser coverage may frequently be incomplete, necessitating further intervention. A previous study from this unit indicated that 24% required retreatment.

Purpose: To re-assess the outcomes following treatment of retinal tears with argon laser photocoagulation by trainee doctors as an emergency procedure.

Method: Retrospective, case note analysis of 100 consecutive patients treated between September 2010 and September 2011 at a tertiary referral centre, compared with the respective findings at the same institution during the period between August 2000 and December 2002.

Results: The case notes of 100 consecutive patients (male : female, 42:58) were reviewed. Mean age was 53.8 ± 14.2 years. Seven patients were asymptomatic; the majority of the symptomatic patients reported floaters and flashing lights. All patients underwent Argon laser retinopexy in the Casualty Department by the on-call registrar (ST3-ST5). Of them, 40 (40%) needed further treatment either in the form of slit-lamp/indirect Argon laser retinopexy or cryoretinopexy. At final follow-up, all patients demonstrated anatomically attached retinae. The percentage of patients needing further treatment was significantly increased compared to the relevant percentage (24%) 10 years earlier (P=0.02, chi-squared test with Yates' correction for continuity).

Conclusion: A significant proportion of patients (40%) required further treatment. Over the years, the outcomes of laser retinopexy have deteriorated. Further training of juniors on indirect laser retinopexy may improve patient care and reduce the inconvenience of repeated visits.

178. In-vivo Imaging and Measurement of the Bursa Premacularis using 1,050nm Swept-Source Deep Range Imaging Optical Coherence Tomography (DRI-OCT1 Atlantis®)
S Caputo, A Sala-Puigdollers, S J Charles, S Biswas, D B Henson, D McLeod, P E Stanga
Manchester Royal Eye Hospital

Introduction: Modern imaging allows for the first time in-vivo characterization of the Bursa Premacularis (BPM).

Purpose: To image in-vivo the posterior cortical vitreous, and measure the BPM and its relationship with age and presence of the Space of Martegiani (SM).

Method: Pilot and retrospective study. 117 consecutive patients underwent 1,050nm Swept-Source optical coherence tomography (OCT) (Topcon® Deep Range Imaging, DRI-OCT1 Atlantis®). Patient age ranged from 5-90 years (mean: 52.4 years). The BPM was measured using the system's software caliper function. The horizontal (width) and the anteroposterior (depth) dimensions of the BPM were recorded.

Results: The BPM and the SM were detected in the posterior cortical vitreous of 54 patients (35.9%). All eyes (100%) with a BPM also showed a SM. Twenty-four of the 54 patients (44%) showed a unilateral BPM and thirty (56%) showed a bilateral BPM. Bilateral BPM tended to be symmetrical in width but less so in depth (Correlation coefficient: width 0.66 $p<0.005$; depth 0.45 $p=0.013$).

The mean age of patients showing BPM was 43 years (range: 5-76years). The mean width of the BPM was 7,714microns (range: 11,312–4,339microns, SD:1,431) and the mean depth was 501 microns (range: 1,340-73microns, SD:272). Variation in width and depth of the BPM did not correlate with age (Correlation coefficient: width 0.09, $p=0.44$; depth 0.076, $p=0.49$).

Conclusion: The utilisation of Swept-Source OCT with 1,050nm wavelength, 100,000 A-line scans/sec and 12mm scans allows for improved in-vivo anatomical characterization of the BPM and, for the first time, demonstration of a positive correlation between the presence of BPM and SM.

179. Eligibility for Intravitreal Ocriplasmin and Effect of Referral Pathways for Macular Holes
H M Madi, C D Dinah, D S Steel
Sunderland Eye Infirmary

Introduction: The recent MIVI-Trust trials demonstrated that intravitreal ocriplasmin induced non-surgical closure in 58.3% of eyes with macular hole (MH) ≤250µm in size with vitreomacular attachment (VMA).

Purpose: The aim of this study was to determine the proportion of patients meeting these criteria and the influence of referral pathways in a tertiary Vitreoretinal (VR) service.

Method: Retrospective review of medical records and SD-OCT images of 44 consecutive patients presenting between December 2010 and July 2012. Demographic data and OCT features were evaluated. Referral routes were classified into direct and indirect.

Results: Intergrader reproducibility for MH width (kappa 0.92, 95% CI 0.84-0.95) was high. 9/44 (20.5%) had VMA, with only 5 (11.4%) being ≤250µm. Mean time (in days) from initial presentation to VR assessment varied from 63 (+/-31.9) for direct referrals to 102 (+/-30.6) for indirect referral routes, $p=0.003$. In patients (12/44) who had OCT scans at initial presentation and at VR assessment, 4/12 (33.3%) showed VMA at initial presentation and 2 of these (50%) developed complete VM detachment by VR assessment. In addition, 3/12 (25%) progressed from stage 2 to stage 3 or 4 MH by VR assessment.

Conclusion: Currently only a small proportion of patients present with MHs ≤250µm with VMA – the group that had the best results in the ocriplasmin treatment trials. Improved referral pathways to VR services may result in a larger number of patients meeting these criteria and more likely to benefit from ocriplasmin treatment.

180. Survival Rates of Patients Undergoing Vitrectomy for Proliferative Diabetic Retinopathy
M T Sandinha, G Morphis, DM Broadbent Broadbent, S P Harding, I Pearce, I McKay, H Heimann
Royal Liverpool University Hospital

Introduction: There are few published epidemiological studies on survival rates after vitrectomy in patients with diabetes and none compared the life expectancy to those not undergoing vitreous surgery.

We investigated the survival of patients with proliferative diabetic retinopathy undergoing vitrectomy and the relationship with systemic risk factors. In addition, we compared the results to a population from our well established and comprehensive diabetic screening programme.

Purpose: To describe survival rates of patients with diabetes undergoing vitrectomy and relate these to clinical risk factors.

Method: Patients undergoing their first vitrectomy for proliferative diabetic retinopathy in a regional surgical retina service in 1998 and 2004 were identified (group A). A comparator control group was identified from those undergoing screening for diabetic retinopathy (group B) in 1998. Survival (determined up to July 2010) and risk factors (hypertension, hypercholesterolemia, nephropathy, neuropathy) were analysed by the Kaplan-Meier life method.

Results: The 3 and 5 year survival rates for group A were 69% (60/87) and 49% (43/87) and for group B 91% (132/145) and 83% (120/145), respectively. All cases in group A with known cardiac disease had died within 5 years of their surgical procedure. The difference between cases (n=87) and controls (n=148) for overall survival was highly statistically significant ($p < 0.0001$).

Conclusion: Vitrectomy in patients with diabetes is a predictor of reduced life expectancy, particularly in the presence of cardiovascular disease. Our work highlights the urgent need to improve the quality of medical care in patients with 'high risk' eye disease. This should be focussed on by diabetologists and ophthalmologists and specific care pathways developed for these patients.

181. Trans-scleral illumination compared with ultrasound biomicroscopy: An analysis of surface landmarks for safe sclerostomy in young children
R H H Henderson, C Vanden Hoven, S Lei, W C Lam
The Hospital for Sick Children, Toronto

Introduction: The correct placement of a sclerotomy, necessary for intravitreal surgery or injection, is vital for avoidance of damage to the retina or crystalline lens. In infants the ciliary body width is variable and not well understood.

Purpose: To correlate the measurements of the dark band, revealed on trans-scleral illumination, with the actual ciliary body anatomical measurements displayed on UBM in young children.

Method: Consecutive patients under 4 years age, having an EUA, were recruited prospectively. Trans-scleral illumination of one eye and measurements of the dark band from the limbus were performed. UBM measurements were made to correlate the findings using a fine tipped metal instrument placed on the borders of the dark band to create an acoustic shadow.

Results: 10 patients were recruited, age 2-35 months (mean 15 months). The surface anterior border of the dark band was found at 0.75-1.25mm from the limbus (mean 1mm); the posterior surface border was measured at 3.75-6mm (mean 4.8mm) from the limbus. Using the UBM, the limbus-ciliary body apex length ranged from 3.8-6.1mm (mean 4.9mm). In all but one case the surface landmarks of the dark band shown by trans scleral illumination fell inside the ciliary body landmarks shown on UBM.

Conclusion: Trans-scleral illumination may be a useful method of defining ciliary body anatomy and could aid in sclerostomy placement.

182. Ocular manifestations of Marfan Syndrome in the UK
V J Ekwalla, A H Child, D G Charteris, A Chandra
St George's University of London

Introduction: The prevalence of ocular manifestations of Marfan Syndrome (MFS) are not defined.

Purpose: We investigated the prevalence of the ocular manifestations of MFS across the UK.

Method: A questionnaire investigating ocular features of MFS was designed and sent to 567 members of the Marfan Trust (UK).

Results: 185 (32.6%) completed questionnaires were returned. There were 91 (49%) male and 94 (51%) female respondents (P=0.22). The mean age of the sample was 47 years (M=48, F-47).

ECTOPIA LENTIS: 56 members (30.2%) reported having had Ectopia Lentis (EL). The mean age for EL was 32 years (range 4-64) with the mean in male being 32 years and 16 years in females (P=0.549). 75% of patients had bilateral lens surgery for EL.

RETINAL DETACHMENT: 28 (15.1%) of respondents reported to have had retinal detachment (RD). This included 17 (61%) men and 11 (39%) women (P=0.34). The mean age of RD incidence was 33 years. RD occurred earlier in women (25 years) than men (33 years) (P=0.019). 46% of the respondents had had bilateral RD surgery. 21% of patients with RD had had previous lens surgery. Finally, 13 (46%) reported having had recurrence of RD post-surgery.

Conclusion: Women seem to be affected at a younger age with RD than men with MFS. Bilateral retinal detachment and re-detachments are more commonly reported than in non-syndromic RD. RD is preceded by EL surgery in over 20% of cases, and suggests that this is still a risk factor. Our questionnaire provides a modern day outlook to the ocular manifestations of MFS

183. Cost analysis of pars plana vitrectomy for the treatment of symptomatic vitreomacular adhesion
F Grimaccia, T L Jackson, E Nicod, A Angelis, A R H Simpson, P Kanavos
Kings College London and London School of Economics

Introduction: The direct cost to the NHS of pars plana vitrectomy (PPV) is unknown since a bottom-up costing exercise had not been undertaken. Healthcare resource group (HRG) costing relies on a top-down approach.

Purpose: To quantify the direct cost of PPV for vitreomacular traction (VMT), epiretinal membrane (ERM), and macular hole (MH).

Method: Four NHS vitreoretinal units recorded the indication for surgery and all procedure elements for a minimum of 30 consecutive PPVs, to include at least 10 cases of VMT, ERM, or MH. Bottom-up costing was undertaken by prospectively recording all consumables, equipment and staff salaries associated with surgery, between March and September 2012.

Results: Of 151 PPVs, 45 were for MH (17.2%), ERM (15.2%), or VMT (4%). The average surgical time was 1.17 hours [range 0.96-1.38], corresponding to an average staff cost of £238.70 [£167.45-£334.05]. The average cost of consumables was £496.85 [£431.25-£526.75], and of equipment £77.00 [£28.10-£139.15]. The average direct cost (excluding hospitalisation costs) of PPV was £812.55 [£675.65-£982.70] or £1056.30 including 30% overheads. The average effective HRG tariff reimbursed was £1672.25.

Conclusion: The direct cost of PPV is, as expected, less than the HRG tariffs, as it does not include costs incurred before and after surgery. Nonetheless, these figures indicate that it may be cost-effective for NHS hospitals to undertake additional PPVs for sVMA, if they can utilize existing infrastructure.

184. Management of Retinal Detachment in Coats' Disease with Drainage of Subretinal Fluid, Bevacizumab and Laser

A Bindra, S Biswas, P Stanga
Manchester Royal Eye Hospital

Introduction: Management of retinal detachment in Coats' disease is challenging and often unsatisfactory.

Purpose: We present a series of seven paediatric patients with exudative bullous retinal detachment secondary to Coats' Disease not amenable to laser photocoagulation or cryotherapy of the telangiectatic retinal blood vessels.

Method: All eyes underwent surgical drainage of subretinal fluid in one or more quadrants with intravitreal injection of bevacizumab.

Indirect Argon laser photocoagulation was subsequently carried out to all vascular retinal abnormalities on attached retina guided by wide-field Retcam® fundus fluorescein angiography. Treatment was carried out over several sessions as the resolution of the subretinal fluid allowed.

Results: All patients showed reattachment of the retina with resolution of the subretinal exudates.

Conclusion: The presented therapeutic approach allows for the successful treatment of advanced cases of exudative retinal detachment in Coats' disease without the need of vitrectomy surgery. The aim of the treament is to prevent the development of iris rubeosis, phthisis bulbi and a blind and painful eye in a child.

185. Macula Photoreceptor Rescue demonstrated by Adaptive Optics Retinal Imaging, in 3 Patients 6 to 8 years Post-Macular Translocation Surgery for Neovascular Age-related Macular Degeneration.

M N Muthiah, J Zhong, C Gias, G Uppal, P J Coffey, L da Cruz
Moorfields Eye Hospital & UCL Institute of Ophthalmology

Introduction: To assess if adaptive optics (AO) retinal imaging could demonstrate photoreceptor rescue, following macular translocation surgery. AO retinal imaging could be a useful technique for assessing outcomes in the future with cell based retinal therapy.

Purpose: To investigate the ability of an AO camera to image photoreceptor outer segments and show the structure-function correlates in patients who have undergone macular translocation surgery for neovascular age-related macular degeneration (AMD).

Method: Three patients who had previously undergone macular translocation surgery, underwent en-face AO retinal imaging of their retinas, with an infrared flood-illumination AO retinal camera (rtx1, Imagine Eyes, Orsay, France). The AO imaging findings of their cone photoreceptor patterns were then registered and correlated anatomically and functionally with spectral-domain optical coherence tomography scans (SD-OCT) (Spectralis, Heidelberg, Germany) and microperimetry (MP) (Nidek MP-1, Padova, Italy).

Results: AO imaging clearly showed areas of mosaic pattern of photoreceptor outer segments and these correspond to the new foveal site where the macula was translocated. Corresponding SD-OCT at these regions showed the presence of inner and outer segments of the photoreceptor cell layer, unlike the diseased areas. Microperimetry at the corresponding site showed good retinal sensitivity, this correlates with their excellent visual acuities of 0.04, 0.20 and 0.22 LogMAR.

Conclusion: In vivo AO retinal imaging demonstrated structural integrity of the 3 patients' photoreceptor outer segments, which correlates with their successful functional outcome. The rescue and survival of photoreceptors has been demonstrated. AO retinal imaging could play a vital role in assessing structural and functional outcomes of cellular therapy in the future.

NEURO-OPHTHALMOLOGY

186. Optic nerve sheath fenestration via upper lid skin crease approach

N Raoof, S M Salvi
Royal Hallamshire Hospital, Sheffield

Introduction: Optic nerve sheath fenestration (ONSF) has traditionally been done via a transconjunctival approach with medial rectus dis-insertion. We present our experience of ONSF performed via an upper lid skin crease approach.

Purpose: To present the indications, surgical approach and outcomes of ONSF surgery at our tertiary referral unit between 2011-2012.

Method: Five patients (8 eyes; age range: 20-54 years; mean 32.5 years; 1 male and 4 female) underwent optic nerve sheath fenestration surgery. Indications were:
a. visual loss associated with idiopathic intracranial hypertension (IIH) (2 patients)
b. visual loss from raised intracranial pressure from venous sinus thrombosis following acoustic neuroma surgery (2 patients)
c. severe intractable headaches secondary to raised intracranial pressure from idiopathic intracranial hypertension. (1 patient)

Results: Results in the three respective groups were:
a. both patients had resolution of disc swelling, significant improvement in visual function and one patient also had resolution of headaches
b. both patients had resolution of disc swelling, significant improvement in visual function and resolution of headaches
c. patient had some initial improvement in headaches, though long term result is awaited(follow up of 1 month)

Conclusion: The upper lid skin crease approach provides a good, safe access, allowing a large window to be made on the optic nerve. Our results suggest that this approach may thus contribute to a successful outcome in ONSF surgery in patients with visual loss secondary to IIH or venous sinus thrombosis.

187. Giant cell arteritis - to biopsy or not to biopsy

A Patel, A Swampillai, J A Deane
University Hospitals of Leicester NHS Trust

Introduction: Giant cell arteritis (GCA) is a sight threatening inflammatory process of medium and large caliber arteries. The American College of Rheumatology (ACR) criterion for diagnosis requires temporal artery biopsy: an invasive surgical procedure.

Purpose: To review all patients undergoing temporal artery biopsy over one year in a regional teaching hospital.

Method: Patients who underwent temporal artery biopsy between January 2011 and January 2012 were retrospectively reviewed. Results were classified as positive (group A) or negative (group B) based on histology findings. ACR score, plasma viscosity (PV) and C-reactive protein (CRP) were compared between groups using The Mann-Whitney U Test.

Results: 65 temporal artery biopsies were performed in 29 men and 36 women with a median age of 70 years (IQR 63-78). 16 biopsies were positive (group A), 48 were negative (group B) and 1 was an insufficient sample. The ACR score was above or equal to 3 for 88% patients in group A and 31% patients in group B with erythrocyte sedimentation rate results available for 15 patients. Group A had a significantly higher ACR score than group B ($p<0.05$).

Group A had a median plasma viscosity of 2.0 (IQR 1.8–2.2) and median CRP of 71 (IQR 38–118). Group B had a median plasma viscosity of 1.7 (IQR 1.6–1.8) ($p<0.05$) and median CRP of 23 (IQR 16.3–41.3) ($p<0.05$).

Conclusion: ACR score alone is not a reliable indicator for GCA. We propose serum PV and CRP represent an additional method for risk stratifying patients.

188. Management and visual outcomes of pregnancy associated with pituitary masses.

B K Lakhani, S W Ch'ng, N Sarvananthan
University Hospitals Leicester, Leicester Royal Infirmary

Introduction: Visual disturbances presenting in pregnancy may be secondary to an enlargement of a pre-existing undiagnosed pituitary mass.

Purpose: To highlight the important aspects of management in visual disturbances in pregnancy associated with pituitary masses.

Method: A case series of two patients in their third trimester presenting with a pituitary mass.

Results: Case 1: A 38 year-old woman at 32 weeks gestation presented with reduced visual acuity (VA); 6/36 in the left eye. Visual field (VF) test showed a left temporal hemianopia. MRI revealed a suprasellar mass, likely to be a craniopharyngioma. Surgical intervention to remove the lesion may be considered if VA and VF remains poor following delivery.

Case 2: A 31 year-old woman at 33 weeks gestation presented with reduced VA; 6/18 in the left eye. During her first pregnancy, she had a similar episode, resolving spontaneously following delivery. She was diagnosed with atypical optic neuritis but later re-presented with a headache and progressive visual loss. Examination revealed VA of hand movements in the left eye and bilateral optic disc swelling with a left temporal field defect on VF. MRI showed a suprasellar mass: solid and cystic component. She was commenced on cabergoline treatment. Following delivery, her VA improved to 6/9, however, there was a residual peripheral VF loss. She continues to remain under the care of the endocrinologist with possible surgical intervention.

Conclusion: In these cases, management choices may be limited and difficult. However, spontaneous VA improvement can be expected after delivery.

189. Benefits of Electrodiagnostics in the Diagnosis and Prognosis of Amblyopia and Reduced Visual Acuity
J A Ong, S Jain, C Critchley
Royal Preston Hospital

Introduction: Amblyopia can generally be treated quite successfully if diagnosed early. However, despite appropriate treatment and unremarkable investigations of the fundi and optic nerves, a proportion of these patients fail to improve. Visual electrodiagnostic testing may be beneficial in determining the most suitable management plan for this group of patients.

Purpose: Amblyopia treatment is time consuming and strongly dependent on patient compliance. The aim of this study was to assess the value of electrodiagnostics in cases of amblyopia that do not improve with standard treatment.

Method: A literature review on visual electrodiagnostics in the diagnosis of amblyopia, outcome prediction and progression monitoring of amblyopic treatment was carried out. The study also involved a retrospective data collection of 36 patients who underwent visual electrodiagnostic testing at both Royal Preston Hospital as well as Manchester Royal Eye Hospital.

Results: 6 patients out of the 36 randomly selected patients (age group – 1 to 30) with poor vision had undergone electrodiagnostic testing. The 6 patients were further divided into 2 categories – amblyopia and other ocular pathologies. 2 amblyopic patients were referred for strabismic as well as anisometropic amblyopia respectively. 3 out of the remaining 4 cases were queried to have optic nerve pathology while the last patient had suspected retinal pathology. 3 out of 6 had abnormal VEP results which led to a change in their management outcome. The remaining 3 patients with normal VEP results were advised to pursue with current treatment. In conclusion, electrodiagnostic testing is indeed relevant in deciding patients' further management plan and outcome.

Conclusion: Literature review is supportive of visual electrodiagnostics being used. Data collection demonstrates the benefits of electrodiagnostic testing in both amblyopic patients as well as those with other ocular pathologies. We are then able to confidently pursue the next appropriate step in their management.

190. Charles Bonnet Syndrome: challenging current theories of aetiology
A Daud, E Chisholm, M Anastasis, N Akhtar, A Lin, B Ingram, E Khoo
Princess Alexandra Eye Pavilion, Edinburgh

Introduction: Charles Bonnet Syndrome (CBS) refers to formed visual hallucinations associated with visual loss, with the patient retaining insight into the unreality of the hallucinatory phenomena. David Cogan suggested that CBS was secondary to 'release' of normal cortical activity following loss of normal visual input. Current theories suggest deafferentation rather than release with loss of retinal ganglion cells reducing input into higher visual centres.

Purpose: We decided to investigate whether CBS is secondary to reduced acuity or axonal loss.

Method: We recruited 7 patients with CBS secondary to AMD and 8 controls with AMD but no CBS, matched for age, sex, acuity and AMD stage. We confirmed CBS hallucinatory phenomenology using the Institute of Psychiatry Visual Hallucinations Questionnaire. We measured retinal nerve fibre layer thicknesses and compared the 2 groups using a t-test for independent samples (MS Excel 2010).

Results: The Mean RNFL thickness was 90.45µm for the CBS group and 80.03µm for the controls (t-test for independent samples, p=0.3).

Conclusion: Our study fails to support current theories of deafferentation secondary to significant axonal loss leading to CBS. It suggests that the theory of release secondary to reduced visual input may be more pertinent. This is a more optimistic conclusion suggesting that any method to improve acuity such as low visual aids, lighting or Lucentis treatment can lead to a resolution of CBS, whereas a deafferentation theory is dependent on axonal regeneration before resolution. It would appear that David Cogan was right.

191. Assessment of adherence to the Royal College of Physicians' Pituitary Adenoma Guidelines
R Batra, L Senthil, T D Matthews
Birmingham Neuro-ophthalmology Unit

Introduction: The Royal College of Physicians (RCP) guidelines (1997) state: the gold standard for all patients undergoing pituitary tumour surgery is that they should have pre- and post-operative visual acuity, formal visual fields, serum endocrine tests and MR neuro-imaging.

Purpose: To audit the pre and post-operative investigations performed for pituitary adenoma surgery and assess compliance with the RCP 1997 guidelines.

Method: Electronic Patient Records identified all eligible patients over a 2 year period (1st Jan 2008 - 31st Dec 2009) at a large UK tertiary referral neuroscience centre.

Results: Sixty-four cases, 35 Male and 29 female, were identified, with a mean age of 56 years (20-81 range and +/- 15.7SD). Pre and post-operative ophthalmic investigations were recorded in 67% and 52% patients respectively. Visual acuity and fields were performed pre-operatively in 56% and 64% patients respectively and post-operatively in 53% and 50% respectively. Only 37.5% of the cohort had both pre and post-operative visual fields. Pre and post-operative endocrine tests and MRI scans were performed in 98% and 100% of the cohort respectively.

Conclusion: Ophthalmic investigations were inadequately assessed in the majority, compared to the Endocrine and Neuro-Radiology standard of care. The impact of the surgical intervention on visual function and the safety of surgery cannot be adequately evaluated when this crucial data is not captured. This audit demonstrates a clear requirement to design a standardised patient pathway that ensures the adequate collection of pre- and post-operative data as set out in the RCP guidelines.

192. Investigating Swollen Discs
A A Khan, C Williams, A Blaikie
Queen Margaret Hospital, Dunfermline

Introduction: Patients with suspected swollen optic discs are a common referral to the hospital eye service. The underlying cause can vary greatly. Various investigations can aid in establishing the diagnosis. We reviewed 45 consecutive referrals with respect to initial diagnosis, final diagnosis and investigations requested.

Purpose: To identify underlying pathology in patients referred for potential swollen discs and usefulness of various investigation modalities.

Method: Retrospective review of 45 consecutive referrals for patients with swollen optic discs at a district general hospital.

Results: 20 (44%) had an initial diagnosis of papilloedema due to idiopathic intracranial hypertention (IIH), 19 (42%) drusen/pseudo papilloedema, 1 (2%) papillitis secondary to uveitis, 2 (4%) cases were space occupying lesions causing papilloedema and 3 (7%) had a diagnosis of crowded/small discs.

The diagnosis of papilloedema due to IIH was changed to optic disc drusen in 4 (7%) patients.

Of the 4 patients whose diagnosis were changed and felt to have drusen following further investigation, all had ultrasound and neuroimaging and 3 had OCT analysis

Conclusion: Optic disc drusen is often difficult to diagnose on clinical examination, especially in the early stages as the build up of calcium from delayed axonal-plasmic flow takes time. Patients are often anxious and this may be exacerbated by extensive unnecessary investigations. When papilloedema is suspected, urgent neuroimaging is always mandatory. OCT analysis can however help greatly in assisting the clinician establish the diagnosis accurately and quickly in many patients and may avoid the need for further more invasive and potentially harmful tests.

193. Internuclear ophthalmoplegia as a presenting sign of Lyme disease
L North, J A A Govan, M F P Griffiths, G Menon
Frimley Park Hospital

Introduction: Internuclear ophthalmoplegia (INO) as the first sign of neuroborreliosis is extremely rare. To our knowledge there is only 1 other documented case of an adult patient with an isolated INO.

Purpose: To describe an unusual case presentation of INO associated with probable Lyme disease.

Method: A 30 year old man presented to the emergency department complaining of right orbital pain, double vision and an inability to look to the left. He was seen by the ophthalmologist and neurologist and reported worsening symptoms of a frontal headache and difficulties in walking.He had a history of tick bites 2 months earlier and developed a rash. There was no vomiting, limb weakness or fever and also no significant history of trauma.

Results: On examination visual acuity was 6/9 in eye, pupils, fundus and discs were normal. Orthoptic assessment revealed a right/alternating exotropia with diplopia and right INO was confirmed on ocular movement testing. Vertical nystagmus was also noted on upgaze.Convergence was normal. He was diagnosed with a right internuclear ophthalmoplegia with intact convergence. CT scan and MRI were normal and so he was commenced on ceftriaxone 2mg IV once daily for probable neuroborreliosis which after 3 days was switched to oral doxycycline 100mg. Tests for Lyme disease proved inconclusive to date but further results are pending. Four weeks later the patient was reassessed and his INO had resolved.

Conclusion: Diagnosis of Lyme disease should be considered for sudden onset internuclear ophthalmoplegia.

OCULAR MOTILITY

194. Do inferior oblique recession and myectomy procedures affect horizontal deviation in primary gaze in children
A C Ferdi, A Jones, A Maino, S Jain
Royal Free Hospital

Introduction: Inferior oblique (IO) weakening is carried out in children with congenital IO over-action, superior oblique over-action, V-pattern or fourth nerve palsy. There is no agreement whether associated horizontal deviations may be affected by IO weakening procedures. This could be a confounding factor when calculating surgical dosage for additional operations on horizontal rectus muscles.

Purpose: To determine if IO weakening procedures affect horizontal alignment in primary position.

Method: A retrospective review of 28 children who underwent IO recession or myectomy (23 bilateral) as a primary procedure without concurrent procedures on rectus muscles. The ages ranged from 1 to 16yrs (mean = 5.75yrs) with a sex-ratio of 0.54 M:F. We divided the sample into 3 groups, according to the angle in primary position before surgery: esotropia (≥10Δ BO), exotropia (≥10Δ BI) and other (10Δ BI - 10Δ BO). We compared the maximal pre-operative PP deviation and final post-operative deviation to 2yrs post-op.

Results: Pre-operatively, 12 patients (42.9%) had esotropia, 13 (46.4%) exotropia, and 3 (10.7%) had a small angle of horizontal deviation. Patients with esotropia had a mean post-op shift of 2.27Δ (T-test p=0.21), those with exotropia a mean shift of 4.65Δ (T-test p=0.08), while the remaining patients displayed a mean shift of 3Δ (T-test p=0.54).

Conclusion: Treatment of a range of eye conditions with IO recession or myectomy doesn't cause significant change in horizontal alignment in PP.

195. Can You Predict The Outcome Of Strabismus Surgery?
A Sharma, L Benjamin
Stoke Mandeville Hospital

Introduction: Is it possible to predict the surgical result of strabismus surgery to aid in explaining outcomes to patients and trainees to understand what needs to be done to obtain a good result post-op.

Purpose: The aim of the study was to compare the predicted outcome of strabismus surgery from a computer programme (based on Robinson's mathematical model (1975) which was later developed by Mr Larry Benjamin and Mr Gerrad Corrigan) against real life results

Method: This was a retrospective study in which 60 cases were reviewed. There were 35 Esotropia and 25 Exotropia. The surgery was preformed by the same consultant but pre-op and post-op Orthoptic measurement may have been done by different Orthoptist.

The prism cover test result at near and distance pre surgery was inputted into the simulation. The predicted outcome was generated and noted and then subsequently compared to the actual post–operative result from the Orthoptist report two weeks post-operative. Some had first time procedures and some patients had more.

Results: The Esotropic and Exotropic groups both showed no statistically significant difference when comparing the outcome of live surgery, this was if it was the first or a subsequent procedures. We also looked at the three month post op result to ensure the predictive result was maintained.

Conclusion: In conclusion the simulation provides a reliable and useful tool for predicting surgical outcome as well as teaching and training of surgical principles and physiological mechanisms.

PAEDIATRIC OPHTHALMOLOGY

196. Ophthalmic abnormalities in children with Developmental Coordination Disorder: Data from the Avon Longitudinal Study of Parents and Children (ALSPAC)

A L Creavin, R Lingam, K Northstone , C Williams
University of Bristol

Introduction: Developmental coordination disorder (DCD) is a common developmental disorder of childhood.

Purpose: To explore associations between DCD and common ophthalmic abnormalities in children aged 7 to 8 years.

Method: Data were analysed from the ALSPAC, a UK birth cohort. DCD was defined according to DSM-IV-TR criteria. Children with neurological difficulties such as cerebral palsy or muscular dystrophy or an IQ less than 70 were excluded. Complete data were available for 7154 children.

Ophthalmic abnormalities including visual acuity, refraction and binocular function were assessed using standard tests. After descriptive analyses, logistic regression models were used to assess the association between DCD and each visual difficulty.

Results: 120 children (1.8%) met the criteria for severe DCD and had available data from vision testing. Children with severe DCD were more likely to have ocular alignment or binocular vision abnormalities including clinically significant strabismus (OR 2.31 (95% CI 1.26-4.24) and stereoacuity worse than 60 seconds of arc (OR 2.75(1.78-4.23)). These children also had higher rates of estimated hypermetropia (OR 2.29(1.1-4.57). These associations persisted when adjustment was made for gender, birth-weight and socioeconomic factors.

When children with strabismus were removed from the analysis, refractive error (linear x2 8.01 p=0.0182), abnormal motor fusion (linear x2 14.49 p=0.0007) and abnormal stereopsis (linear x2 14.49 p=0.0007) were over-represented in those with DCD.

Conclusion: Children with severe DCD had abnormalities in ocular alignment, binocular vision and refractive error. We recommend that children with diagnosed DCD are screened for visual abnormalities as early intervention may improve long-term visual outcome.

197. Novel concentric petaloid reflex in macula in patients with foveal hypoplasia

A Reddy, K S Cornish, V A McBain
Aberdeen Royal Infirmary

Introduction: Albinism can present with varying levels of visual acuity and often subtle non-specific clinical signs. Extensive investigations for unexplained poor vision in children are not uncommon. Reduced vision is often attributable to foveal hypoplasia associated with albinism. Foveal hypoplasia is also a feature of aniridia.

Purpose: To describe a novel sign in foveal hypoplasia identified by infra-red reflectance which we refer to as a concentric petaloid reflex in macula.

Method: To describe a novel sign in foveal hypoplasia identified by infra-red reflectance which we refer to as a concentric petaloid reflex in macula.

Methods: Seven patients, six with ocular or oculocutaneous albinism (OA/OCA) and one with aniridia underwent autofluoresence, infra-red reflectance imaging of the retina and electrophysiological assessment including 5-channel visual evoked potentials (VEP) and fourier domain Optical Coherence Tomography(OCT) of the macula. The clinical examination findings are also presented

Results: Optic nerve misrouting was confirmed in all children with OA and OCA, and a novel concentric petaloid pattern was noted in macula in all seven on infra-red imaging. The foveal hypoplasia was confirmed by OCT. The visual acuity ranged from 0.1 logMAR to 0.8 logMAR. Four children with albinism did not have manifest nystagmus

Conclusion: We believe this novel concentric petaloid pattern on infra-red reflectance is a sign of foveal hypoplasia that can be elicited by this easy non-invasive imaging test. This may avoid extensive investigations in children wth unexplained reduction in vision

198. Feasibility and diagnostic role of the hand-held OCT in investigating nystagmus in children unable to perform conventional OCT

H Lee, V Sheth, M Bibi, G Maconachie, F Proudlock, I Gottlob
University of Leiceter

Introduction: Optical coherence tomography (OCT) allows high resolution in vivo imaging of the fovea and retina. In adults with nystagmus due to albinism, PAX6 mutations and retinal dystrophies, there are several diagnostic and prognostic signs described on OCT. To date children under the age of 6 have been deprived of this technology.

Purpose: To use the hand-held OCT (HH-OCT) in a systematic study of pathological foveal development in a cohort of infants and young children with nystagmus.

Method: The study cohort was recruited from patients referred to the ophthalmology clinics in UHL. All were aged between birth and 6 years. Each patient had a full orthoptic and ophthalmological examination, and OCT scan. Each scan was screened for the presence of foveal hypoplasia which was graded from 0-4 or atypical. A differential diagnosis was formed on the basis of the OCT findings and correlated with either genetic or electrodiagnostic findings.

Results: Forty-eight patients were examined. Twenty-three patients had typical foveal hypoplasia and were diagnosed with albinism or PAX6 mutation. Five were classed as atypical and were diagnosed with achromatopsia. Six had other abnormal macular morphology and were diagnosed with a retinal dystrophy. Fourteen had no foveal hypoplasia and were diagnosed with either idiopathic or latent nystagmus. Foveal changes were much milder in patients under 6 years of age with achromatopsia than in older patients described in previous studies. We could also observe regression of foveal hypoplasia in one patient with albinism between the age of 14 and 18 months.

Conclusion: We have shown that HH-OCT is feasible and provides rapid non-invasive diagnosis in infants and young children with nystagmus. Our study also shows that retinal changes are minimal in very young children with achromatopsia. The hand held OCT provides important information for timing and management of imminent genetic treatments for example in achromatopsia

199. Retinopathy of Prematurity Treatment in Northern Ireland: 2000-2011.

S Chamney, L McGory, S Twaij, E McCall, S Craig, G Ginnity, E McLoone
RVH Belfast

Introduction: The survival rate of premature infants at risk of developing severe retinopathy of prematurity (ROP) has been steadily increasing over the last decade due to recent advances in neonatal medicine

Purpose: To assess treatment of ROP in Northern Ireland over the past 11 years.

Method: A retrospective case note review and cross reference with the Neonatal Intensive Care Outcomes Research and Evaluation (NICORE) database of all children treated for ROP from January 2000 to December 2011 in Northern Ireland was undertaken.

Results: The incidence of ROP requiring treatment in infants born <32 weeks increased from 0.9% in 2000 to 5.3% in 2011. 138 infants were treated in this 11 year period. 49% were male. Average gestational age was 25.94±1.47 days and average birth weight was 776±192kg. 29% of babies were small for gestational age. The mean age at first screening was 31.08± 7.05 weeks. The mean age at treatment was 37.9± 3.02weeks. All infants were treated with laser. 93% were treated by 3 ophthalmic consultants. 81% of the babies required treatment of both eyes. The mean cumulative laser count per eye was 801 ± 436. The number of infants who developed severe ROP post discharge from neonatal units has been increasing from 2008. 1 in 25 babies under 32 weeks require ROP treatment which equates to 1 in 2000 live births.

Conclusion: The number of children requiring treatment for retinopathy of prematurity has increased in Northern Ireland over the past decade.

200. Reduced choroidal thickness in retinopathy of prematurity (ROP)

M Anderson, B Ramasamy, D Clark
University Hospital Aintree

Introduction: Visual outcomes are variable in ROP, even in the absence of macular pathology on ophthalmoscopy. Work on oxygen induced retinopathy has implicated choroidal involvement in ROP.

Purpose: To investigate choroidal involvement in ROP using Enhanced Depth Imaging Optical Coherence Tomography (EDI OCT)

Method: Patients previously treated for ROP ≥ Stage 3 had undergone EDI OCT with Spectralis FD-OCT, as part of their clinical record. Their refraction, visual acuity, and ophthalmoscopic findings were recorded. Corresponding data was collected prospectively from a control group born at term. Choroidal thickness was measured independently by two observers, subfoveally and at 1500um nasal and temporal to the fovea.

Results: The ex-ROP cohort comprised 41 eyes of 24 patients, with a median age of 16. The control cohort comprised 58 eyes of 33 participants, with a median age of 17. Mean gestational age in the ex-ROP group was 26±1.75 weeks versus 40±1.54 weeks in the control group (p<0.00005).

Mean subfoveal choroidal thickness, adjusted for refraction, was 269.00um (95% CI, 234.7 – 303.2) in the ex-ROP group, significantly thinner than 328.7um (95% CI, 299.8 – 357.5) in controls (p=0.0126). Similarly, mean adjusted temporal choroidal thickness was 254.0um (95% CI, 222.6 – 285.4) in ex-ROP's vs 322.3um (95% CI 295.9 – 348.8) in controls (p=0.0021). The nasal measurement was thinner in ex-ROP's (234.7um, 95% CI, 201.8 – 267.5) than in controls (258.6um, 95% CI, 230.9 – 286.3), but this was not statistically significant (p=0.2854).

Conclusion: Our findings support the case for choroidal involvement in the pathogenesis of ROP.

201. Automated digital image analysis for ROP – a novel, feasible and globally accessible screening paradigm?
C M Wilson, K Wong, A R Fielder
UCL Institute of Ophthalmology

Introduction: Can automated vessel detection and analysis from digital retinal images quantify vessel tortuosity and distinguish between eyes with and without ROP to assist in countries with limited ophthalmic support?

Purpose: A pilot study, firstly to determine feasibility of automatically detecting retinal blood vessels in retinal images. Secondly to measure the tortuosity of vessels detected. Thirdly to determine if automatically derived vessel tortuosity values distinguish between babies with and without ROP.

Method: RetVas automatically detects retinal vasculature and measures vessel tortuosity from digital images.One RetCam image from each of 24 infants screened for ROP was evaluated to measure retinal vessel tortuosity. A total of 192 arterioles and venules were analysed. The relationship of vessel tortuosity to stage of ROP was determined using Mann-Whitney test.

Results: Median venular and arteriolar tortuosity (MVT &MAT)was significantly greater in infants with advanced ROP stage/no ROP. (MVT 0.186/ 0.095; MAT 0.135/0.085; p = 0.000 and 0.003 respectively).

Conclusion: Automated image analysis software has potential to identify vessel changes associated with plus disease with good accuracy by measuring vessel tortuosity. Further studies to determine cut-off values may lead to a fast, effective screening method negating initial stage expert clinician input. Automated quantification could be advantageous for clinician reassurance in the developed world where litigation is becoming a threat to ROP screening ward rounds, and has the potential to provide a technician-lead screening tool in countries lacking ophthalmic expertise and consequently troubled by the third epidemic of ROP.

202. Is it possible to safely discharge low risk infants from ROP screening earlier than 37 weeks?: an audit
E Arbabi, R F Pilling
Bradford Royal Infirmary

Introduction: Guidelines recommend that babies born before 32 weeks gestational age (GA) or less than 1501g birthweight should be screened for Retinopathy of Prematurity (ROP). The risk of sight-threatening ROP developing is minimal once the retinal vessels have entered zone III. It is unlikely that this takes place before 37 weeks GA and the RCOphth guidelines state that "a decision to stop screening before this must be carefully evaluated". Our centre has a large cohort of "low risk" babies; screening these babies up to GA 37 weeks represents a significant workload and iatrogenic risk to babies in whom the chance of developing any ROP is low.

Purpose: Is it possible to safely discharge low risk infants from ROP screening earlier than 37 weeks?

Method: We undertook an audit of ROP outcomes of babies born >30weeks GA and >1000g birthweight.

Results: 15 neonates fulfilled the inclusion criteria. The mean (±SD) GA was 31.4±1.4 weeks and mean (±SD) birthweight 1362g ±189g. At first screening retinal vascularisation reached zone II in 11 (73%) cases and zone III in 4 (27%) cases. 14 patients were fully vascularised by visit 3 (39.2±0.45 weeks GA). One patient had stage 1 ROP at first visit which progressed and required treatment at 42 weeks GA.

Conclusion: Low risk babies can develop sight threatening disease. The baby at risk was identified at first screening episode. No patient without ROP at first visit subsequently developed ROP. The authors propose a prospective study to establish safety of early discharge of "low risk" babies.

203. Clinical and Molecular Characterization of Mucolipidosis-IV in patients from Oman
B Harikrishna, S Al-Zuhaibi, K Al-Thihli, A Qureshi, A Ganesh
Sultan Qaboos University Hospital

Introduction: Mucolipidosis type IV is a rare, autosomal recessive lysosomal storage disorder with relatively high prevalence in Ashkenazi Jews due to two founder mutations in the MCOLN1 gene (19p13.3-p13.2).

Purpose: To present neuroophthalmic manifestations and molecular characteristics of mucolipidosis IV in patients from Oman and emphasize the need for ophthalmic examination in children with unexplained developmental delay and/or spasticity.

Method: Family 1: A 3-yr-old child presented with psychomotor delay, spasticity, and photophobia. Family history was significant for consanguinity, a similarly affected brother and 2 affected cousins. Family 2: A 8-yr-old child presented with psychomotor delay and spasticity. Family history revealed a similarly affected younger sister. All were under the care of neurology for developmental delay. All patients were subjected to a complete ophthalmic examination. Previously recorded neurological manifestations were reviewed. Conjunctival biopsy and molecular genetic assessment was performed. Informed consent from the parents, and institutional approval from the ethics committee were obtained.

Results: All children were born at term. Findings on examination included minor dysmorphic features, developmental delay, spastic quadriparesis, photophobia, strabismus, nystagmus, poor vision, bilateral corneal haziness, cataract, and pigmentary retinopathy. High serum gastrin, low iron and ferritin, and microcytic hypochromic anemia were detected. MRI Brain showed structural anomalies. Molecular genetic testing showed a novel homozygous splice site variant in MCOLN1 gene (c.237 + 5G>A) in 4/6 patients. Conjunctival biopsy revealed typical intracytoplasmic inclusions consistent with mucolipidosis IV.

Conclusion: Mucolipidosis IV is often under-diagnosed and mistaken either as cerebral palsy or retinal dysfunction of unknown cause. Spastic paraparesis or quadriparesis in combination with iron deficiency anemia and corneal haziness should prompt consideration of Mucolipidosis IV. We report a novel homozygous splice site variant in the MCOLN1 gene.

204. Strabismus Surgery in Children in the UK – is it still decreasing?
S J Heng, C J MacEwen
Imperial College Faculty of Medicine

Introduction: A decrease in strabismus surgery in children has been previously documented in the UK, starting in the 1970s.

Purpose: This study aims to examine whether the incidence of strabismus surgery in children is still decreasing and, if so, the reasons for this.

Method: Data on strabismus surgery from 2000 to 2010 in children in Scotland, England and Wales were obtained. Data on the number of sight tests in children conducted by the hospital eye service from 1995 to 2004 in these regions were also obtained. A survey of orthoptic departments in the UK regarding vision screening in children was carried out.

Results: From 2000 to 2006, the total number of paediatric strabismus operations decreased 19.7% in England, 29.7% in Scotland and 17.3% in Wales, but remained roughly constant from 2006 to 2010. The number of sight tests in children performed by the hospital eye service has remained roughly constant from 1995 to 2004 in England, Wales and Scotland. Of 93 survey respondents, 79.6% reported preschool or other form of childhood vision screening, 31.1% of which started after 2002.

Conclusion: Early detection of childhood by an increasingly comprehensive screening programme and appropriate conservative management are likely to have contributed to the decline in strabismus surgery in children. These practices have finally reached their full impact by the middle of the first decade of the 21st century.

205. Atropine penalisation as second line treatment for childhood amblyopia
J S Mars, S MacDiarmid, S Bhansali
Christopher Home Eye Unit

Introduction: This study considered the effectiveness of atropine penalisation as second line treatment.

Purpose: Therapy for amblyopia is commonly ceased when the vision makes no further improvement with occlusion. We examined the subsequent routine use of atropine penalisation.

Method: This prospective study looked at all children with amblyopia whose vision failed to improve with conventional occlusion between 1/6/10 and 31/5/12.

There was a structured treatment plan. All patients followed a 'best practice' occlusion regime, with LogMAR acuity testing. If their vision was not normal and failed to improve for 3 consecutive visits, the children were offered a monitored program of atropine penalisation.

All children wore appropriate optical correction. Children received either daily atropine, or daily atropine with optical penalisation as was felt clinically necessary. Monitoring was 6 weekly with LogMAR acuity recording.

Results: 75 children, aged from 3 to 9, accepted the offer of Atropine penalisation, 43 completed the treatment.

36 patients received atropine only, 39 had additional optical penalisation.

The average distance visual acuity on discharge for completed treatment was 0.15 LogMAR, with an average improvement of 0.32 LogMAR. For those patients who did not complete the treatment the discharge acuity averaged 0.30 LogMAR, with an average improvement of 0.26 LogMAR.

Treatment completion averaged 46 weeks.

There were no significant complications.

Conclusion: Atropine penalisation, with additional optical penalisation as necessary is a very effective form of second line treatment. A high proportion of patients did not complete the treatment, but still achieved significant benefit.

206. Which children suspected of abusive head trauma need to be referred to Ophthalmology? : A National survey of paediatricians involved in child protection

B Thajudeen, A D Shaw, P O Watts
University Hospital of Wales, Cardiff

Introduction: Retinal hemorrhages in suspected abusive head trauma have a high positive predictive value for abusive injury. It is unclear whether a standardized approach is adopted when referrals are made to ophthalmology.

Purpose: Hence we decided to determine current referral patterns by paediatricians of children with suspected AHT to ophthalmology departments in the UK.

Method: We surveyed paediatricians involved in child protection through the RCPCH with an online survey aimed at determining age of the children referred to ophthalmology, who undertakes the referral, time frame within which referrals are made, influence of positive ophthalmology findings on subsequent investigations and existence of any local policy on referrals to ophthalmology.

Results: 119 responses were received. 15% overall had no ophthalmology service onsite. 31% of community based paediatricians said they had a time frame on referrals versus 68% of hospital based paediatricians. 50% said they saw cases weekly. 26% did not refer children above the age of 2. 71% said that ophthalmology findings influence further investigations and 76% said they had no formal protocol for ophthalmology referrals.

Conclusion: This survey shows that ophthalmology findings influence further investigations by paediatricians in suspected child abuse cases. There is a lack of formal policy for ophthalmology referrals. This can lead to missing important ocular findings and misdiagnosis. Hence a national guideline on Ophthalmology referrals and examination of children with suspected child abuse urgently needs to be developed.

207. Modification of Spectralis HRA + OCT for intraoperative imaging in paediatric retinal diseases: The Oxford Experience

T H M Fung, T H M Fung, M M K Muqit, D J Mordant, L M Smith, C K Patel
Oxford Eye Hospital

Introduction: The Spectralis HRA + OCT imaging system is being increasingly used to aid the diagnosis and management of several paediatric retinal disorders.

Purpose: To describe the intraoperative use of a modified Spectralis HRA + OCT for obtaining high resolution images in paediatric patients with retinal diseases.

Method: The Spectralis scanning laser ophthalmoscope was disassembled from its table top system and mounted onto a bracket at the end of an adjustable arm. Following anaesthesia administration, high resolution images were acquired in the paediatric patients. Throughout the imaging process, eyelids of the children were kept open with a speculum and regular corneal hydration was performed to optimise the quality of the images acquired.

Results: An efficient and consistent technique was established for obtaining intraoperative images with the modified Spectralis HRA + OCT device. A total of seventeen paediatric patients (aged 3 months to 16 years) with retinopathy of prematurity, X-linked retinoschisis, optic disc pit related maculopathy, incontinentia pigmenti, and coat's disease underwent successful imaging with the modified system. Spectral Domain Optical Coherence Tomography (SD-OCT) images were obtained for all the paediatric patients. Additionally, multicolour fundus imaging and ultra-widefield fluorescein angiography was performed in selected paediatric patients. Total imaging time was 5 minutes. No negative side effects were experienced throughout the imaging process.

Conclusion: The modified Spectralis HRA + OCT system is a safe and effective method that can be used reliably to obtain high resolution intraoperative multi-modality images for paediatric patients with retinal disorders.

208. The management of heritable congenital and infant onset retinal fold and detachment
K N Amissah-Arthur, D Williams, J R Ainsworth
Birmingham Children's Hospital

Introduction: Retinal detachments at or shortly after birth are complex in aetiology, assessment and treatment. Abnormality of several genes can lead to a predominantly structural, vascular, exudative or tractional picture.

Purpose: To review and describe the utility of a structured approach and stepladder treatment for heritable retinal folds and detachment at a tertiary referral unit.

Method: A retrospective case-note review of consecutive retinal folds presenting to the Birmingham Children's Hospital in the last 8 years.

Results: Fourteen eyes of ten patients presenting under the age of two years were analysed. A pathway of care was utilised to ascertain systemic association, candidate gene mutation and potential retinal function. Eyes were divided into those that required immediate treatment (six eyes) versus those that were initially observed (six eyes). Four eyes had laser and/or cryotherapy for peripheral vascular arrest or exudative detachments. One eye received successful intravitreal bevacizumab for progressive exudative detachment despite extensive laser. One eye escalated to cryo-buckle procedure for a detachment. Two eyes were not amenable to treatment given the structural and functional retinal abnormality at presentation.

Conclusion: Clinical decision-making is optimised by combining functional and anatomic assessment of the retina with clinical and laboratory genetic review to ascertain the role of intervention. In addition to counselling for recurrence risk, likely systemic associations and visual outcome. It is possible to identify the minority of infants who will benefit from early treatment, whilst sparing other children unsuccessful procedures and lack of diagnostic clarity

209. Investigating Paediatric Cataract Patients.
R E M McCollum, E McLoone
Royal Victoria Hospital

Introduction: There are many causes of paediatric cataract within the UK. These can be assessed in various ways both during clinical assessment and with various labarotory tests. This survey aims to point towards a more targetted approach.

Purpose: To evaluate current approach to investigating unilateral and bilateral paediatric cataract patients in UK and Ireland.

Method: An anonymous survey was distributed to those listed in the British Cataract Interest Group via post and online surveymonkey. Consultants were asked specific questions relating to their investigation of unilateral and bilateral paediatric lens opacification.

Results: Forty consultants completed the survey. The results displayed a varied approach and a lack of consistency in practice. The majority of respondents felt that bilateral cataract patients should be referred to a Paediatrician for a medical assessment and further investigations. Only three out of the forty consultants routinely requested parents to bring photographs of the baby in an attempt to date the onset of unilateral cataract. The most common perceived cause of unilateral cataract in practice was idiopathic (38%), second to this was persistent fetal vasculature (20%). The most common perceived cause of bilateral cataract was hereditary (48%).

Conclusion: This survey displays an apparent lack of consistency in the investigation of paediatric cataract patients. It highlights the importance of the paediatric team in medical assessment of the child and effective communication to avoid overlap or unnecessary investigations.

210. Improvement of ROP screening standards with the development of a dedicated ROP team.
M Vasalaki, H Patel, M Crame, Y Solinap, M A Reddy
The Royal London Hospital

Introduction: Delayed screening for Retinopathy of Prematurity may result in severe visual loss. We report the results of adherence to first screening guidelines over 10 years at the Royal London Hospital, London and the impact of a dedicated ROP team.

Purpose: To report the results of adherence to first screening guidelines over 10 years at the Royal London Hospital, London and the impact of a dedicated ROP team.

Method: Retrospective studies were conducted in 2001, 2002 and in 2006. From 2006 a dedicated ROP team consisting of 2 RetCam-trained neonatal nurses and a consultant ophthalmologist was created. The initial outcome measure was the percentage of eligible babies (gestational age under 32 weeks and birth weight under 1500g) who had a first screening for ROP before 7 weeks. Prospective audits from 2007 to 2011 were undertaken in accordance with Retinopathy of Prematurity guidelines from the Royal College of Ophthalmologists: the timing of screening being dependent on gestational age.

Results: In 2001 and 2002, 79% of 156 babies were screened before 7 weeks of age. In 2006, this had improved to 92%. Following the development of the Retinopathy of Prematurity team, screening standards have been consistently 100% for four years.

Conclusion: In order to consistently achieve high standards of screening and care for babies with Retinopathy of Prematurity, the training of neonatal nurses in ROP management, including RetCam imaging, is effective.

211. Primary Congenital Glaucoma in Northern Ireland – 50 years of experience
M S Dowlut, S Chamney, E Mcloone
Royal Belfast NHS Trust

Introduction: Primary Congenital Glaucoma (PCG) is a rare and potentially blinding condition. Prompt detection and treatment can help to preserve vision over a life-time.

Purpose: Analyse outcomes of management of primary congenital glaucoma in the Northern Ireland population in terms of visual acuity, intraocular pressure control and cup:disc ratio.

Method: Patients with PCG were identified over a 50 year period through theatre logs and a database of affected patients attending glaucoma clinics in the Belfast Trust. Their charts were reviewed and data collated on presenting features, surgical interventions, medical treatment, visual outcomes, intraocular pressure (IOP) control and cup:disc progression.

Results: 41 patients (26.8% male, 73.2% female), (50 eyes) were identified with PCG; all were Caucasian. At presentation, median age was 69 weeks and mean IOP was 27.6mmHg right eye and 28.6mmHg left eye. Mean cup:disc ratio was 0.5.

106 surgical procedures were performed: Primary operations involved 39 goniotomies and 14 trabeculectomies. Post primary operations were required for further improvement of IOP: 15 trabeculectomies, 6 Ahmed valves and 4 Baerveldt tubes.

At most recent visit, mean age was 21.7yrs with mean follow-up of 13.0yrs. Mean IOP was 15.0mmHg right eye and 16.5mmHg left eye with a mean cup:disc ratio of 0.5. IOP ≤ 21 mmHg was achieved in 92.6% of eyes (26% of which required IOP medication). 66.7% of eyes achieved corrected visual acuity ≤ 6/15.

Conclusion: This study demonstrates a valuable insight into the presentation, management and outcome of patients with PCG in Northern Ireland over the past 50 years.

212. Paediatric Visual Impairment in Northern Ireland: 1984-2011
E McLoone, S Chamney, P Satkurunathan
RVH Belfast

Introduction: Elimination of avoidable paediatric visual impairment is one of the five priorities of the WHO 'Vision 2020- Right to Sight' programme.

Purpose: The aim of this study is to establish the most common causes of paediatric visual impairment in Northern Ireland over a 28-year period and to establish which are preventable and/or treatable.

Method: Data was collected from the 'Certificate of Vision Impairment' (CVI) for every child (0-16 years) who was registered partially-sighted or blind between 1984 and 2011. This was then analysed using Microsoft Excel 2007.

Results: Five hundred and eighty children were registered as visually impaired over the 28 year period. Two

hundred and twenty-seven (40%) were registered as partially-sighted and 353 (60%) were registered as blind. Fifty three percent were males and 47% were female. Thirty two percent had associated systemic conditions. The mean age at registration was 7.4 years (± 4.6 years). The most common anatomical locations of the impairment were the retina and optic nerve. Per age group, the most common causes for registration were: under 1yr coloboma, 1-4yr cerebral visual impairment and 5-15yr optic atrophy. Eighty- seven cases (15%) were considered either preventable or treatable and 138 (23%) were considered to be possibly preventable or treatable. Using data available from the NI Statistics and Research Agency the prevalence of visual impairment in those under 16 years in 2010 was 0.52/1000.

Conclusion: This study gives a new insight into the causes of Paediatric Visual Impairment in Northern Ireland.

213. Ophthalmic features of NF2; A missed Opportunity?

D Trivedi, S Sharif, J Ainsworth, C Smyth, R Irving

Birmingham Children's Hospital

Introduction: Sporadic NF2 normally presents late with hearing loss due to bilateral vestibular schwannomas. Intracranial and intraspinal tumours may also be present by then. Highly characteristic eye signs (posterior cortical cataract, retinal hamartoma and epiretinal membrane (ERM) occur much earlier in NF2.

Purpose: We aim to raise awareness of more uncommon signs that may aid an earlier diagnosis of NF2.

Method: We report a retrospective analysis of 5 children presenting with eye features, most of which were not recognised as features of NF2 prior to tertiary referral.

Results: Case 1 was a 6 month old with squint, retinal folds and congenital cataract, diagnosed with coarctation of the aorta at age 2 and diagnosis of NF2 age 11. The second presented with a squint at 13 months and found to have an optic disc glioma in one eye and ERM in the other. At age 4 years he had typical brain tumours of NF2. The third presented age 8 with 'an infection related scar' at the left macula, re-presenting 9 years later with gait disturbance, sciatica and reduced right hearing, resulting from multiple NF2 features. The fourth had a typical cataract detected at age 12 leading to further investigations and diagnosis of NF2. The last is a 6 year old who presented with an incidental right eye combined hamartoma of retina and RPE.

Conclusion: Genetic review of patients with characteristic eye findings will allow earlier identification of NF2. Presence of ophthalmic features in NF2 may predict an aggressive phenotype.

214. Breaks in Descemet's membrane as a sign of non accidental injury – a test case

S Bhagat, M Mikhail, J Mackinnon, N Boyle

Ayrshire and Arran NHS Trust

Introduction: The classic ocular signs of non accidental injury (NAI) are retinal haemorrhages. We report the first case of unilateral multiple Descemet's membrane breaks, found to be as a result of NAI.

Purpose: HM was the first of twins, born full term by normal delivery. She presented elsewhere with sudden onset unexplained corneal haze in her left eye at age 4 months. No clear diagnosis was made at the time and she was treated with topical antibiotics and steroids. The corneal haze slowly cleared. She failed further follow up appointments.

Method: At 8 months she was admitted to a second hospital with subdural haemorrhages and rib fractures. Legal proceedings started and the child was taken into care, from where she was referred to our department at 16 months.

Results: At that time her visual acuity was 0.2 logmar in the right eye and 1.0 in the left. She had a faint stromal scar in the left eye medially with multiple Descemet's breaks seen on slitlamp, the largest being vertically in the central axis. Her intraocular pressure was normal; her cornea was of normal diameter, spherical, with no evidence of keratoconus or myopia.

She has been seen by paediatricians, in particular to rule out any connective tissue disorder. No abnormality was found.

Conclusion: Numerous ocular, periocular and orbital injuries are recognised in child abuse. We present the first case of multiple ruptures in Descemet's membrane as a result of NAI.

MISCELLANEOUS

215. Global variations in childhood myopia and ocular biometry: A systematic review

Z Jarrar, M Khatib, M Bizrah, C Owen, A Rudnicka
St. George's University of London

Introduction: Myopia prevalence varies between ethnicities and is increasing worldwide. Can ocular biometry explain these differences?

Purpose: To examine global variations in childhood myopia, and whether ocular biometry explains these differences.

Method: A systematic review of three online databases identified 14 relevant studies (43,737 participants). Demographic and ocular biometric data were extracted, by gender, age and ethnicity. Multivariable meta-regression models estimated axial length (AL) changes per year increase in age, and AL changes needed to cause a one dioptre myopic shift in spherical equivalent refraction (SER).

Results: East-Asian children had the fastest AL growth with age (0.21mm/yr, 95% CI 0.19-0.24), and required the least change in AL to become one dioptre more myopic (0.24mm/D, 95% CI 0.12- 0.37). Black African-Caribbean children had the slowest increase in AL with age (0.08mm/yr, 95% CI, -0.02- 0.19); White-Caucasian and Hispanic children had similar changes in AL with age. Overall, the increase in AL with age was higher in girls than boys (0.24mm/yr, 95% CI, 0.24-0.25 vs. 0.21mm/yr, 95% CI 0.21-0.21 respectively). AL had the greatest influence on SER, followed by vitreous chamber depth. However, considerable heterogeneity in SER ($p<0.0001$) still remained.

Conclusion: East-Asian children appear to have greater risk and susceptibility to myopia. Overall, girls are more susceptible to myopia than boys. Reasons for these differences remain unclear, and cannot solely be explained by differences in ocular biometry. Establishing environmental determinants of myopia will be important in limiting the current myopic epidemic, especially amongst vulnerable populations.

216. Detecting Blinding Eye Disease in Socioeconomic Deprived Communities – Economic Evaluation of a Novel Method

D Todkill, D Shickle, C Chisholm, A Cassels-Brown
University of Leeds

Introduction: Late presentation of sight threatening eye diseases to hospital ophthalmology departments is consistently associated with patients from areas of socioeconomic deprivation. Primary eye care case detection usually defaults to non-NHS community optometrists who operate a 'for profit' business model and subsequently less frequently locate in deprived communities. To address this paradoxical situation we produced an economic appraisal of a planned project to provide 'not for profit' services in a deprived area of Leeds.

Purpose: To determine the financial viability and sustainability of 'not for profit' primary eye care services in deprived communities.

Method: An economic appraisal was conducted for providing a 'not-for-profit' optometry service on a 5 day per week basis. Practicing optometrists were consulted on costs required for setting up and running an optometry service including equipment, staff and consumables.

Results: Once established, the projected annual loss would be at least £113,994, costing £58.70 or £95.90 per person tested for 100% and 60% uptake, respectively. The shortfall between the true cost of the eye examination and the £20.70 received from GOS1 funding or private fee would need to subsidised from external sources or high profit margins from sales of glasses.

Conclusion: Without subsidisation or earning money from the sale of glasses or additional services – which may not be possible in deprived areas – the project would not be sustainable. However, running costs needs to be carefully evaluated against individual and economic costs of not identifying sight threatening diseases early.

217. The reporting quality of Randomised Controlled Trials in Ophthalmic Surgery in 2011: A systematic review

A C Yao, A Khajuria, C F Camm, E Edison, R Agha
Imperial College London

Introduction: Randomised controlled trials (RCTs) represent a gold standard for evaluating therapeutic interventions. However, poor reporting clarity can prevent readers from assessing potential bias that can arise from a lack of methodological rigour. The Consolidated Standards of Reporting Trials statement for non-pharmacological interventions (CONSORT NPT) was developed to aid reporting. RCTs in ophthalmic surgery pose particular challenges in study design and implementation.

Purpose: To provide the first assessment of the compliance of RCTs in ophthalmic surgery to the CONSORT NPT statement.

Method: The Medline database was searched for RCTs in ophthalmic surgery reported between 1st January 2011 and 31st December 2011. Results were searched by two authors and relevant papers selected. Papers were scored against the 23-item CONSORT NPT checklist and compared against surrogate markers of paper quality. The CONSORT score was also compared between different RCT designs.

Results: 186 papers were retrieved. 65 RCTs, involving 5803 patients, met the inclusion criteria. The mean CONSORT score was 8.9 out of 23 (39%, range 3.0-14.7, SD 2.49). The least reported items related to title and abstract (1.6%), reporting intervention adherence (3.1%), and interpretation of results (4.7%). No significant correlation was found between CONSORT score and journal impact factor (R=0.14, p=0.29), number of authors (R=0.01, p=0.93), or whether the RCT used paired-eye, one-eye, or two-eye designs in their randomisation (p=0.46).

Conclusion: The reporting of RCTs in ophthalmic surgery remains suboptimal. Further work is needed by trial groups, funding agencies, authors and journals to improve reporting clarity.

218. A virtual reality study of learning curves in expert and novice surgeons using the EyeSi VR simulator.
O A-M Williams, S Waqar, J Park, N Modi, T Kersey, T Sleep
Ophthalmology Department, South Devon Foundation NHS Trust

Introduction: Virtual reality (VR) simulators are increasingly being recognised as valuable tools for training in ophthalmic surgery. With the advent of revalidation, their role may expand to re-training surgeons as well. In addition VR simulators are also being used extensively to look at factors affecting surgeon performance such as fatigue, distraction and the impact of loss of stereopsis. Eliminating the learning curve is important in all of these roles.

Purpose: To determine the effect of the learning curve on novice and expert surgeon performance using a virtual reality simulator.

Method: Seven expert and 21 novice participants were recruited. Experts were defined as those that had done more than 350 phacoemulsifications and intraocular lens insertions. Novices had done none. Each participant completed one attempt on level 1 and one attempt on level 2 followed by ten attempts on level 4 forceps module on a virtual reality simulator (EyeSi©, VR Magic, Mannheim). Total score, total time taken and odometer values were recorded for each attempt.

Results: Both experts and novices showed plateauing of their performance after multiple attempts. However experts reached a stable level of performance earlier than novices in all measured parameters.

Conclusion: Expert surgeons have shorter learning curves than novice surgeons. As VR simulators gain increasing integration into training courses and programmes, care must be taken to design curricula that appropriately eliminate the learning curve.

219. Pupil dilatation for cataract surgery with Mydriasert.
J Myneni, S P Desai, V V Kayarkar
Doncaster Royal Infirmary

Introduction: Traditionally preoperative drops are used for dilatation of the pupil before cataract surgery. They require repeated instillation and substantial amount of nurses' time.

Mydriasert is an ophthalmic insert of tropicamide and phenylephrine which is preservative free and needs a single application.

Purpose: This study was done evaluate the efficacy, safety profile and tolerance of mydriasert. Patient preference and ease of use by staff were also determined.

Method: Mydriasert was used preoperatively in 50 patients undergoing cataract surgery. It was inserted atleast one hour before surgery. An evaluation form was used by relevant staff to record pupil size before and after application. Cardiovascular parameters such as blood pressure, heart rate and oxygen saturation before and after application were documented. Ocular adverse effects, patient and staff preference were noted.

Results: Pupil size attained with mydriasert was atleast 8mm in 92% of patients and dilatation was sustained. In four patients, pupil size remained 7mm or less and one of them required mechanical stretching of the pupil with Malyugin ring.

Nurses reported it to be time-effective and easier to use.

Occasionally, the insert popped out early, but this occurred less when nurses gained more experience with it.

90% of patients preferred mydriasert over drops and 10% had no preference.

There were no cardiovascular or ocular adverse events.

Conclusion: Mydriasert is effective, safe, easier to use and saves nurses' time. It does not offer additional benefit in small pupils.

220. One drop or two? Comparison of pupil size following administration of tropicamide alone vs combination of tropicamide+phenylephrine given in rapid succession.
H B Jenkins, S Nasrat, J Menon, R Ahmed
Royal Glamorgan Hospital

Introduction: This study questioned the benefit of topical phenyleprine(2.5%) in addition to tropicamide(1%) for pupil dilation when given in rapid succession, as per common practice in a typical outpatient setting. The essential question: does the second dilating drop enhance pupil dilation or is it an unnecessary extra drop, possibly having a diluting effect on the first agent? This question has relevance to everyday clinical practice where rapid transit through vision room is required and there is often not time to wait minutes between successive drops.

Purpose: To quantify magnitude of pupil dilation at 30mins for eyes dialted with 1)tropicamide1% and 2)tropicamide1%+phenylephrine2.5%(rapid succession)

Method: Full ethical approval obtained. 35 patients recruited. Exclusions including use of ocular medication, anisocoria and any significant ocular comobidity(apart from cataract).Drop regime: 1)tropicamide1% right eye, 2)tropicamide1% rapidly followed by phenylephrine2.5% left eye. Pupil diameters (horizontal and vertical) measured using computerised overlay graticule following standardised 1:1 photograph (to nearest 0.1mm) Change in mean pupil diameter (size at 30min minus baseline) compared using Mann-Whitney U test. Kolmogorov-Smirnoff test used to confirm non parametric distribution.

Results: Mean pupil size at 30mins 1)tropicamide(1%) alone:6.34mm (Sd-0.95, range 4.3-8.25, 62.8%>6mm), 2) tropicamide(1%)+phenylephrine(2.5%):6.92mm(sd-0.93, range 5.1-8.6, 77.1%>6mm). Mean change in pupil size at 30min was 0.85mm greater with combination group, tropicamide1%:+ 2.19mm vs tropicamide1%+phenylephrine2.5%:+ 3.04mm (Mann-Whitney U=1027, n1=n2=35,p<0.001, two-tailed test).

Conclusion: This study confirms marginal statistical benefit of using both drops with greater mean dilation and percentage >6mm.

221. Intra vitreal Anti-VEGF injection for radiation retinopathy/neuropathy
M Zayed, K Sears, P Rundle
Royal Hallamshire Hospital

Introduction: Uveal melanoma may be treated by a number of radiotherapy techniques including proton beam therapy, stereotactic radio-surgery and ruthenium plaque brachytherapy.

The main side effect of such therapy is visual loss secondary to radiation retinopathy or optic neuropathy

Purpose: To report the outcome of Anti-VEGF treatment for radiation retinopathy/neuropathy and symptomatic changes experienced by patients.

Method: Five Patients with radiation related retinopathy/neuropathy were treated with courses of 3 intravitreal injections of bevacizumab (1.25mg). Outcome measures including best corrected visual acuity, symptomatic improvement,fundal appearence and optical coherence tomography

Results: All patients experienced symptomatic improvement along with improved visual outcome. Also they demonstrated clinical findings of decreased intra-retinal hemorrhages, cotton-wool spots, and retinal edema. There were no significant ocular or systemic side effects.

Conclusion: Intravitreal anti-VEGF therapy was associated with improvement in the clinical features and symptoms related to radiation retinopathy/neuropathy. No ocular or systemic side effects were noted. This study supports the evidence on the rule of Anti-VEGF therapy for radiation retinopathy/neuropathy secondary to radiotherapy.

222. The best site for intravitreal injections.
L A Langsaeter, T Leong
West Sussex Hospital Trust

Introduction: Despite existing guidelines by NICE and the royal college of ophthalmologists regarding intravitreal injections, no guidelines advice on the best injection site along the limbus.

Purpose: The aim of this audit was to investigate if there is a preferential injection site for patients and surgeons.

Method: Patients receiving intravitreal Lucentis injections at St Richard's hospital were audited over a 2 month period. The patient ranked discomfort using the universal painscore. Their score, number of previous injections, timing of topical anaesthetic, comorbidities, subjective anxiety level and surgeon were documented. Six numbered injection sites per eye were used and the chosen site documented. 20 Patients were recruited for the audit.

Results: The results show that the injection site with the lowest painscore is superotemporal (pain score 0.86 Standard Deviation (SD) 0.89) and superonasal (1.33, SD 1.15) despite surgeon's experience and other variables. The highest painscore was for right temporo-palpebral (pain score 6.5, SD 0.71). Only 2 patients had injection in this area.

Conclusion: The weaknesses of this study include a small sample size and a preference for certain injection sites by the surgeons causing a skew distribution.

Our audit shows that superior injection sites have overall lower painscores. A preference of injection sites by surgeons is also uncovered, which may reflect training and ease of use. A temporal approach shields the patient from seeing the syringe and allows the surgeon hand support on the forehead. A larger trust wide audit is undergoing to further test this pilot and inspire guidelines.

223. Why don't people go to have their eyes examined?
M Griffin, D Shickle, M Mookhtiar, D Todkill, A Cassels-Brown
University of Leeds

Introduction: Preventable sight loss has been included as one of the Public Health Outcome Indicators in England. Despite availability of NHS funded eye examinations, many people do not take up their entitlement.

Purpose: To explore barriers for uptake of eye examinations.

Method: 10 focus-group meetings were held with people living in deprived areas of Leeds, recruited via community groups and neighbourhood networks.

Results: The majority of participants wore glasses, and regular eyes examinations. Most were aged over 60 or had another eligibility for a NHS-funded eye examination. Awareness of entitlement to free eye examinations was generally good. There was poor knowledge about eye disease and the purpose of different elements of the eye examination. Participants felt very vulnerable about getting the tests 'wrong' and looking foolish. Wearing of glasses was associated with appearing old and frail.

Many did not trust the veracity of optometrists, and perceived opticians to be expensive places, where it was difficult to control spending. Many had experienced 'hard sell' and opaque pricing. Most were happy with the optometric services received. A few people described occasions where the glasses prescribed were unusable. Sometimes complaints were made, but the problem was not always rectified.

Participants indicated a preference for utilising a local optometrist located alongside other familiar health care services.

Conclusion: Not-for-profit services co-located with other public sector services are needed to address issues relating to cost of glasses, lack of trust in optometrists, and poor access to eye examinations in local settings.

224. Inverse Eye Care Law: A geographical analysis of place of residence and deprivation of people receiving an NHS funded eye examination
T Farragher, D Shickle, M Mookhtiar, D Todkill, A Cassels-Brown
University of Leeds

Introduction: The Department of Health in England have included preventable sight loss as one of the 68 Public Health Outcome Indicators. The starting point to achieving this indicator is ensuring that people attend for regular eye examinations. Uptake of NHS funded eye examinations is lower than expected.

Purpose: Published General Ophthalmic Services (GOS) data is not available at small area level nor does it provide much detail according to eligibility groups. GOS forms were analysed to inform interventions to increase uptake according to geographical and demographic need.

Method: A manual data entry was performed on all GOS1 claim forms submitted in Leeds for a 5 week census period from 24 January to 27 February 2011.

Results: A total of 17,680 eye examinations were included in the analysis of lower super output area (LSOA) of residence of the person undergoing the eye examination. Uptake in each LSOA was compared to the number expected based on the age and gender profile of England. Uptake was higher in the less deprived areas. Thus a more deprived person over the age of 60 or a child under the age of 16 is less likely to take up their eligibility for a 'free eye test' than someone living in a more affluent area.

Conclusion: Interventions to raise uptake of eye examinations in Leeds should be focused on the more deprived communities and the neighbourhoods in which they live.

225. Eye care services for communities at risk of avoidable sight loss – removing the pathway barriers
S Leamon, C Haydon, H Lee
RNIB

Introduction: Nearly two million people are living with significant sight loss in the UK. Fifty per cent of sight loss is potentially avoidable with early detection and treatment. An ongoing challenge is how to improve uptake and delivery of services.

Purpose: To identify the barriers and enablers affecting access to primary and secondary eye care services amongst people aged 40 to 65 in communities at risk of avoidable sight loss.

Method: Thirty-four focus groups (n = 289) in five sites across the UK with Pakistani, African Caribbean and white low income communities. Fifty-six depth interviews with secondary care patients and interviews with 55 service providers.

Results: Amongst the communities, common barriers in primary care were a limited understanding of eye health, symptom led demand and the perceived cost and retail dimension of optometry.

Common barriers in secondary care were a fragmented and complex organisation of services, limited interaction with clinicians and a consequent lack of information.

In primary and secondary care, continuity in treatment and positive interaction with clinicians encouraged attendance.

Professionals, particularly optometrists, highlighted the division of responsibility across different services and the impact of GP referral on timely access to treatment. Limited communication between primary and secondary care professionals about referral outcomes was also an issue.

Conclusion: The findings indicate that the retail dimension of primary eye care is a significant deterrent, as is a fragmented eye care pathway. Improved communication by clinicians with patients and between primary and secondary care professionals could have a positive impact on patient experience and long-term care.

226. Is it Safe to Increase Diabetic Retinopathy Screening Intervals in Patients With No/Background Diabetic Retinopathy?
H C Chambers, S B Balu, H W Wharton, P M D Dodson, J M G Gibson
Heartlands hospital

Introduction: We question the necessity of annual screening for patients who have no DR and for those with background DR by analysing DR progression.

Purpose: To evaluate the safety of increasing screening intervals in patients with no diabetic retinopathy (DR) or with background DR.

Method: A 4 year retrospective follow up of 996 patients who presented with no DR and 500 with background DR at baseline digital DR screening.

Results: Of the 500 subjects that had background DR in 2006, 231 were referred for DR, with an average DR routine referral rate of 12% (46) per year.

Of the 996 patients who had no DR at baseline, 51 were referred over the 4 years for sight threatening DR (STDR), of these 45 patients have definite STDR confirmed by ophthalmological examination. 78% of these had type 2 and mean age at referral was 60 years (25-87).

If biannual screening were adopted for patients with no DR at baseline, a total of 7 (0.7%) patients would not have been appropriately referred for STDR and would have waited a further year for identification. None of the 51 DR referrals required laser treatment apart from just one patient.

Conclusion: Patients who present with background DR should continue to be screened annually as a high proportion of these patients developed sight threatening DR (STDR) (12%)

A low proportion of patients with no DR at baseline were referred for STDR (1.3%). 50/51 referrals had observable retinopathy as just one patient required laser treatment.

It could be recommended that it is safe to screen patients with no DR biannually.

227. Homelessness and ocular morbidity: a systematic review
A Silvester
St Paul's Eye Unit, Royal Liverpool University Hospital

Introduction: Homelessness is associated with mortality and morbidity. In particular, there is a higher prevalence of self-reported ocular morbidity in homeless people than in the general population with one study reporting a prevalence of 25% compared to 1% in the general population. Homeless people are often exposed to risk factors associated with ocular morbidity including poor nutrition, poor access to healthcare, infections, smoking and environment (including UV light).

Purpose: The aim of this systematic review was to determine the prevalence of ocular morbidity in adult single homeless reported in clinical studies through objective measurement.

Method: Systematic review (as per PRISMA guidelines). All types of clinical studies of adult single homeless that objectively measured visual acuity or screened for ocular health were included. No language or date restrictions were used.

Results: 6 studies were identified. 1013 participants, 60.6% were male. 22.8% of all homeless participants had an objective visual impairment. The prevalence of visual impairment in homeless adults was found to be similar to that of deprived adults and significantly worse than the general population. Furthermore, many of the studies suggest that this visual impairment is secondary to a refractive error that could be corrected with the provision of spectacles. Few studies explored ocular pathologies, those that did found higher prevalence of cataracts and optic nerve disease.

Conclusion: At a time when health service provision in the UK are being reformed, this review highlights the role of simple screening and provision of spectacles to improve vision and potentially the quality of life of homeless people.

228. Conjunctival Squamous Cell Neoplasia: The Liverpool Ocular Oncology Centre experience
A O Garrick, N Kenawy, H Heimann, S Coupland, D Damato
Royal Liverpool University Teaching Hospital

Introduction: What is the outcome/success rate for our present treatment protocol? There are no guidelines at present for the treatment of Conjunctival squamous cell Neoplasia, we hope our results will assist in setting future guidelines.

Purpose: To report the outcome of patients with Conjunctival Squamous Cell Neoplasia (CSCN) treated at The Liverpool Ocular Oncology Centre (LOOC).

Method: Case notes of patients treated between January 1993 and September 2011 were reviewed. Primary or salvage treatment was defined according to whether they had excision/ incision before referral.

Results: Primary treatment was administered to 20 patients (16 males, 4 females), mean age of 62 years. The tumour consisted of conjunctival squamous intra-epithelial neoplasia (C-SIN) in 11 patients and invasive squamous cell carcinoma (SCC) in 9.

Following excision, management of C-SIN consisted of observation (n=1); topical 5-Floururacil 1% (5 FU) (n=9) or cryotherapy (n=1). For SCC, Ruthenium brachytherapy (n=6), topical 5-FU (n=2), observation (n=1). Median follow up was 10 months. (Range, 5-18). One patient required further topical chemotherapy for persistent C-SIN.

Salvage therapy was administered to 23 patients (16 males, 7 females), mean age of 63 years. The tumour consisted of C-SIN in 11 patients and SCC in 12.

Following excision, management for C-SIN consisted of topical 5-FU (n=6), Ruthenium brachytherapy and 5-FU (n=3), observation (n=1), cryotherapy (n=1). Invasive SCC was treated 5 FU (n=4), brachytherapy (n=2), brachytherapy and 5-FU (n=4), cryotherapy and 5 FU (n=1), proton beam radiotherapy and 5-FU (n=1). Median follow up was 9 months (range, 0-29). One patient treated for invasive SCC developed metastatic disease. One patient required repeat brachytherapy and 5 FU for recurrent invasive SCC.

Conclusion: A high rate of local control of CSCN is achieved with excision, brachytherapy and topical chemotherapy.

DVDs

1. One cornea for two recipients-Combination of anterior and posterior lamellar keratoplasty

E Giallouros, M Petrak, W Sekundo, K Droutsas
Department of Ophthalmology, University of Marburg

Introduction: New lamellar keratoplasty techniques allow us to optimise the use of corneal grafts.

Purpose: To present the use of one donor cornea in two keratoplasties, that is, the corneal stroma for a Deep Anterior Lamellar Keratoplasty (DALK) and the Descemet's membrane including the corneal endothelium for a Descemet's Membrane Endothelial Keratoplasty (DMEK).

Method: (1) An eye with keratoconus underwent a DALK using the Anwar big-bubble technique. After successful removal of the pathological stroma and exposure of the Descemet's membrane, the operation is paused. (2) The Descemet's membrane, including the corneal endothelium of the donor cornea is isolated, using the technique of the Netherlands Institute for Innovative Ocular Surgery (NIIOS), and then placed in culture medium. The corneal stroma is trepanned and by means of a double continuous suture fixed on the recipient cornea. (3) The Descemet's membrane- endothelial graft, prepared with the standard "no-touch" technique of the NIIOS, was transplanted into an eye with Fuchs' endothelial dystrophy that underwent the DMEK procedure.

Results: All three interventions proceeded without complications.

Conclusion: New lamellar keratoplasty techniques allow the use of a donor cornea for two keratoplasties. The techniques of the NIIOS were reproducible and effective direct from the beginning of the learning curve.

2. Use of new smartphone technology to Improve and Monitor Patient's Compliance to Treatment and Continuity of Long-term Care

N Lau, N M S Lau, J D Stevens
Moorfields Eye Hospital

Introduction: A new and unique software has been developed to improve quality of care and monitor compliance to medication in patients underwent refractive surgery

Purpose: To demonstrate the effectiveness of a unique and multifunctional mobile phone application in improving eye medication compliance, patient education and quality of care.

Method: A unique, innovative and multifunctional mobile phone applications, Cleverdrops, has been developed to improve the quality of patient care in Ophthalmology. It generates alerts to remind patient to take treatment. It functions to help to eliminate confusions in those taking multiple treatment. It can monitor compliance. It provide links to patient educational videos and materials. It also allows the surgeon to communicate with the patient and track the patient's progress. It also has other functions such as amsler chart monitoring, request for renewal of prescriptions. This video demonstrates the effectiveness of this new technology which is already in use by patients who underwent laser refractive surgery in a single surgeon practice. A patient satisfaction survey was carried out on patients who underwent laser refractive eye surgery in a single surgeon practice.

Results: The application software has reduced patient queries, helped to improve drops compliance, medical education and continuity of care. It is an innovative way to improve quality of care. The app is able to track individual compliance with medication regimes, so is very useful to ensure good post-operative outcome as well as in chronic conditions such as glaucoma.

Conclusion: CleverDrops is a new smartphone software developed to improve patient care in Ophthalmology. It is an effective, simple to use tool to ensure good peri-operative care for patients undergoing refractive and cataract surgery. It also offers an effective way to track compliance in patient undergoing long term treatment regimens

3. Goniosynechialysis - a demonstration video

F Ahmed, L Crawley, S Ameen, J Ho
Western Eye Hospital

Introduction: Peripheral anterior synechiae (PAS) are commonly found in Primary angle closure glaucoma (PACG). In such patients that do not respond to peripheral iridotomies alone, increasing evidence suggests that phacoemulsification surgery would be beneficial especially in the presence of PAS. However, phacoemulsification alone may not reduce PAS and hence goniosynechialysis can also be performed to treat PAS.

Purpose: We show our technique of goniosynechialysis following phacoemulsification surgery in a patient with recently diagnosed acute angle closure glaucoma, uncontrolled on maximal topical glaucoma medications and oral acetazolamide.

Method: Following phacoemulsification and lens implantation, acetylcholine chloride is used to constrict the pupil. The anterior chamber and irido-corneal angle are deepened with viscoelastic and the angle is visualised using 2 methods:

Direct gonioscopy with a modified Swann-Jacob lens.

Direct view with a 20-gauge micro-endoscopic camera placed into the angle.

Angle structures and the degree of PAS are identified. The iris is mechanically pulled away from the angle and PAS broken using a cyclodialysis spatula, repeated through 360° of the angle. Viscoelastic is removed and intracameral cefuroxime and dexamethsone are given to reduce post-operative inflammation.

Results: All areas of identified PAS are treated and the iridicorneal angle is open at the end of the procedure, confirmed with gonioscopy and anterior segment OCT at post-operative follow-up.

Conclusion: This video demonstrates goniosynechialysis using 2 different methods to optimally visualise the angle. It is a safe and effective procedure that can improve IOP control in patients with synechial angle closure glaucoma.

4. WITHDRAWN Endoscope-assisted vitrectomy for traction retinal detachment (TRD) in retinopathy of prematurity (ROP) in neonates.
T H Lee, S C Wong
Children's Hospital Los Angeles

Introduction: Surgery for TRD in acute ROP is challenging, as reflected by the variable outcomes.

Purpose: To illustrate the unique properties of endoscope-assisted vitrectomy compared to conventional viewing systems, and how this is clinically relevant and advantageous in the surgical management of TRD in acute ROP.

Method: This video illustrates the unique surgical challenges of TRD in acute ROP in neonates, specifically the role endoscopy has in improving visualisation of multiple layers of vitreous and membrane, as well as enabling an alternative intraoperative perspective critical for surgical manipulation of anterior and retroirideal pathology.

Results: Endoscope-assisted vitrectomy facilitates more aggressive yet safe dissection of membranes and vitreous, and improves intraoperative visualisation of up to 5 different vectors of traction without the need for additional tissue staining. The relevance of retroirideal pathology is also highlighted.

Conclusion: Endoscopy provides a unique intraoperative perspective that is clinically relevant and advantageous in the management of TRD in ROP in neonates

5. Descemet-Stripping Automated Endothelial Keratoplasty in Eye With a 'Sputnik' Intraocular Lens Implant
N Hirji, M Nanavaty
East Surrey Hospital

Introduction: The once popular 'Sputnik' intraocular lens implant developed by Fyodorov is now essentially obsolete. However, patients with these implants may still pose challenges to modern-day ophthalmologists. In this video, we demonstrate performing a Descemet-Stripping Automated Endothelial Keratoplasty (DSAEK) in a 72-year old female who presented with corneal decompensation 4 decades after cataract extraction with implantation of a 'Sputnik' intraocular lens.

Purpose: To highlight the clinical and practical issues faced in managing corneal decompensation with a ‘Sputnik’ intraocular lens and vitreous in the anterior chamber.

Method: We demonstrate simple tips on successful DSAEK surgery in such eyes.

Results: The procedure was successful, with the patient achieving an excellent level of visual acuity post-operatively.

Conclusion: Careful pre-, intra- and postoperative surgical planning are mandatory for successful DSAEK surgery in such patients.

6. Ahmed Valve Tube Extension using a 22-Gauge Venflon Angiocatheter
S N Chia, J F T Li Yim, D M I Montgomery
Stobhill Hospital, Glasgow

Introduction: Tube retraction is an important complication leading to failure of glaucoma drainage tube surgery. Different devices and methods for extending the tube had been described, including the Crawford tubes and the commercially available Tube Extender.

Purpose: We present our experience with the technique using a tube extender fashioned from the 22-gauge venflon.

Method: Our patient is 69-year-old woman with a complex case of advanced glaucoma who underwent Ahmed valve implantation to both eyes. Two weeks following her right eye surgery, her tube retracted into the cornea and her IOP rose to 28 mmHg.

Her tube was extended using 22-gauge angiocatheter (Venflon) cannula, combined with tutoplast patch graft. A fornix-based conjunctival flap was raised and the Ahmed valve tube was exposed by incising the superficial sclera. The tube was amputated at the distal end, and the cut ends connected to an extender segment prepared from Venflon cannula. The Venflon extender is rigid, unlike the tube of Ahmed valve, and we found it easier to thread the distal end of the tube into the anterior chamber prior to connecting the extender. The extender also needs to be fashioned to an adequate length. The extender portion was partially buried in the sclera tunnel for snug fit, and secured to the sclera with 10-0 nylon sutures. Tutoplast patch graft is placed over the extender and tube to prevent erosion and conjunctiva closed.

Results: At the first postoperative day, her IOP reduced to 6 mmHg. Her IOP remained adequately controlled on Ganfort at her last follow-up at 6 months post-operative.

Conclusion: This video demonstrated that tube extension using the 22-gauge venflon is a useful option in the management of complex glaucoma with tube retraction. It is effective, safe, relatively inexpensive and obviates the need for technically difficult repositioning of the whole implant.

7. Viscocanalostomy glaucoma surgery – a modified technique.
D Mathews, T D Betts, A Hamroush
Stanley Eye Hospital, Abergele

Introduction: Viscocanalostomy remains a novel procedure since Robert Stegmann described it in 1991 as a modification of deep sclerectomy. It is an attractive alternative to trabeculectomy as it presents the ability to lower the IOP without entering the anterior chamber. The complications presented by trabeculectomy e.g. hypotony, shallow anterior chamber, choroidal detachment and endophthalmitis etc. are theoretically less frequent. The procedure may be combined with phacoemulsification and intraocular lens implantation for concomitant cataract. The drawback of viscocanalostomy is it demands significant surgical skill but for an experienced surgeon the technique is not very difficult to master.

Purpose: The video shows the main steps of viscocanalostomy glaucoma surgery and highlights the author's modifications.

Method: Intraoperative video of viscocanalostomy surgery highlighting the use of 7-0 silk corneal traction suture to mobilise the globe, careful dissection of the conjunctival peritomy and the closure of the conjunctiva using slip sutures in addition to careful peeling of the membrane.

Results: The authors data from 104 consecutive eyes shows viscocanalostomy and phacoviscocanalostomy to be highly successful at the 1 year review (this paper is being submitted also). Viscocanalostomy demands sound surgical skill but it is not impossible for most ophthalmic surgeons to master the technique. We strongly feel this procedure can provide a safer, effective alternative to trabeculectomy.

Conclusion: The author feels that these adjustments to the established viscocanalostomy technique improve intraoperative control and reduces the risk of complications.

8. A modified technique for plana plana vitrectomy and scleral-fixated posterior chamber lens implantation
M M K Muqit, D J Mordant, C K Patel
Oxford Eye Hospital

Introduction: Secondary lens implantation using scleral fixated posterior chamber lens intraocular (PC-IOL) implants is an innovative surgical technique currently undertaken by anterior segment and vitreoretinal surgeons.

Purpose: To demonstrate a modified technique of intraoperative haptic fixation during combined scleral-fixated PC-IOL +/- pars plana vitrectomy surgery.

Method: High-definition surgical videos demonstrate the technique in 3 eyes that underwent 23G pars plana vitrectomy and scleral-fixated PC-IOL surgery. This novel technique is demonstrated in patients with lens subluxation (n=1) and aphakia (n=2).

Results: We used readily available anterior segment instrumentation to modify and improve the flow of externalised scleral fixation of intraocular lens implants when combined with 23G pars plana vitrectomy. There were no intraoperative complications. Surgical time was reduced using our modified technique.

Conclusion: This modified technique was performed safely in all cases and solved intraoperative problems that we had experienced. Our surgical experiences will be demonstrated and shared in this video.

9. Z-Shaped Knotless Suture
D Steel, S Ghosh
Sunderland Eye infirmary

Introduction: Transscleral suturing is a standard technique to fix various intraocular implants when there is no or minimal capsular support. Here we describe the use of completely knotless Z-shaped suture technique in two cases.

Purpose: This video demonstrates the use of Z-shaped knotless method in two cases. Case one shows a posterior chamber aniridic Intra Ocular Lens (IOL) fixation and case two shows an Ahmed segment fixation in a case of subluxated IOL using the Z-shaped knotless technique.

Method: Case one was a case of Aniridic subluxated lens. After a standard Phaco vitrectomy, a looped polypropylene suture was passed through the eye of the haptic of a morcher aniridic IOL. Ab-Externo hollow needle technique was used to retrieve the sutures. After IOL insertion and wound closure, 4 to 5 passes of the 10-O polyprolylene suture was passed intrascleral with 5 indentations or corners to the zigzag pattern. The sutures were cut and the conjunctival closed.

Case two was a case of subluxated lens which was stabilised with the help of Ahmed segment which was sutured to the sclera using the Z-shaped knotless technique after capsulorrhexis.

Results: Both the cases had stable IOL with no suture related complications

Conclusion: The zigzag Z-shaped knotless technique produces enough frictional force, negating the need for a knot for fixation, avoiding suture-related or knot related complications like scleral atrophy, suture exposure, infection, and chronic inflammation. The technique is simple, rapid, safe and less invasive than scleral flaps or other lamellar techniques.

10. Novel cannula for Big-Bubble Deep Anterior Lamellar Keratoplasty
M P Watson, S J Tuft
Moorfields Eye Hospital

Introduction: Big-Bubble is a widely used technique for complete stromal removal in Deep Anterior Lamellar Keratoplasty (DALK). Anwar uses a 27/30G needle attached to an air-filled syringe. However, a sharp needle risks perforation of Descemet layer. Fogla and Sarnicola have developed blunt reusable cannulas with a posterior port to reduce the risk of perforation and improve Big-Bubble success. However, NHS/EU regulations on sterilisation mean that these cannulas should only be used once, which is not cost effective. We identified that the bimanual lens aspiration cannula (BD VisitecTM) had a similar design (exception of size 23G vs 27G).

Purpose: To report the use of the disposable bimanual lens aspiration cannula to achieve a Big-Bubble in DALK.

Method: Following partial-thickness trephination, the bent tip of an insulin needle is used to create a lamellar pocket in the trephined groove. An iris repositor is then advanced 3-4 mm paracentrally. The bimanual lens aspiration cannula is bent with the port facing down, attached to an air-filled syringe, advanced along the lamellar tunnel and air injected to achieve a Big-Bubble. As a recent discovery, we have used this on the last 13 consecutive patients from 6 different surgeons.

Results: Big-Bubble success was achieved in 11/13 (85%) cases. The larger 23G cannula and micro-etched end were not problematic as the iris repositor produces a suitably sized tunnel.

Conclusion: This disposable bimanual lens aspiration cannula, standard iris repositor and insulin needle provide readily available and cheap instruments for Big-Bubble DALKs. They are a suitable alternative to the custom made instruments.

11. Delineation And Excision Of A Tenon's Cyst Using Trypan Blue
H Jewsbury, K Rajkumar
Princess of Wales Hospital, Bridgend, South Wales

Introduction: Trypan Blue is frequently used in a variety of intraocular surgeries. We describe a novel extraocular technique utilising Trypan Blue to aid complete excision of a Tenon's cyst following Mitomycin C augmented trabeculectomy. Complete excision is essential to minimise recurrence.

Purpose: To present a surgical video demonstrating the novel utilisation of Trypan Blue to facilitate the complete excision of a Tenon's cyst. This educational video introduces the technique to a wider audience enabling others to replicate the procedure and improve the frequency of complete Tenon's cyst excision.

Method: A 76-year-old man presented three months following right Mitomycin C augmented trabeculectomy complaining of dry eye symptoms. The patient was noted to have a large medial Tenon's cyst with an associated dellen. Excision was performed under local anaesthetic. The cyst was exposed and de-roofed. The posterior internal wall was selectively stained with Trypan Blue. This provided excellent delineation of the residual tissue. A peeling technique akin to removal of the anterior capsule during cataract surgery was used to allow complete removal of the posterior cyst wall.

Results: Complete excision of the Tenon's cyst was achieved. The patient's symptoms and dellen resolved and there has been no recurrence of the cyst.

Conclusion: This video provides the first demonstration of the novel extraocular use of Trypan Blue to facilitate the complete excision of a Tenon's cyst. We hope this technique will be useful to other surgeons to help reduce recurrence rates following Tenon's cyst excision.

12. Dual-layer conjunctival and Tenon's capsule closure for fornix based trabeculectomy
Z Varga, T D Manners, A Hardisty
York Teaching Hospital NHS Foundation Trust

Introduction: The success of trabeculectomy rests on controlled aqueous drainage from the anterior chamber into a functioning filtration bleb. Early wound leaks have been associated with trabeculectomy failure due to suboptimal bleb development with scaring around the filtration site. Wound leaks can also have potential serious sight threatening sequelae such as hypotony and endophthalmitis. We describe a two-layered suturing technique, closing Tenon's layer and the conjunctiva separately, which we have found useful in reducing early wound leak following trabeculectomy.

Purpose: To demonstrate a two-layered wound closure technique that involves suturing Tenon's capsule and the conjunctiva separately.

Method: The conjunctiva and Tenon's capsule are opened separately at the limbus, close attention being paid to dissecting Tenon's capsule, as it can often be friable. A standard mitomycin C augmented trabeculectomy with a limbal-based scleral flap is then performed. The Tenon's capsule and conjunctiva are closed in layers to the remaining limbal frill. Both are sutured with a continuous 10-0 vicryl suture line. We compared the wound leak rates in our departmental trabeculectomy audits before and after this surgical technique was adopted.

Results: This surgical approach results in diffuse bleb morphology. Our departmental audit showed a 10-fold reduction in early wound leaks after implementation of this technique (from 26% to 2.5%). Postoperative hypotony was correspondingly reduced.

Conclusion: Closing the conjunctiva and Tenon's capsule in two separate layers has significantly reduced our early wound leak rate.

13. Voluntary nystagmus
A Kostakis, J Myneni, S P Desai
Doncaster Royal Infirmary

Introduction: Nystagmus which is 'involuntary' oscillations by definition, can sometimes be initiated by voluntary effort. There are published reports of such instances.

Purpose: The purpose of this video is to demonstrate voluntary nystagmus, its clinical features and to differentiate it from pathological nystagmus.

Method: This video is of a young girl with family history of the ability to initiate voluntary nystagmus. It is an interesting recording of her initiating the nystagmus and the various features of it.

Results: A 19 yr old girl presented to us saying that she could jiggle her eyes and she was worried that something might be wrong with her eyes. She learnt how to do it when she was 6years old. Her father and grandmother could do it too.

Her ophthalmic and neurologic examination was normal. She had a small refractive error.

Features of her voluntary nystagmus were easy to distinguish from pathological nystagmus.

Conclusion: Voluntary nystagmus is characterised by pendular horizontal or vertical movements in all eye positions. It can be initiated in light and darkness and even with closed eyes.

Fatiguability is pathogonomic.

Elaborate investigations and tests are not required if we identify the diagnosis by careful observation.

14. 'Double occlusion' - Black Artisan iris claw intraocular lens (IOL) insertion following black Morcher posterior chamber IOL for the treatment of unresolved intractable diplopia.
S Sherpa, O Shonibare, J Lochhead
St Mary's Hospital. Newport

Introduction: Occlusive intraocular lenses (IOL) are an effective and reversible surgical treatment for patients with intractable diplopia and visual confusion. It has recently been established that black occlusive IOLs have variable light blocking properties.

Purpose: We present this DVD demonstrating the superior ability of black Artisan iris claw IOL to completely occlude infrared light transmitted by optical coherence topography (OCT) compared to black Morcher polymethyl methacrylate (PMMA) posterior chamber IOL. We show the technique for insertion of black Artisan IOL in a pseudophakic, vitrectomized eye.

Method: Video images were captured with a Carl Zeiss camera on the operating microscope. Still images were taken using the Zeiss FF 450 plus anterior segment camera. OCT images were taken by Topcon 3D 2000 OCT with Nikon D7000 digital camera.

Results: A patient had persistent visual confusion despite implantation of black PMMA IOL. Posterior segment imaging with OCT showed transmission of infrared light through the black IOL albeit with degraded images. Subsequent implantation of Artisan IOL resolved the patient's symptoms and prevented further transmission of infrared light by OCT.

Conclusion: Artisan iris claw occlusive IOL has superior light blocking properties compared with Morcher PMMA occlusive IOL. This has implications for patient satisfaction following surgery. Patients should however be counselled about the inability to monitor the posterior segment with light imaging modalities.

15. A low cost retinoscopy model eye
T D Betts
Stanley Eye Hospital, Abergele

Introduction: Uncorrected refractive error is the leading cause of visual impairment worldwide. Retinoscopy remains an invaluable skill but is difficult to teach and gaining proficiency takes considerable practice. Retinoscopy model eyes are commercially available, however, they are relatively expensive which limits their availability in developing countries.

Purpose: To produce a simple, low cost retinoscopy model eye which functions as well as the commercially available models.

Method: I have devised a means of making a simple and low cost retinoscopy model eye from readily available materials using hand tools.

Results: Each model costs approximately three pounds to produce. Three models were taken to Ethiopia in March 2012 and used to teach retinoscopy to student ophthalmic nurses. Following a regional presentation additional models have been taken to Gambia.

Conclusion: In this video presentation I demonstrate how to construct a simple, low cost retinoscopy model eye and show the model in practice.

16. Standardised Views in Oculoplastic Photography.
A Muneeb, B Chang, C Ong, S Jyothi
LTHT

Introduction: Standardised photography is all about standardisation which means the only element that change is the patient. Unfortunately this is often not achieved due to poor technique

Purpose: Demonstrate standardised views in oculoplastic photography. Demonstrate how these images can be obtained in a clinical sitting.

Method: Video showing and comparing the studio and non studio photos.

Results: Best quality and professional looking images are obtainable in a busy oculoplastic clinic without the need of dedicated studio. In the oculoplastic speciality, the majority of photographs taken are confined to the face region and standardisation of views is of prime importance in comparing. The video will demonstrate how images are taken in real time.

Conclusion: The Digital photography is a skill which a clinician can learn and apply in a busy clinical setting. These photographs can then be used for marinating clinical record, medico legal and educational purposes.

17. TREACHER COLLINS WINNER 2013: Trachomatous Trichiasis Surgery Training DVD: A Step-By-Step Guide To Trachoma Surgery

M J Burton, S N Rajak
International Centre for Eye Health, LSHTM

Introduction: Trachomatous Trichiasis affects over eight million people worldwide of whom over one million are blind. Lid rotation surgery is the mainstay of treatment. Unfortunately surgical outcomes in the field are frequently poor (recurrence rates up to 60%). Poor surgical technique is responsible for significant proportion of recurrent cases. There is a pressing need to strengthen surgical training.

Purpose: This DVD was designed for distribution to surgeons and surgical trainers throughout the 57 trachoma endemic countries. It provides a detailed guide and footage of the two main surgical techniques used in endemic settings (bilamellar and posterior lamellar tarsal rotation – BLTR and PLTR), as well as extensive supporting material including pre-operative clinical assessment, setting up an operating theatre, instrument sterilisation, post-operative care and eyelid anatomy.

Method: A production team (Stanton Media) directed by the authors filmed extensively in trachomatous trichiasis surgical 'camps' in Ethiopia.

Results: A 90-minute training DVD has been produced with narration in English and French. Over 20,000 copies have/are being distributed to Government Health Departments, Non-Governmental Organisations, surgical trainers, trainees and operating surgeons.

Conclusion: It is anticipated that this DVD will assist surgical training as well as provide refresher training for qualified surgeons.

18. Lateral Tarsal Strip Squeeze: A simple modification to reduce granuloma formation

A Kreis, J T S Yu, S N Madge
Wye Valley NHS Trust

Introduction: The lateral tarsal strip (LTS) procedure is a commonly performed operation for correction of lower eyelid malpositions. Lateral canthal granuloma formation - which can be tender for the patient and delay recovery - is a recognised complication, albeit readily treatable with corticosteroid injection.

Purpose: This video highlights a straightforward addition to the standard LTS procedure that is quick and simple to perform and seems to reduce the risk of post-procedure granuloma formation.

Method: After fashioning the tarsal strip, the conjunctiva is removed via diathermy and scraping in the usual fashion, which results in a de-epithelialised strip, which can then be attached to the periosteum. However, the meibomian glands and ducts themselves still contain secretions, which, if left in situ, we believe will contribute to the granuloma formation, much as a ruptured orbital dermoid cyst leads to chronic inflammation. We therefore routinely perform a series of lateral tarsal squeezes using forceps, e.g. St Martin's forceps, and work along the length of the fashioned strip from the medial to lateral end. As we perform this manoeuvre, copious secretions can be seen to be expressed from the meibomian orifices and are wiped away.

Results: This lateral tarsal strip squeeze takes less than a minute to complete and therefore adds little to the total operating time. In addition, it requires no additional equipment making it economical as well.

Conclusion: We highly recommend this simple modification to reduce post-operative granulomas.

19. Removal of four inches long live worm from suconjutival space of a male patient.

J Rahman, N Al Harti
Al Nahda Hospital Muscat

Introduction: Removal of very long live worm from subconjutival space of a male patient asian in origin.

Purpose: To present a rare video showing removal of four inches long worm from subconjuntival space.

Method: A fifty year old man, Asian in origin, was referred from private clinic to A&E Al Nahda Hospital MUSCAT Oman at 10:30P.M. with few days history of redness and foreign body sensations in the right eye.

On examination, his corrected vision was 6/6 in both eyes. Slit microscope examination showed right eye conjnutival congestion with a live, thin, very long worm moving under the conjunctiva. Cornea was clear with quiet anterior chamber and normal fundus. Left eye was absolutely normal.

Next morning patient was posted for removal of the worm from the subconjunctival space under topical anaesthesia. A live worm four inches long was removed by giving a small incision in conjunctiva with the help of fine sututre tying forceps. The parasite removed was sent to Parasitology Department, University of Veterinary and Animal Sciences Lahore, Pakistan. Histopathalogical report confirmed adult female Dirofilaria Repens.

There was no evidence of intraocular or visceral involvement. Blood examination showed normal blood picture with slightly raised eosinophils (545 cells/UL{40----440 Normal}). No microfilaria seen in the peripheral blood. After removal of worm left eye became white and quiet. This is the first reported case in the history of Sultanate of Oman of this nature.

Results: Eye became white and quiet after removal of worm from subconjuntival space.

Conclusion: In prevention of Dirofilaria in human beings, veterinarian can play an important role by encouraging pet owners to use preventive medicines. The regular administration of larvicidal drugs to dogs is an effective means for controlling this parasite in human beings. The control of mosquitoes can also reduce the risk of exposure to both man and animals.

20. Intraocular foreign body removal from the ciliary body
B Vella Briffa, M J Menage
St. James's University Hospital, Leeds

Introduction: A 37-year old man was referred to our unit following failed removal of a metallic intraocular foreign body (IOFB) which resulted from use of a hammer and chisel. This had entered the eye through a self-sealing corneal wound and become lodged in the ciliary body.

Purpose: Surgery was undertaken to remove the IOFB in view of the risk of siderosis. It was found to be lying within the ciliary body. This video demonstrates a number of tools and techniques employed in the removal of the IOFB from this unusual and surgically-challenging location.

Method: An intraocular endoscopic probe was first used to examine the inferior iridocorneal angle, but no part of the IOFB was visible. An external approach was then undertaken, involving creation of a conjunctival peritomy and limbal-based scleral flaps to expose the ciliary body. The IOFB was located using an electromagnet, and could then be removed. The scleral flaps and conjunctiva were closed with absorbable sutures.

Results: The IOFB was successfully removed and the patient went on to make an uneventful recovery with no loss of sight.

Conclusion: The methods demonstrated may be of use in similar cases, enabling safe removal of a ferromagnetic IOFB from the ciliary body.

21. How to perform a vitreous biopsy using a 23-gauge vitreous cutter.
S Padroni, S W Ch'ng, S Banerjee
Leicester Royal Infirmary

Introduction: Vitreous biopsy is frequently used to diagnose intraocular infection, inflammation or neoplasia. It can be obtained by two different methods. The most common is needle aspiration: a 22-27-gauge needle inserted through the pars plana to aspirate a small amount of vitreous fluid. The alternative method uses a 20-gauge vitreous cutter. This technique assures adequate sample volume, clear intraocular visualization of vitreous removal and diminished retinal traction. However, it requires multiple surgical steps such as conjunctival peritomy, scleral suture closure and it is overall more invasive. A sutureless 23-gauge vitreous tap helps avoid these steps without compromising sample size and preserving the yield of the vitreous sample.

Purpose: To demonstrate a vitreous biopsy using a 23-gauge vitreous cutter.

Method: A single-step transconjunctival 23-gauge trocar cannula system (DORC, Netherlands) is used to create a sutureless sclerotomy. Vitreous fluid is then obtained (without irrigation) into a 10-ml syringe attached to the vitreous cutter instrument by passive aspiration. This is followed by an injection of intravitreal antibiotics.

Results: This video illustrates 23-gauge vitreous tap in a systematic fashion. All phases of the technique are covered: equipment preparation, aseptic technique, insertion of the vitreous cutter and removal of the vitreous fluid, injection of antibiotics through the trocar and removal of the port.

Conclusion: This is a relatively quick procedure to perform and provides a good vitreous biopsy sample. It is minimally invasive and will become more mainstream. This video should serve as a useful training aid.

THE ROYAL COLLEGE OF OPHTHALMOLOGISTS
SEMINAR CALENDAR 2013

FRIDAY 14TH JUNE 2013	**COLLEGE REGIONAL STUDY DAY IN HULL** **XIIITH STATE OF THE ART REFRACTIVE AND CATARACT SURGERY SYMPOSIUM** Venue: Hull University Business School Chair: Mr. Milind Pande
THURSDAY 20TH & FRIDAY 21ST JUNE 2013	**SKILLS IN RETINAL IMAGING, DIAGNOSIS & THERAPY** Venue: 76 Portland Place, London Chair: Professor Heinrich Heimann & Professor Yit Yang
MONDAY 16TH SEPTEMBER 2013	**NEW FRONTIERS IN THE MANAGEMENT OF GLAUCOMA** Venue: The Royal College of Ophthalmologists, London Chair: Mr. Keith Martin
WEDNESDAY 18TH SEPTEMBER	**FRONTLINE NEURO-OPHTHALMOLOGY** Venue: 76 Portland Place, London Chairs: Mr. Mike Burdon & Miss Susie Mollan
MONDAY 23RD SEPTEMBER 2013	**MANAGEMENT OF INCOMITANT STRABISMUS** Venue: Centre for Comparative & Clinical Anatomy, Bristol Chair: Mr. John Ferris
MONDAY 7TH OCTOBER 2013	**MAKING RESEARCH RELEVANT TO PRACTICE:** **SYSTEMATIC REVIEWS, GUIDELINES & EVIDENCE BASED PRACTICE** Venue: The Royal College of Ophthalmologists, London Chair: Mr. Richard Wormald
THURSDAY 17TH OCTOBER 2013	**THE MANAGEMENT OF CORNEAL INFECTIONS** Venue: The Royal College of Ophthalmologists, London Chair: Mr. Parwez Hossain
MONDAY 11TH NOVEMBER 2013	**REVALIDATION** Venue: The Royal College of Ophthalmologists, London Chair: Mr. Richard Smith
FRIDAY 22ND NOVEMBER 2013	**UPDATE ON REFRACTIVE SURGERY** Venue: 76 Portland Place, London Chair: Mr. David O'Brart
FRIDAY 6TH DECEMBER 2013	**THE ELIZABETH THOMAS SEMINAR** Venue: East Midlands Conference Centre, Nottingham Chair: Mr. Winfried Amoaku

Visit the website for programmes, information and registration www.rcophth.ac.uk/seminars
or contact us at events@rcophth.ac.uk or telephone 020 7935 0702