



# Visibility

## In this issue

Marathon man

Hold a Big Birthday Bash

In research: understanding unexplained sight loss in children

## Pioneering stem cell operation offers hope to people with AMD

The **London Project to Cure Blindness**, which has had significant charitable support, received extensive media coverage in September 2015 about a pioneering trial of a treatment derived from stem cells for people with age-related macular degeneration (AMD).

AMD affects more than 600,000 people in the UK and is the leading cause of sight loss in the developed world. This procedure marks a major milestone in a decade long research programme at Moorfields Eye Hospital and the UCL Institute of Ophthalmology. The goal is to replace the three critical layers of the macular at the back of the eye: the retinal pigment epithelium (RPE) – Bruch's membrane complex; the photoreceptors; and the vascular.

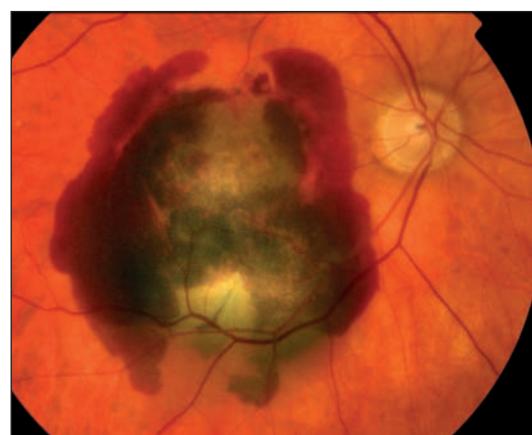
The trial is investigating the safety and efficacy of transplanting eye cells (RPE) to treat people with sudden severe visual loss from wet AMD.

These cells are derived from stem cells and are used to replace

those at the back of the eye that are diseased in AMD. This is done using a specifically engineered patch inserted behind the retina.

A first successful surgery was performed on a patient in August, and a second in October. Each patient will be followed for a year to assess the safety and stability of the cells and the effect of the surgery on restoring vision. Four patients will be recruited from March 2016. While the trial is not open to volunteers at this stage due to strict criteria and ethical guidelines, it has the potential to give hope and make a real difference to the lives of people with AMD and other blinding retinal conditions.

Professor Coffey, who leads the London Project with Professor Lyndon da Cruz said: "We don't yet know how good their vision is and how long that may be maintained, but we can see the cells are there under the retina where they should be and they

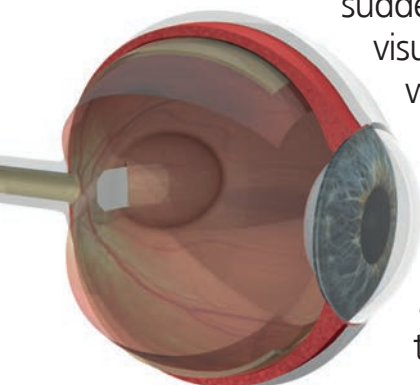


A retinal scan showing wet AMD

appear to be healthy."

While the trial continues, Professors Coffey and da Cruz are beginning to focus on the next stage of their research: rebuilding the other two layers of the macular which are affected in the late stages of AMD and other blinding diseases of the retina.

**For further information or to make a donation to the London Project, please contact Rachel Jones on 020 7521 4610 or by email at [rachel.jones3@moorfields.nhs.uk](mailto:rachel.jones3@moorfields.nhs.uk).**



Graphic showing patch in eye

# Viewpoint

**Julian Nettel**, Moorfields Eye Hospital's Interim Chief Executive, welcomes you to this issue of Visibility



It is a great privilege to be filling the gap between John Pelly's retirement as Moorfields' chief executive last November and David Probert taking up the role on 18 April. I'd like to extend our sincere thanks to John for his leadership, during which Moorfields has cemented its status as one of the world's leading centres for ophthalmic care and research. David is currently the director of strategic development at University College London Hospitals NHS Foundation Trust, where he has led a number of major strategic initiatives including two major hospital developments on the University College Hospital site. His previous roles include chief operating officer at the Royal Marsden NHS Foundation Trust.

Although I have been involved in managing a number

of hospitals, I have never had the opportunity to work at Moorfields. It is a real pleasure for me to be involved with this institution, albeit for a few months only.



Minister George Freeman with Professor Lyndon da Cruz

From what I've seen so far – at City Road, Northwick Park and St George's – the focus is on providing superb care to our patients, even when that is in cramped and suboptimal circumstances. This is

a huge credit to the commitment of staff. I have also been greatly impressed by the partnership between the hospital and the UCL Institute of Ophthalmology. Indeed, when the Life Sciences Minister, George Freeman, visited in early December, he commended both organisations for their focus on fast-tracking research innovations through to improved treatments to benefit patients.

I have also been struck by the importance of charitable support to the continuing success of Moorfields and its research partner, and the significant role it will need to play in supporting a number of major initiatives that will help define Moorfields' exciting future. We are very grateful for everything our supporters already do and hope this will continue.

## News in Brief: your update on events at Moorfields

- **September 2015** Eye Heroes, an innovative initiative funded by Moorfields Eye Charity (MEC), using child education to tackle avoidable blindness, launched in Bedfordshire. Find out more at [eyeheroes.org.uk](http://eyeheroes.org.uk)
- **September 2015** The Moorfields Way, our trust wide campaign to capture the pride and dedication of Moorfields staff and to encourage consistent best practice was launched across our 22 locations. We defined our core values as organised, excellent, caring and inclusive.
- **November 2015** MEH and the UCL IoO held the first open day for patients, relatives, friends and health care professionals to learn and ask questions about blepharospasm, a disorder which causes uncontrolled blinking, closing of the eyelid and pain and discomfort in and around the eye.
- **November 2015** Maltese President, Marie Louise Coleiro Preca, visited MEH to thank staff for the care they provide to Maltese patients and to hear more about the ocular prosthetic services, the eye bank and research. She also made a donation to MEC.
- **December 2015** George Freeman, Life Sciences Minister, visited Moorfields to meet leading clinicians and scientists from Moorfields and the UCL Institute of Ophthalmology.

# Hold a Big Birthday Bash for Moorfields



Celebrate Moorfields turning 211 and Her Majesty The Queen's 90th birthday by holding a Big Birthday Bash



This summer, Moorfields' Royal Patron Her Majesty The Queen is celebrating her patronage of over 600 charities and organisations on the occasion of her 90th birthday with the world's biggest street party on The Mall in London.

The celebrations coincide with the date the first stone was laid for Moorfields Eye Hospital in City Road. To mark the occasion, Moorfields Eye Charity is asking you to join in the fun by coming together with your friends, family and colleague to hold a Big Birthday Bash.

How you hold your Birthday Bash is up to you – you could invite friends round for coffee and a slice of birthday cake, hold an afternoon tea in Great British style or follow in The Queen's footsteps with a street party. All we ask is that you come together to celebrate Moorfields and our Patron and to raise vital funds for our excellent eye care and pioneering research.

The Big Birthday Bash starts on Saturday 28 May and runs through to 30 June 2016. Staff from across Moorfields will be holding their own birthday parties to celebrate the occasion and we hope that you will join us too.



**For more information or to get your Big Birthday Bash pack, please fill out the form in this issue of Visibility, visit [www.moorfields.nhs.uk/content/big-birthday-bash](http://www.moorfields.nhs.uk/content/big-birthday-bash) or email [bigbirthdaybash@moorfields.nhs.uk](mailto:bigbirthdaybash@moorfields.nhs.uk).**



## A history of Moorfields

**March 1805** - John Cunningham Saunders founds the world's first hospital devoted to the treatment of eye disease, the Dispensary for Curing Diseases of the Eye and Ear.

**1822** – the hospital moves to Lower Moorfields. It becomes known as Moorfields.

**1837** – Queen Victoria gives the hospital its Royal Charter.

**1884** – Surgeons at Moorfields lead developments in ophthalmology, translating advances in anaesthesia and disease control into their work.

**1897** – Moorfields expands and the Prince of Wales lays the foundation stone for the new hospital in City Road. 'State-of-the-art' features include air conditioning, central heating, electric lighting and an x-ray department.

**1948** – an Institute of Ophthalmology, now part of University College London, is established under the direction of Sir Stewart Duke Elder.

**2007** – HM The Queen opens the Richard Desmond Children's Eye Centre, the world's largest children's eye centre, after a successful £15.5m fundraising campaign. The hospital opens Moorfields Eye Hospital Dubai.

**2009** – Moorfields becomes a founder member of UCL Partners, one of the UK's first academic health science partnerships.

**2011** – the UCL Institute of Ophthalmology wins the Queen's Anniversary Prize for scientific excellence.

**2014** – Moorfields continues its expansion now offering ophthalmic services across 22 sites in and near London.

**2015** – Moorfields Eye Centre Abu Dhabi opens. Overall, we provide specialist ophthalmic care to over 640,000 patients from the UK and across the world.

**2016** – Moorfields turns 211!

## Understanding unexplained sight loss in children

Researchers at the Richard Desmond Children's Eye Centre (RDCEC) are carrying out new research to identify and support children with medically unexplained vision loss, supported by charitable donations.

The multi-disciplinary team is led by consultant ophthalmologist and principal investigator, Dr Annegret Dahlmann-Noor, and includes psychiatrist Dr Isobel Heyman and psychologist Dr Anna Coughtrey from Great Ormond Street Hospital.

This type of vision loss sometimes occurs when anxiety, such as stress at school or home, manifests itself in physical symptoms and children and young people start having problems with their eye sight.

The distress for children and their families is often

made worse by the difficulties they face in finding the cause for the loss of vision and the burden of undergoing a wide and repeated range of tests and examinations.

So called 'conversion disorders' - where psychological stress is shown in physical ways - are not well



understood and while not necessarily life threatening, symptoms can be debilitating and substantially impact the lives of patients. Even the prevalence of the condition is not known. Although clinicians at Moorfields see 50 to 60 children a year with unexplained vision loss, those working elsewhere have reported only seeing one case every 10 years.

## Update on recent appeals

Thanks to the generosity of supporters like you to our 2015 Summer Appeal, we raised a staggering £150,000 towards the purchase of a single cell separator to support pioneering research into a range of eye diseases, including eye cancers such as ocular melanoma and retinoblastoma.

The single cell separator is to be ordered shortly and fundraising to provide the necessary technical support is well underway. It will enable researchers at Moorfields and at its partner, the UCL Institute of Ophthalmology, to take their work to the next level by profiling the genetic structure of individual cells. This cannot be done with existing technology.

Ophthalmic consultant Mandeep Sagoo said: "I would like to thank all who so generously donated towards the funding of this amazing piece of equipment that I believe will help us to save the sight of many. The response has been fantastic – thank you so much!"



A single cell separator as funded by this appeal

Dr Dahlmann-Noor said: "Most children have a robust response to stress, and blurred vision returns to normal without help, but in some the vision problem may only be the first of several medically unexplained symptoms. I hope that the study will show us whether some children have underlying psychological problems such as anxiety or depression, enabling us to provide additional support as early as possible, restoring vision and preventing any other conditions from progressing."

# Wipeout study into people with glaucoma and cataracts

'Wipeout' is a very rare condition where people with advanced glaucoma experience a drop in central vision following cataract surgery.

In cases of advanced glaucoma, a large part of the edges of the visual field in one or both eyes is lost through damage to the optic nerve – the nerve that sends signals from the back of the eye to the brain. If these patients also develop cataracts, which affect the centre of the visual field, the impact on overall vision can be devastating.

Now a new study at Moorfields Eye Hospital on wipeout cases in the UK aims to give clinicians the data they need to help patients make a more informed decision about their care, based on the most up-to-date information.

For most patients, improvement of the central vision is easily achieved with cataract surgery. However for some, especially those with advanced glaucoma, this brings a hard decision between living with reduced vision and the risk that surgery may not improve their sight at all, but lead to 'wipeout' –



loss of central vision.

Moorfields clinician, Mr Conor Ramsden, says: "Patients with glaucoma and cataracts should not be unnecessarily alarmed. Wipeout occurs incredibly rarely. We just don't know exactly how rarely, with estimates ranging from less than one in 1,000 to around one in 100. We hope this research will clarify this and help clinicians to identify factors which increase risk and so assist patients in making decisions on deciding whether or not to have cataract surgery."

## Using MRI to understand the link between brain function and vision

For ophthalmologists, the eye's easily accessible position at the front of the head has enabled incredible research and treatment breakthroughs not possible for other areas of the body.

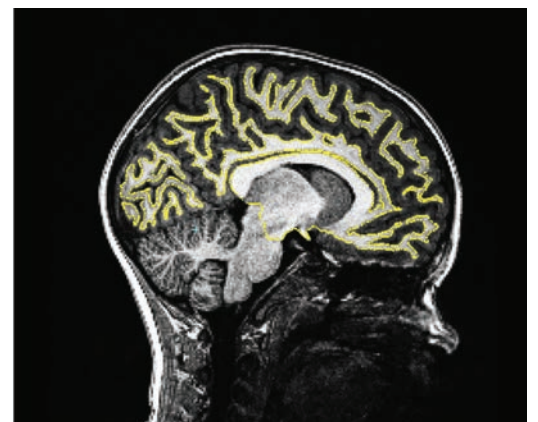
As understanding of the eye itself has progressed, researchers have also grappled with understanding the link between brain function and vision. Fundamental connections between eye and brain are formed in infancy and childhood. It is important to track the effects of eye disease on the whole visual system from the earliest ages onwards.

Researchers at Moorfields and the UCL Institute of

Ophthalmology are now using neuroimaging methods like magnetic resonance imaging (MRI) to develop a picture of what is a 'normal' visual brain. MRI uses magnetic fields and radio waves to produce detailed pictures of brain anatomy. It can also detect small changes in blood flow that accompany neural activity. This makes it possible to identify which information is contained in a particular brain region.

These images will allow clinicians to identify how and when visual brain function is altered as a result of disease or injury. This knowledge may also help to predict patient sensitivity to treatments at different ages,

so children receive the most appropriate intervention at the time it is most likely to have the greatest effect.



This is an MRI scan of a 7 year old girl's brain structures. The yellow line indicates the cortical surface – the boundary between grey and white matter in her brain. We use this to create a 3D reconstruction of the cortex.

# Marathon man

Inspired by the care he receives at Moorfields, **Steven Bastian's** Marathon des Sables feat raised vital funds for keratoconus research.



Steven Bastian set his sights high when he signed up to the Marathon des Sables. The race is a gruelling multi-stage adventure through one of the world's most inhospitable climates – the Sahara desert. Over six days, participants run the equivalent of six marathons, a distance of 251km, carrying everything they need on their backs.

"I've always admired people who push themselves physically and mentally, so I signed up, even though I'd only completed one official marathon before.

"Before the event, I trained four times a week, carrying

packs weighing up to 10kg – the greatest amount I'd have to carry. Hot yoga helped me prepare for the desert heat conditions, which could be as high as 50°C.

*"Even at the toughest times, I never felt alone"*

"Each marathon session began at 9 or 10am, meaning that we had to run through the hottest parts of the day. Although it was a huge physical challenge, the hardest barriers to conquer were those in my mind. The camaraderie of my fellow

competitors kept me going.

"Even at the toughest times, I never felt alone. There was even someone competing who only had 10% sight accompanied by a previous eight time winner of the event. It made me think that anything is possible."

So what made Steven decide to fundraise for Moorfields during this challenge of a life time? "I developed cataracts in my mid-20s while living in Australia. It was during the treatment that my clinicians realised I had keratoconus. When I moved to the UK, my Australian ophthalmologist told me that

Moorfields was the best place in the world to go for my rigid gas permeable contact lenses and I've been absolutely amazed by the work the team do here."

"My consultant, Mr Tuft, said there might be a genetic link in keratoconus, and I thought his research would be the perfect thing to fundraise for. I sent round my Just Giving page and the response was phenomenal – in total, I raised over £5,200! During the event, lots of people were inspired to donate again when they saw how difficult it was. It was fantastic.

"I work in a corporate environment, so it was really fulfilling to focus on something else. It's my greatest personal achievement and has inspired me to attempt other adventures."

Steven's fundraising supports research led by Mr Tuft and



Professor Alison Hardcastle at the UCL Institute of Ophthalmology. They aim to identify the genetic risk factors leading to keratoconus, improving our understanding of the condition's causes and facilitating early diagnosis. Determining the genetic basis of keratoconus will be a major advance and enable new treatments to be developed, avoiding the need for corneal

transplantation. Over 2,500 patients have already signed up for this genetic investigation, a significant breakthrough towards their goal.

If you would like further information or to make a donation to this research, please contact Hannah Bentley on 020 7521 4614 or [hannah.bentley@moorfields.nhs.uk](mailto:hannah.bentley@moorfields.nhs.uk).

## Corneal cross linking

Corneal cross-linking (CXL) is an important new treatment that can stop keratoconus progressing. It is used when the corneal shape is continuing to deteriorate, usually in younger patients, and prevents further vision loss. Moorfields is one of the only UK hospitals providing CXL and the team, led by Bruce Allan and Dan Gore recently carried out their 1,000th operation.

Beyond a certain point of corneal thinning, patients no longer benefit from CXL and it can be difficult to weigh up the risks of treatment against the risk of vision loss due to disease progression. To help patients and doctors make the best-informed decision, Dr Gore and his colleagues are developing a risk calculator that will predict the likelihood of one or both eyes deteriorating. The project is well underway with a risk model forecast to be ready in early 2016.

## Keratoconus

Focus on...

- Keratoconus affects approximately one in 1,000 people. The cornea becomes progressively thinner, causing a cone shaped bulge to develop. The change in shape, thinning and in later stages scarring, cause the cornea to lose transparency and impairs the eye's ability to focus properly.
- We do not understand the cause of keratoconus, although we know that genetics plays a major role.
- In the early stages, people wear spectacles or soft contact lenses. As the condition progresses, rigid gas permeable (RGP) contact lenses are used to correct vision more adequately. In very advanced cases, a corneal transplant may be needed.

## Help make it a record breaking year for Eye to Eye



Registrations for Eye to Eye, our sponsored walk, are pouring in. But we still need you to put on your walking shoes to help make it a record breaking year.

Over 500 people took part in the first Eye to Eye in 2015, but with preparations for this year's walk well underway, Moorfields Eye Charity wants even more people to sign up to raise vital funds for

Moorfields' pre-eminent research.

Event coordinator, Nico Mamelì, explains: "The routes are different from last year, and we've put a lot of planning into our post-event reception so our walkers get a fitting welcome. We're hoping lots of people will sign up and help make it a record breaking year for Moorfields."

Eye to Eye takes place on Sunday 13 March. There are two routes, a family-friendly four miles and 14 miles, taking walkers past the sights of London from Moorfields Eye Hospital to the London Eye. There is no minimum sponsorship, and people can choose where their fundraising

goes: to research into glaucoma, retinal disease, corneal disease, genetic eye diseases, age-related macular degeneration, paediatrics or wherever the need is considered greatest.



**Registration is just £12 for the four mile route and £18 for the 14 mile route. Under 12s go free with every adult taking part in the shorter route. To register, please fill out the form in this issue of Visibility, email [eye2eye@moorfields.nhs.uk](mailto:eye2eye@moorfields.nhs.uk) or visit [www.moorfields.nhs.uk/content/eye-eye-2016](http://www.moorfields.nhs.uk/content/eye-eye-2016).**

## Saddle up for Moorfields!

Moorfields Eye Charity has guaranteed places in RideLondon-Surrey 100, taking place on Sunday 31 July. If you'd like to cycle 100 miles on closed roads along the classic Olympic road race route, then please join our team!

We'll be with you at every turn of the pedal to make this an experience to remember, with plenty of training and fundraising tips to help you complete the challenge in style. To register, please email [ride@moorfields.nhs.uk](mailto:ride@moorfields.nhs.uk) or phone **020 7566 2486**.



## Raffle winners!

We are thrilled to announce the winners of Moorfields Eye Charity's first ever raffle. The top prize of £5,000 went to Mrs Rydqvist from Basildon who said: "I am overwhelmed. I never expected this to happen, I bought the tickets simply because I wanted to support Moorfields Eye Hospital's wonderful work."

Mrs Copland of Upminster won second prize of £750 and a further 10 others each received cheques for £125. Many congratulations to all our winners!

Over 6,500 people took part raising more than £70,000. These vital funds will enable Moorfields to continue providing the best possible eye care for its patients, as well as helping to fund ground-breaking research into new treatments for eye disease. Thank you to everyone who bought tickets.

**Further details about our spring draw will follow shortly or you can email [eyecharity@moorfields.nhs.uk](mailto:eyecharity@moorfields.nhs.uk) or call 020 7566 2565.**