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the Ophthalmologist

Enterprising Ophthalmology

Four people, three stories, one topic: entrepreneurship

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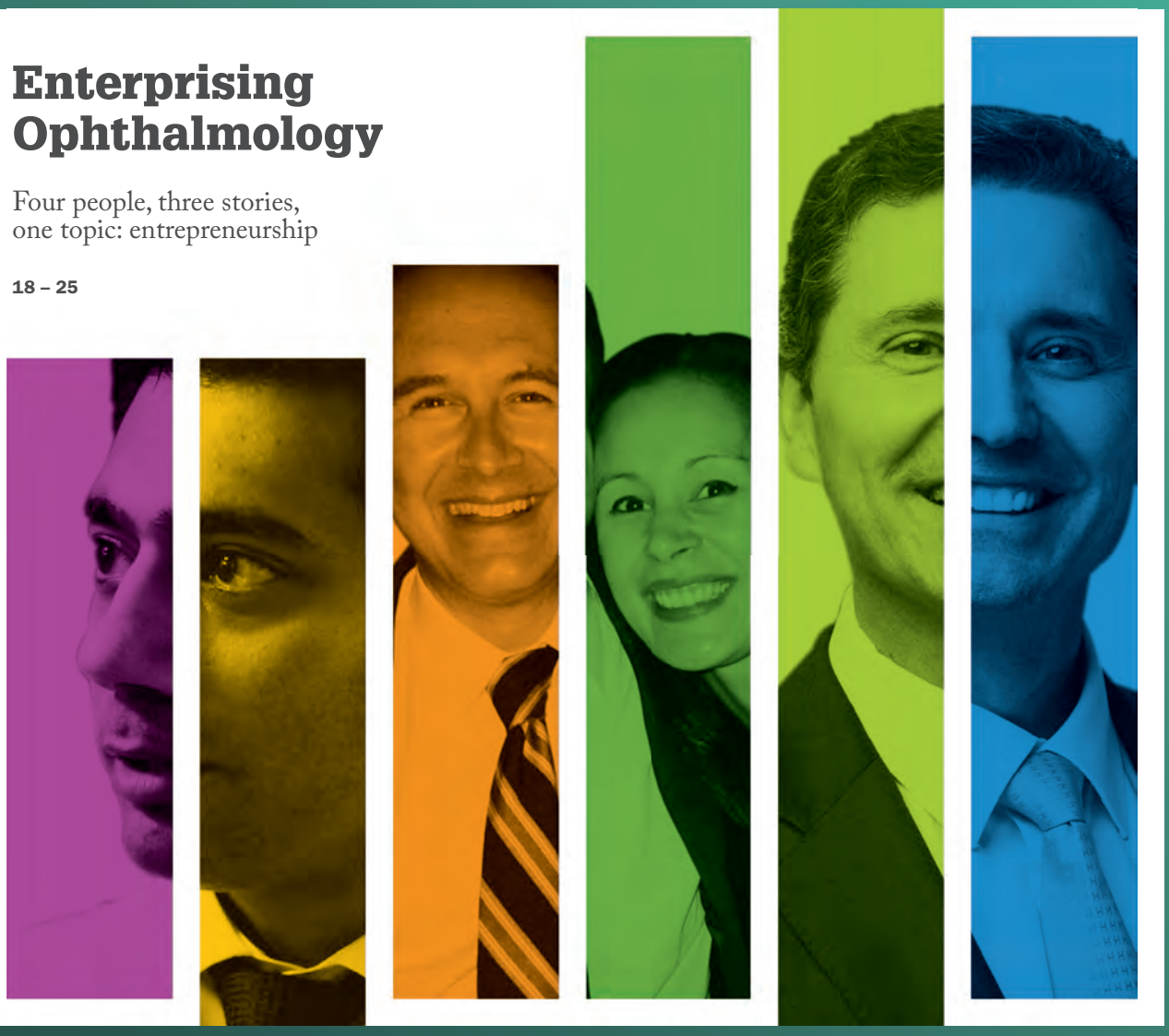


Frederik Raiskup

Frederik Raiskup is a senior consultant at the Universitätsklinikum Dresden's Department of Ophthalmology. He is a Fellow of the European Board of Ophthalmology and was awarded his *pro venia legendi* in the subject in 2014 by the Technische Universität Dresden. His interests include corneal, ocular surface and refractive surgery, with an emphasis on the study of corneal collagen cross-linking (CXL).

On page 28, Frederik shares his insight into corneal collagen cross-linking, and whether epi-on CXL is yet able to match epi-off CXL for the treatment of keratoconus.

Arthur Cummings

"I started my career in South Africa as a retinal surgeon, and developed a special interest in the anterior segment," says Arthur Cummings. Today based at the Wellington Eye Clinic in Dublin, Cummings is an internationally renowned expert on customized laser treatments having performed upwards of 25,000 LASIK procedures and 5,000 cataract and other IOL procedures. His research interests include refractive surgery, cataract surgery and corneal surgery for keratoconus.

Arthur shares his experience of running the Wellington Eye Clinic and developing and evaluating innovations that might shape the future of ophthalmology on page 22.

Bobby Qureshi

Bobby Qureshi a hugely experienced ophthalmic surgeon who likes to be at the leading edge of eye surgery, utilizing the latest techniques and equipment at the London Eye Hospital, where he serves as its Medical Director. He was one of the first surgeons in the world to perform partial-thickness corneal endothelial transplantation, and the first ophthalmic surgeon in the UK to receive a femtosecond laser.

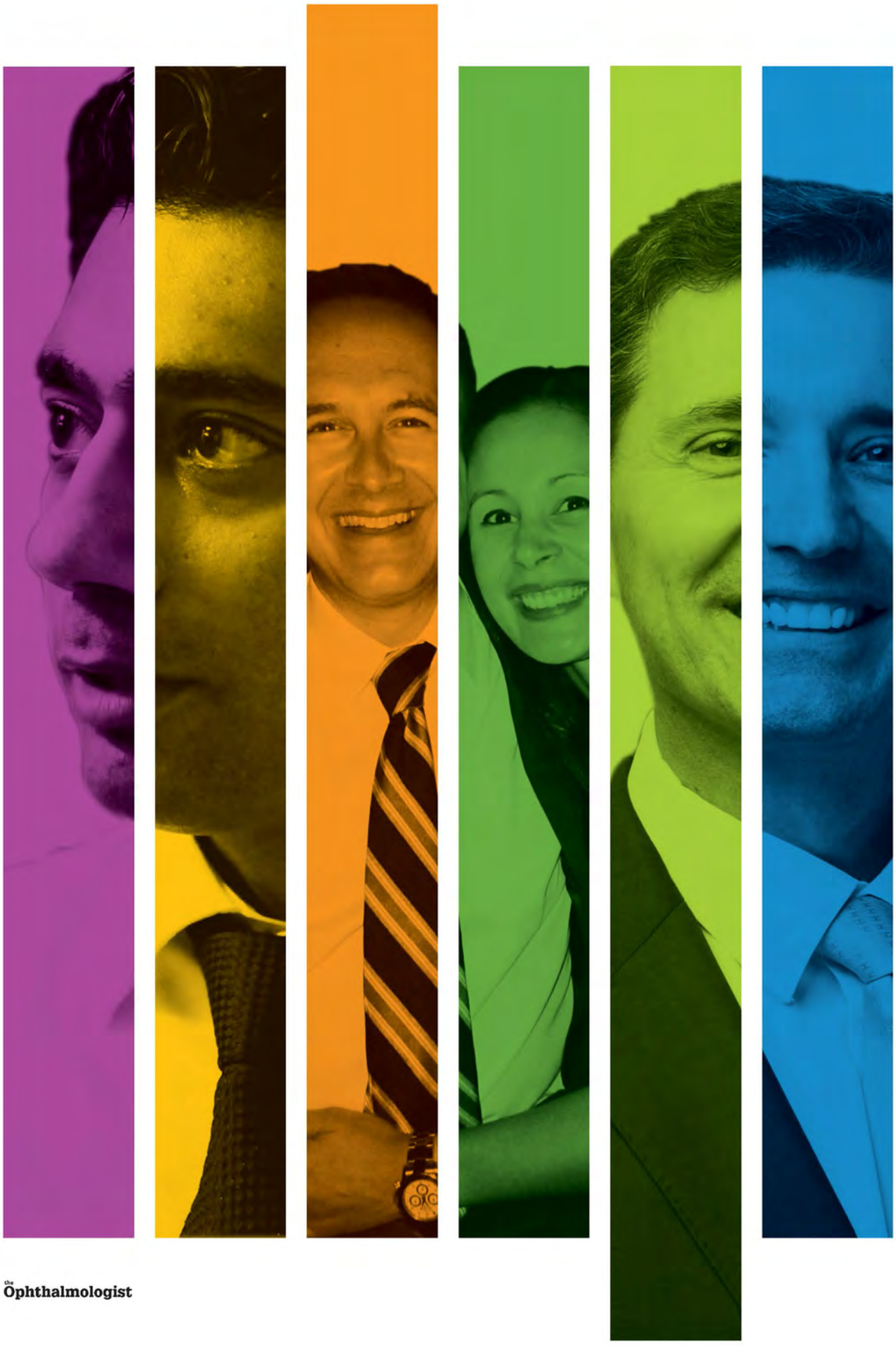
To read Bobby's story of building the London Eye Hospital, and his self-financed development of the iolAMD implant, turn to page 24.

Farhad & Nikki Hafezi

Instrumental in building IROC in Zürich, and the 2014 recipient of the Carl Camras award, today Farhad Hafezi is building a new eyecare and research facility: the ELZA institute. His clinical focus is on corneal and refractive laser surgery including irregular astigmatism, and on enhancing and extending the use of CXL.

Nikki Hafezi is the Managing Director and CEO of GroupAdvance Consulting and EMAGine SA, which provide business development and fundraising advice to companies in the medical technology field, and develops, manufactures and markets medical products to address unmet ophthalmic needs. Nikki is also in charge of the ELZA institute's business strategy and development.

Read Nikki and Farhad's story of how they approached building the ELZA institute on page 20.



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Enterpr Ophthalmology

Four people, three stories, one topic: entrepreneurship

By Mark Hillen, Roisin McGuigan and Michael Schubert

Ophthalmology and entrepreneurship go together well. An aging population means that there's a growing market, margins are good, and new drugs and technologies are continually being introduced that are transforming the way ocular disease is diagnosed and managed. Simply put, a lot of people want improved vision. If you can provide it better than the competition, there's money to be made.

Building a success story isn't easy, and there's no one right way to do it. We interviewed four people who have experienced considerable success within ophthalmology to hear their stories of building an eye institute (Nikki and Farhad Hafezi), running a successful and resilient clinic (Arthur Cummings), and making the leap from the NHS to starting an eye hospital, and designing, developing and marketing a new IOL design (Bobby Qureshi).

Nikki and Farhad Hafezi are a husband-and-wife team who have taken on the challenge of building a new eye hospital and research center in Zürich: the ELZA institute.

Nikki is in charge of ELZA's business strategy and development, and is also the Managing Director and Chief Executive Officer of GroupAdvance (fundraising and business development service provider) and EMAGine (developer and manufacturer of ophthalmic medical products).

Farhad serves as ELZA's Chief Scientific and Chief Medical Officer. He's also Professor of Ophthalmology at the University of Geneva, Clinical Professor of Ophthalmology at the Keck School of Medicine, at the University of Southern California, Los Angeles, USA, and was instrumental in building IROC, the Institute for Refractive and Ophthalmic Surgery with Michael Mrochen and Theo Seiler. Farhad is also one of the pioneers of corneal collagen cross-linking, being a great proponent of its use for the treatment of corneal ulcers.

Arthur Cummings is the Medical Director of the Wellington Eye Clinic, Sandyford, Dublin. A well-known congress speaker who has been involved in the development and clinical evaluation of many of ophthalmology's recent innovations, he shares his experience of not only building a highly successful cataract and refractive practice in Ireland, but of also surviving the storm of recent Irish austerity measures.

Bobby Qureshi was just finishing his training and about to start a Consultant position within the UK's National Health Service, when he founded the London Eye Hospital (LEH) in 2004, followed by London Eye Hospital Pharma in 2011.

In 2014, LEH Pharma launched iolAMD – a micro-incision, injectable telescopic implant that solved the big problems that held back earlier telescopic implants from a more widespread adoption. It could be the most successful new implant in history. He's also independently wealthy, and has never had to court or answer to investors.

Planning for Success

Nikki and Farhad Hafezi on….

How they decided to build a new ophthalmology institute, ELZA

Nikki Hafezi: There has been a paradigm shift in the mentality of young ophthalmologists in recent years. When Farhad was a young resident, he aspired to climb the traditional academic ladder. He obtained his MD/PhD, garnered fellowships, became a really good clinician and, with time, he was appointed chairman of a university clinic. Any ophthalmologist of his age group would agree that Farhad has achieved what many hope to in their professional careers.

Nowadays, his students and residents have different aspirations. There's more focus on work-life balance and on quality of life. While dreams of climbing the ladder are still present, the "new" generation have other criteria in their career development plans: innovation, economics and entrepreneurship. We know that income influences almost everyone's life, but it's not necessarily the most important factor anymore; people want a blend of quality of life, entrepreneurship, creativity, research, and clinics. They want it all, basically. Providing that will form the foundation of the ELZA Institute, which is on course to open in April.

The planning process

NH: We wanted to treat the future institute not as a private practice relying on a specific doctor, but as a business venture. The first consideration when building ELZA was its location in Zürich. Instead of having a private practice in the middle of the city center, we chose to go where patient demand would be the greatest. The northwest region of Zürich has a relatively low ratio of ophthalmologists to patients, and considering the building and expansion plans of the region, the population and industry are booming, that is where we decided to set up our first site.

Farhad Hafezi: Our second consideration was that we needed to focus on our social media and Internet presence. We know our patients are really plugged in. They read, research, talk to each other – and all of that communication is on the Internet. So we put a lot of effort and investment into our online presence to attract patients and build our referral network.

NH: We also needed to reserve time for good and valuable research. Why? We have a term, 4P, which stands for "podium power and peer-reviewed publications." We believe that 4P is just as important for sales as sponsorship or direct marketing efforts, especially in the medical field. Farhad, for instance, publishes good data; people read about him; he's onstage at congresses speaking about his research and clinical experience. So he's an opinion

maker, and at the same time, he's building research collaborations, increasing his referral network, and becoming more appealing to industry, which could be fruitful in terms of funding and collaborations. 4P relates to ELZA in that it will support research collaborations with other opinion makers in the field, indirectly support a referral network, and provide opportunities with industry, like directed research projects.

The most important element of the business plan is human resources. Identifying, recruiting and retaining the "right" employees are the most challenging tasks for any company. So what is ELZA's unique selling point to potential employees or collaborators? How can we attract the best and the brightest people? With much thought, we decided we want to offer the work-life balance that younger generations say they want – flexibility, competitive income, academic opportunities, creativity and a career future. This increases our chances of recruiting and retaining ambitious young ophthalmologists. And because these ophthalmologists want to balance the benefits of a private setting with the advantages of academia, we will provide lab space and research opportunities. In a nutshell, ELZA will offer them a clear career future so that they can better envision staying with us on a long-term basis.

Attracting patients to ELZA – ultimately, the referrer needs to keep their patients

FH: It's absolutely essential for private practitioners to have a referral network. The idea of "if you build it, they will come" is too risky in Zürich. While we hope that the location of the building will draw patients, we can't rely on it happening. So, we asked: why would a colleague refer a patient to us? What is our unique selling point?

One thing we will offer is the assurance that referrers will keep their patients. For example, a general ophthalmologist might have a long-term patient who develops keratoconus – but it may be intimidating to refer the patient to a subspecialist in case the patient does not return. This fear is one of the obstacles specialists need to address to build their patient referral network. Another important aspect is that specialists should provide good, prompt feedback. A referral network goes beyond just medical colleagues; opticians and optometrists often also spot ophthalmic disease, refer their patients to a specialist, and rarely get structured feedback. Therefore, I think the referred specialist should treat anyone who refers a patient with enough respect to provide feedback, regardless of whether the referring individual is an optometrist or a fellow ophthalmologist.

Minimizing the risks involved in building a new institute

NH: One of the most common pitfalls when building a company is to involve emotion when making decisions. From the start, we had to eliminate the emotion and ego aspects. We opted not to play the "famous professor" card; we didn't want to assume we'd immediately have patients if we just installed ourselves in the city center. We knew that the competition was much higher in the city than in the periphery due to the supply of specialists, not to mention the much higher running costs. We acted as if Farhad were a young ophthalmologist just leaving academia, and simply chose a location where the competition for attracting patients was much lower.

The possible obstacles in our business plan were: how can we obtain patients fastest? How can we reduce the obstacles for referring medical professionals to send their patients outside the city center? Where can we reduce our costs the most? If you had asked Farhad 10 years ago, he would probably not have considered setting up a private institute outside the city center, but now we know that we need to think outside the box to maximize the potential of the institute.

Funding the enterprise

FH: ELZA is 100 percent self-financed. At this time, no investors or shareholders are involved, for all of the good and bad that it entails.

NH: To pick low-hanging fruit, we're making ELZA as complete as possible. So we're starting with fully equipped anterior and posterior segment practices. We've hired a seasoned medical retina specialist who helped develop the current benchmark OCT technology. While Farhad's subspecialty is irregular astigmatism, ELZA will be more than happy to operate on patients with simple refractive errors. Farhad is a trained fellow in medical and aesthetic lid surgery, so ELZA will also offer these procedures. Ultimately, our institute will aim to be as comprehensive as possible, even offering pediatric ophthalmology services, to improve its chances of success.

Regarding equipment and infrastructure, it's important to us that we're equipped with a state-of-the-art excimer (Schwind AMARIS) which will be fully available for use from the opening of the clinic in April. In terms of cataract surgery, discussions are underway to decide on the best option for both the patients and the institute.

The lasers aren't the only expensive items, though – ELZA has purchased the full spectrum of anterior and posterior segment OCT technology, Scheimpflug and Placido-based corneal topographers, and instruments for fundus photography and visual field examination. Good practice management software isn't cheap, either, but it's worth it to create a network that will allow future growth. The renovation and construction costs for ELZA's brand new building were high, but we believe our decisions will make ELZA an institute that's built to last.

Juggling projects and finding time to relax

NH: On a more personal note, the daily grind can be exhausting. Farhad and I are also active parents of two young daughters, so we try to keep a balance between work and family. Anyone who knows us probably knows our daughters because they have frequented many meetings in the past. Some people think we're crazy to work together and involve the kids, but honestly, we wouldn't have it any other way.

Focusing On Fundamentals

Arthur Cummings on…

Building a successful practice…

There are no shortcuts. If you want to build a successful clinic, you've got to do it right. You need to start with a good, solid foundation laid by good clinical decisions in the best interest of the patient – you can't focus on generating income. I have a clinic manager who takes care of the business; he makes sure we stay afloat, especially in tough times. But all of the clinical decisions are mine. I have no problem seeing 10 patients a day and referring nine away because they aren't good candidates. I make my decisions based on the patient's suitability, and it's not an issue if we don't treat everyone we see. I've not got anyone looking over my shoulder saying, "Hey! We didn't get enough patients today!" Why don't we have a high-pressure selling environment? Because we operate on word of mouth. It's the most valuable thing a practice can have. But there is only word of mouth if the patient's experience is consistently good.

As for the last few years of austerity, I suppose our biggest feat is surviving. It's been tough in Ireland, no question about it. But we've got through it well and things are definitely turning around. One thing we learned from the recession was that we needed to diversify more. We were doing an awful lot of LASIK and less intraocular work, but I think now the balance is about half and half.

We also put emphasis on following outcomes. When our general manager, Ed Toland, joined us he asked me what our conversion rate was and I asked, "What's that?" What you don't measure, you simply don't know. Now, we let the numbers talk. We have a very good idea of how we drive nomograms for LASIK, or of what's working in our clinic and what isn't. When we try a new procedure, I'm not the judge; the patients are. If enough of them are satisfied, we keep doing it, and if they aren't, we stop. It's not rocket science, just good clinical practice.

We treat people individually – we don't have a protocol to work through. We sit down and listen, then give them the best advice we can. If someone isn't a good candidate for LASIK and there's an alternative, we offer that too. It's always good to have different solutions available. Also, I think something that's quite unique for a big surgery like ours is that I see all of our patients preoperatively, perform the surgery, and follow up with them postoperatively too. I don't just do the surgery and let someone else do the rest; I stay heavily involved. So we actually work in a small, country practice style, just on a bigger scale.

My advice is, to be successful, focus on your patients and their experience in your clinic. Do that properly, and the rest will follow.

… and promoting it

We've tried traditional marketing, advertisements and so forth, but we didn't like the way it worked. We got some people who would come in because they'd seen our advertisements, but they weren't really interested. For me, it's all about word of mouth. If you make decisions based on your patients, eventually you'll build a base of patients who would use you again and recommend you to others. About 30,000 patients have had LASIK in our clinic, and the vast majority are good word of mouth proponents because they've had a good experience. That's how we build our reputation.

Alternatively, if your patients are unhappy, word of mouth can turn against you – negative comments spread farther and faster than positive ones. In terms of online restaurant reviews, one critical comment can negate 11 good reviews. If you don't do things right, word will spread quickly, and you will not be successful.

Investing wisely in new technology

We're always on the lookout for new innovations that could benefit our patients. Our mission statement says that patient satisfaction is our top priority. When something new comes on the market, I ask, is it interesting, and is the science behind it reliable? If the answer is yes, I'll usually speak to the company's CEO or CTO, and find out how it works and who's used it before. It's important to get as complete a picture as you can before you invest your time and money. Even then, you need to be careful not to make promises to patients that just aren't true and have not yet been validated. We'll only make a final decision to try something if we have a need for it – if it will benefit our patients or our practice, rather than just buying it as a toy.

We're not always the first to adopt new ideas. Often, we'll note new technologies early on and keep an eye on their development. I was very slow to come on board with femtosecond lasers, for example. At first, all they were doing was making flaps, and I couldn't see the value. But they developed into a fantastic cutting tool. When femto started doing things like channels for rings, pockets for corneal inlays, and penetrating and lamellar keratoplasties, it became a much more interesting option. I got my first femto in 2010, about a decade after they entered the market.

If you want to try new things, they've got to make economic sense too. So when I want to try something new, I run it past my clinic manager and say, I'm thinking about this new technology and here is the cost, and because he understands the field, he won't just look at the monetary return. He'll look at what it could do for the clinic, and for the patients. Technology may be expensive, but it might also offer your patients more options and add to their perception that your clinic always does its best.

The next (potential) purchases

Cassini is a very nice tool that I've enjoyed getting to know over the past year, and I'm thinking seriously about getting SMILE; I've been hearing a lot of good things about it, and I think it's going to be part of the future. But some of the things I'm most excited about at the moment are actually homegrown projects. Our clinic has a very strong academic link, despite being private. Someone who's had a big influence on my interest in science is Michael Mrochen. He'll say, "Hey, look at this cool new idea; what do you think?" and we'll go through it from a clinical perspective.

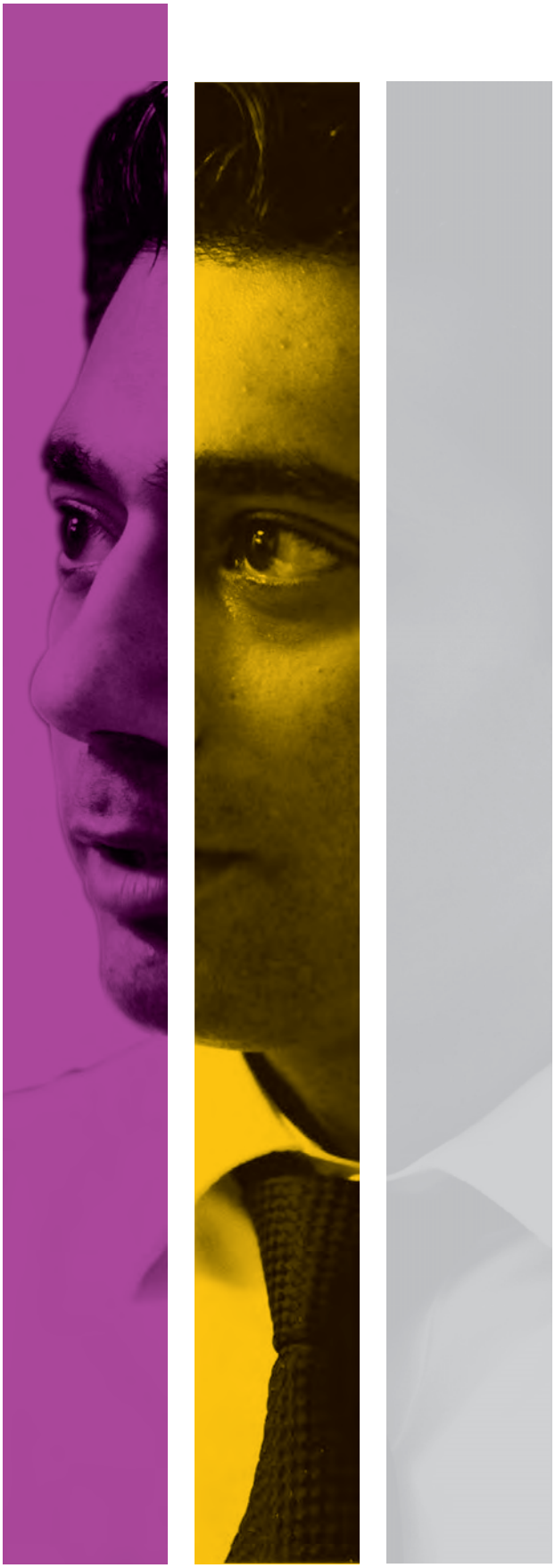
Some things we're working on now include an ocular biometer that combines a Purkinje imaging method with an OCT device to measure many aspects of the eye, including things like posterior cornea and the geometry of the anterior and posterior crystalline lens, which gives us really precise predictions of IOL power. So this device has the potential to make it much easier to choose a lens, even with difficult eyes. Michael presented some of the preliminary results at Winter ESCRS recently.

Another example is a device capable of mimicking any optical solution – any through-focus curve. It can therefore allow the patient to preview any trifocal, bifocal or extended depth of focus IOL, as well as other presbyopia solutions. So in theory the patient arrives in the clinic and puts this helmet on, and it gives them a live view – not a simulation – of what it would be like to look through any optic before they make a decision; it gives the patient a better idea of what to expect. It's all about managing expectations, as any refractive surgeon would be well aware.

Keeping things interesting

Back in South Africa before I relocated to Ireland, I had a senior colleague say to me, "You know, your enthusiasm is fine, but you've only been in practice three years. Wait until you've been doing this 10 years – you'll be as bored as anything." And I thought to myself, it's taken me a long time to get here; I don't want to get bored!

I've discovered that the best way to stay engaged and excited is to always be involved in the search for the next solution, the next leap forward. The entrepreneurial, start-up side of my work has kept the day-to-day much more fun. If you go in every day and think of your work as just a job, then maybe you'll get bored. But if you're continuously looking at new things, evaluating them, considering them, discussing them, it keeps things interesting. So I love the research side of my work – it's fabulous. It breaks up your time in the clinic so that when you do see patients, you're fresh and enthusiastic. It's so important to enjoy what you do.



What You Can Achieve... When You Believe in Yourself

Bobby Qureshi on…

His beginnings

I've always been a geek. I grew up watching Star Trek, playing video games, learning how to code computer programs, and building my own telescopes. I went to medical school at the University of St. Andrews, then Guys and St. Thomas' Hospitals. My father wanted me to become a cardiologist, but I had such a good time during my ophthalmology elective that I knew it was for me – I'd do ophthalmology or I would leave medicine. I did my PhD in Liverpool and my training at Moorfields Eye Hospital. From there, it's been natural for me to combine my two passions – technology and ophthalmology.

I've always gone my own way and I've never given in to criticism. I am happy to listen – but I find that everybody just wants to look backward and find reasons why things can't be done, rather than look forward and find ways to make them happen. There's no such thing as "impossible!" I think underlying it all is the fact that I believe I can do this, and this confidence allows me to take calculated risks beyond other people's comfort zones.

Setting up the London Eye Hospital

During my time at Moorfields, I conceived the idea of forming my own hospital. I feel like too many people just get through the day, do their job and go home – they're not giving the best they can, and putting their heart into their work. I can't believe I spent 25 years with the UK National Health Service (NHS), I really felt it drained me of my energy and enthusiasm; I left for good in 2011. It is a great organization with so many brilliant people but they aren't always appreciated and sometimes treated badly by the people who run it.

I wanted to show people how it could be done, when all you had to do was what's best for the patient based on your experience – without having to consider cost, internal politics, mainstream practice. That's what I believe I've created with the London Eye Hospital (LEH) – the best technology, the best doctors, and the best service possible.

This may sound odd, but when I first set up LEH, I didn't have a business plan, or even a strategy for breaking even. My main goal was to have the best technology and facilities I needed, and I did whatever it took to create my ideal practice. I simply wanted to create the best eye hospital in the world. For years, it cost me huge amounts of money, but I kept funding it because I believed in what

I was doing. Now the tide has turned – I own a very profitable organization that is still based on my original principles. Our patients appreciate that we don't compromise on anything; we just offer the best treatment available anywhere in the world for their individual case using state-of-the-art equipment and facilities and the most experienced surgeons.

Innovation

I want to keep pushing boundaries, trying anything that is innovative and could benefit my patients. A lot of people bring new ideas to me now because I have a reputation for trying them – though I choose carefully; I have to believe in their potential. Some people may think we're out on a limb, and I've drawn criticism from my colleagues, but time has already shown us that with some of the technologies we try, others follow. I remember purchasing my first first femtosecond cataract laser – the first one in the UK. I believed they were the future – and this year will see the first NHS hospital get one – so many of the things we do are just ahead of our time. We have things in our pipeline that sound like science fiction – but they are the future, and I believe the whole world will follow.

Ultimately, I think our dedication to innovation and trying the latest techniques and technologies means we can offer our patients a bespoke service – you need to try everything out there to find the best treatment. So that's what we do – the best that can be done. We aim to provide every option there is, from the cheapest to the most expensive. And we aim to know our patients – their hobbies, their sports, how big their computer screens are, how close they sit to the television, how often they drive. We don't consider value for money; we just offer the best possible treatment for that patient.

Developing iolAMD

I first had the idea for iolAMD in 2007. I've implanted a lot of different lenses at LEH, including telescopic ones for AMD. I was one of the first to implant the IOL-VIP, I believe I implanted the first IOL Revolution, and I've implanted hundreds of each – but both had issues. They were huge lenses, requiring a 7 or 8 mm capsulorhexis (which isn't easy, even with a femtosecond laser), and the surgery took a long time. You have to put several things into the eye, then fix them together like Lego – it's a nightmare. I felt that it was fundamentally flawed, and it was never going to take off. I can't have been the only person in the world who thought there must be a better way to do this.

Dry AMD is the biggest untreated ophthalmic need in the world right now, and we had no suitable treatment options. Until stem cell therapy and other therapeutics arrive, our only options are optics and vitamin supplements. Therefore, creating the iolAMD was the greatest opportunity I could see – a lens based on a simple Galilean principle, updated for the 21st century. It's foldable and can be inserted through a small incision. The total procedure, including cataract extraction, takes less than 10 minutes, and I believe it provides high-quality vision for patients with AMD.

I couldn't believe no one else had done it yet – the market is huge, it's phenomenal. I knew that creating something that can be done at the same time as a routine phaco procedure, without additional risk, that conveys extra benefits to patients with AMD would be huge. In potential revenue and sales, it's billions of dollars.

Assembling a great team

I know a lot about optics, so I could model the lens myself, but I needed other people to fine-tune it for me and work on other aspects of developing it. I had learned from my experiences with the LEH and wanted to find the best people I could. I already knew Pablo Artal from our work with Calhoun Vision's Light Adjustable Lens – and at first, he said it couldn't be done. But I wouldn't let it go because I knew it could, and eventually he gave in.

I met Rob Hill, who was a partner in the company that introduced the IOL-VIP to the UK and had a lot of knowledge about telescopic lenses. I knew I wanted him to work with me on iolAMD. So I built a great team, including scientists, managers and lawyers, but I wouldn't take any investors. I didn't want to lose control of what I was doing. The last thing I wanted was someone telling me what to do because they gave me the money to do it.

A £500,000 training exercise

Next, I needed to learn about the regulatory process, which is where the vitamins LEH Pharma sells come in – I wanted to make the best-quality evidence-based product in the world. Not only do they add to the AMD products available, but also they were a relatively cheap way to learn. To take a drug through regulatory processes can cost you tens of millions, but taking a vitamin through the regulatory and commercial processes costs maybe half a million, which is why I chose it. I learned so much with that half a million.

That's why I set up LEH Pharma, opening with iolAMD and with a lot more ideas in the pipeline – although I can't talk about them just yet! I plan to continue to develop my pharmaceutical business on a timeline that introduces new products every few years.

Believing in yourself

To anyone looking to bring their own innovation to market, I'd say: don't listen to anybody. People will either pull it to bits, or tell you it's amazing when it actually can't be done. So many times, I've said I'm going to do something – like launch a range of vitamins, or build my hospital, or create a lens for AMD – and people simply didn't believe me. Now that I've done it, people have to believe me. I think if you have an idea and you really believe in it, go for it, no matter what anyone says. Worst case scenario, it won't work out, but you'll learn so much in the process. And next time, you'll do even better.