Life changing research leading to the prevention, treatment and cure of vision disorders

Joint Research & Development Strategy
2013-2020
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Moorfields Eye Hospital (MEH) and the UCL Institute of Ophthalmology (IoO) are recognised as a world-class centre of excellence. Together, we form one of the largest ophthalmology and vision research partnerships in the world, with access to a sizeable and diverse patient population. We are the most productive ophthalmology and vision research partnership in the world, publishing more papers than any other centre over the last decade\(^1\). Major research breakthroughs include the first human ocular gene therapy, the development of novel surgical and anti-scarring approaches to enhance the success of ophthalmic surgery, advances in cellular therapy for eye disease, and the identification of numerous genes and mutations that cause eye disease.

The aim of this document, prepared collaboratively by both institutions, and with wide external consultation, is to outline a joint strategic path for future research at Moorfields and IoO to ensure that we optimise benefits for those with or at risk of eye disease up to 2020 and beyond. This path will ensure our continued pre-eminence in the field, and maintain our great beneficial impact on patients up to 2020 and beyond.

“\textit{We need to focus on where we want to be and how to get there, but there will be waves of opportunity which we must be agile enough to exploit.} \(^2\)\)”

The strategy aims to give clear direction at the same time as enabling us to respond quickly and ably to new developments and opportunities. It recognises the strengths of working in partnership and the need to attract and grow premier research talent, as well as the importance of a streamlined well-resourced environment that draws in and exploits global research, and drives innovation. This will shape the future of how to prevent visual impairment and change the lives of patients around the world.

\(^1\) McKinsey 2003   Boston Consulting Group 2013
\(^2\) All quotes are from interviews undertaken in the preparation of this document
2.1 Vision statement

Our joint vision for research and development is to continue to be world leading in eye-disorder prevention and treatment by conducting fundamental research and translating it rapidly through to benefit people by:

- Focusing on world-leading high-patient-impact research programmes and, in parallel, strengthening our fundamental research base
- Attracting, training and developing premier research talent, to drive research discovery and innovation
- Developing an integrated culture to foster an inspirational environment for collaborative research to boost innovation
- Heading some of the largest, world-leading partnerships with other institutions and organisations, including charities and industry, to bring complementary skills to bear on some of the most challenging research questions

To achieve each of these elements, the following are key:

- Attracting resources by delivering outstanding value for our funders
- Integrating healthcare, research and education to drive synergies between all three areas of activity
- Providing sustained investment in research
- Embracing the challenge to grow in international excellence
- Establishing world-class infrastructure that includes state-of-the-art research facilities, techniques and equipment and a comprehensive informatics framework
2.2 Joint Ambitions

The importance of a joint strategy cannot be overstated. Many researchers and others, including government and funders who helped develop the strategy, emphasised the increased opportunities for success arising from leveraging collaboration between fundamental, translational and clinical science, with outstanding laboratory and clinical research scientists. Globally, the UK is uniquely placed to exploit these opportunities to maximise the impact of translational and other research ultimately for patient benefit. Our public and patient involvement programmes are a valued way to engage with a wider audience and will have a key role in driving, participating in and benefiting from future research.

The vision statement above (2.1) outlines our specific ambitions. The challenges that these pose and the strategic goals to tackle them are detailed below. We will target glaucoma, diabetic retinopathy and age-related macular degeneration as well as inherited eye disease and growing activity in other rarer conditions that have potential for life-changing diagnosis and therapy, as driven by opportunity and local expertise.

Targeted development of enabling therapeutic and diagnostic platforms, including cell therapy, gene therapy, drug delivery, imaging and informatics will be a high priority. In particular, we have identified the need for the strategic deployment of a comprehensive informatics system such as OpenEyes to access clinical information as a research tool in its own right and to accelerate patient selection and greatly increase efficiency and success rates in clinical trials and other research studies. We also need to build our capacity to deal with and analyse these so-called “big data”.

Critical success factors are research talent and funding, as they are pivotal in providing the basis on which to conduct high quality, impactful research. These are discussed in detail later in the document.

The strategy highlights the need to be agile and flexible to respond to at least two high potential fundamental research areas where we are not currently leading but where strategic investment would enable advances.
An illustration of how strategic decision-making will be approached is captured in chart 1.

**Chart 1 - Strategic Decision-Making Matrix.**
### 3.1 Moorfields Eye Hospital and the UCL Institute of Ophthalmology

Together, we constitute the world’s most successful hospital-university partnership in ophthalmology, with numerous examples of pioneering research across a broad range of diseases and themes.

Moorfields has a worldwide reputation for excellence. It is the world’s longest-established eye hospital: it has been providing eye care to the community for over 200 years. It was one of the first 10 NHS foundation trusts (FTs), achieving FT status in 2004. In 2007, the main City Road hospital developed the world’s largest children’s eye centre. In addition to the main hospital, Moorfields has several other hospital- and community-based facilities around the capital. It is the largest specialised eye hospital in Europe and the USA: the latest annual figures show 82,000 attendances in A&E, 415,000 out-patient attendances, 32,000 inpatient and day cases, and 10,000 therapeutic laser treatments\(^3\). In 2009, Moorfields became a founding member of UCL Partners, which was subsequently accredited as one of the UK’s first five Academic Health Science Centres (AHSCs), with a declared tripartite mission in clinical delivery, research and education. More recently, UCL Partners has additionally been designated as an Academic Health Science Network.

The UCL-IoO is one of the world’s largest and most successful eye and vision research institutions. It has consistently achieved the highest scores in successive University Research Assessment Exercises and was awarded the Queen’s Anniversary Prize in medical research for Higher and Further Education in December 2011. This is the UK’s highest form of recognition for academic or vocational institutions. The Institute is part of the Faculty of Brain Sciences which is one of four faculties that form the School of Life and Medical Sciences. UCL itself (University College London) is a multi-faculty university, and its many other research areas serve to enrich the IoO’s own research. Particularly relevant are the outstanding science bases in biomedicine, computing, engineering and life sciences. UCL has the UK’s largest concentration of clinical research output that is assessed as “world-leading”

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\(^3\) Research Assessment Exercise 2008
and as a whole is regularly ranked in the top 10 universities in the world\(^4\).

### 3.2 Challenges and opportunities

We are currently in a position of strength: collaboration is closer than ever before, with several top-ranking research groups. Over the next eight years, we will find ourselves in a changing environment – one that presents both challenges and opportunities. The close collaborative relationship with our AHSC will provide opportunities for more innovation as UCL Partners develops its Academic Health Science Network activity, which includes a remit for the application of research for public benefit and health system reform and development.

The challenges will include a heavier burden of eye disease, greater financial constraints, and increasing competition from other eye research institutions (with a consequent battle for talented staff). Opportunities will include the development of key projects, attracting and developing outstanding investigators, intensification of partnerships, and increasing emphasis on an integrated culture.

A joint R&D strategy that addresses these challenges clearly and exploits the opportunities is essential if we are to remain at the forefront of delivering better visual health for patients.

### 3.3 Research Culture

The cultural environment is important in understanding our approach to the strategy-making process. We have a very wide stakeholder group ranging from patients themselves, through a variety of medical and clinical staff and funders to, of course, the researchers and their wider teams. The level of sub-specialisation in vision research is large, with categorisation by regions of the eye, position along the visual pathway or by methodology (i.e. genetics, stem cell therapy, immunology etc). Additionally, the research community generally splits between fundamental / pre-clinical research which by its nature tends to be more exploratory, speculative or 'blue sky'; and the more translational, clinical and applied research generally involving patients.

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\(^4\) UCL 4th in the world in the Times QS rating 2013
Whatever the type of research, researchers themselves have been characterised as very determined, individualistic and associating more strongly with professional groups than organisations. Fundamental scientists tend to be more driven by publication success as this is the gold standard of success, whereas translational researchers are generally more motivated by increasing patient access to better therapies, diagnostics and preventive / quality of life interventions.

Competition for resources is high and the research culture is one that is quick to exploit opportunities. The tolerance for management and bureaucracy is relatively low, with the exception of ethics, peer review, governance and legal requirements. This combination of factors means that there is a fairly well developed sense of competition within research communities.
4 Strategic areas

4.1 Research focus

Focusing on a number of world-leading high-patient-impact research programmes, while also strengthening our fundamental research base

Over the last decade, the links between Moorfields and IoO have strengthened, and the number of investigators has increased. The combination of investigators, facilities, dialogue and our large patient base alongside a growth in funding and the number of high-calibre, world-leading groups has made it possible to increase the research areas covered.

For us to continue our R&D success, we must have a world-leading presence, particularly in the major eye diseases. Size and resource constraints mean it would not be realistic to be a world-leader in all areas but there is an internal consensus that some specific areas should be strengthened (e.g. medical retina, imaging). The current variability in output between different areas is confirmed by analysis of publications in 2011, where we lead in some areas (inherited, gene therapy and regenerative medicine), but not others.

“ It is the absolute peaks of excellence that create the reputation of the institution.”

4.1.1 High-patient-impact programmes

Looking to the future, there is a view that we should concentrate resources mainly on specific programmes and teams led by exceptional Principal Investigators. Priority will go to programmes related to glaucoma, age-related macular degeneration and diabetic retinopathy, with cross-cutting research modality areas such as genetics and gene therapy, cell and other regenerative therapies, pharmaceutics, devices,
and inflammation remaining key to the research themes. Rarer diseases, including inherited eye disease, will continue to feature strongly where there is strong track record or resource of patients and the prospect of significant improvement in diagnosis or treatment. Selection will be on the basis of the programmes’ likely impact – benefiting the greatest number of patients or holding out the most promise for paradigm-shifting breakthroughs in prevention and treatment. This does not preclude other areas of research, but these considerations will strongly guide strategic decision-making.

Concentrating on a select set of high-patient-impact programmes will:

- help to attract and retain the best research staff
- provide direction for R&D across the joint institution and act as an organising force to develop an integrated culture from discovery science to health-services research
- be attractive to funders and other partners, because these programmes have the prospect of delivering the most value

**4.1.2 Fundamental research base**

To ensure that we continue to shape the future of eye disorder prevention and treatment, we will further strengthen our fundamental science research base. We will focus on those areas where we already have world-class expertise or where the potential for long-term impact is greatest, and where funding opportunities are likely to be available.

Basic science research is crucial for innovation, but the payback takes time: it takes an average of 17 years to turn just 14% of original research to the benefit of patient care. We can surpass such rates. What sets us apart is our strength not just in research but also the integrated infrastructure from bench to bedside. We have further

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5 Green et al. *Ann Rev of Public Health* 2009
opportunities for creating mechanisms to enhance the “pull-through” from fundamental science to clinical benefit.

**Goals: Research focus**

- In 2020, be world leading (as measured by h-index over prior four years) in four research programmes addressing glaucoma, diabetic retinopathy, age-related macular degeneration and rare diseases

- Selectively build internal capability in fundamental research areas where we have world-class R&D

- Identify two high-potential fundamental research areas where IoO is currently not a world leader to invest in strategically for the long-term
  - review after four years, and refocus if appropriate

- Ensure strong “pull-through” from fundamental research by emphasis on our biomedical research centre (BRC) and other support for high potential translational areas

- Establish a mechanism to track progress regularly against this goal

**4.2 Research talent**

*Attracting, training and developing premier research talent, to drive research output, discovery and innovation in new treatments*

Our reputation has been established through the work of the researchers who have been and are based here. The intellectual capital of our staff is our most valuable R&D asset: without researchers there is no research.

We face an ever more competitive international market for research talent. For us to retain our top-ranking position, we need to identify the talent requirements for our chosen strategic areas, and then attract, train and develop those select researchers. These plans will link to the Moorfields education strategy and Institute talent management programmes.

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6 *Programme* is defined as a coherent set of research projects led by either a single Principal Investigator or a small team of PIs working closely together
We must attract the best people with a combination of our brand, facilities and excellence; we also need to ensure we have the funds and processes in place to move quickly.

**Identify talent requirements**

4.2.1 A fully joined-up approach is needed across Moorfields-IoO, as many posts are joint appointments with both clinical and research elements. A priority is to identify where we need to grow and the individuals who will make that growth happen. A regular forum and agenda for discussion should occur to ensure we meet future needs, including succession.

**Attract premier talent**

4.2.2 We will recruit crucial research talent at all levels of seniority to support our main strategic areas. In addition to having outstanding scientific abilities, we will value the ability to collaborate internally and externally.

- We will structure clinical fellowships in an appealing way, and allow sufficient time for training and research.

- We will create junior investigator positions and advertise them effectively to attract top candidates.

- We will ensure we have adequate infrastructure, space and facilities that can be rapidly mobilised to attract this talent.

- We will seek to ensure that positions will offer initial job security and some flexibility between research and clinical training. Additional privileges or benefits will be awarded to high performers.

- Key strategic senior staff will be head-hunted and offered customised packages as appropriate. This hiring process will involve close alignment between clinical and research areas and also a nimble funding mechanism to provide start-up for the successful candidates.

- To secure the desired increase in the number of investigators, a concerted and
ambitious funding programme will be needed; this will continue to be supported through philanthropic fundraising.

4.2.3 Retain and develop the staff

A differentiated approach will be taken to retaining and developing research staff, and reinforcing a high-performance culture. It will involve regular evaluations of potential and performance. The high-performing staff identified in this way will be supported, stretched and developed, and the low-performing staff will be supported via performance management.

Roles should be designed to help individuals maximise their potential. This is particularly important for clinical fellowships, as this group provides huge value in supporting current research efforts, and represents a key source of our future investigators.

4.2.4 Engage and affiliate

We will strive to engage and inspire current staff, as well as build affiliations with alumni. To that end, we aim to make everyone in the organisation feel part of a communal endeavour to realise the vision and drive the high-patient-impact programmes. Senior Investigators can play a pivotal role in reinforcing this effort. We will also seek to retain the loyalty of, and build strong affiliations with, those of our investigators who move elsewhere, as they could be the collaborators, returning colleagues, or donors of the future. Our critical role in ensuring that eyes and vision science and clinical ophthalmology remain a national and international priority will be emphasised and supported with infrastructure.

Goals: Research talent

Identify & attract

- Attract the best research talent to drive research output, basic discovery and innovation translating through to patient benefit
Establish a pro-active joint process to identify priority appointments, agree on candidates and have the executive power to create joint posts.

Ensure that at least 75% of new research and clinical academic appointments over the period are strategically aligned with the high-patient-impact programmes.

Attract fellows capable of generating their own funding.

- Develop a plan to fund appointments flexibly.
  - If the researcher's clinical planned activity fulfills a trust need, then the post is jointly funded; if not required, the post is fully funded by the joint R&D budget across the two organisations.
  - Create a substantial joint fund to facilitate rapid funding of exceptional key senior staff appointments.

- Prioritise the opportunity to re-design posts jointly to attract:
  - Junior investigators: guaranteed initial funding with flex between research and clinical training to maximise productivity. Funded support starter schemes including studentships for the highest-performers.
  - Clinical fellows: define and implement clear standards, to ensure that sufficient time is allocated to research and training.

**Retain and develop**

- Co-create mentoring, support and development methodologies for junior investigators to dovetail with the emerging educational strategy, demonstrating our world-class commitment to research excellence.

- Develop an R&D staff talent-management approach that links across Moorfields and UCL. Develop informative key performance indicators (KPIs) to guide evaluation, future training and expected future trajectory.

- Increase support to junior academics for investigator awards – aim to increase successful applications by 25%.
**Engage and affiliate**

- Establish an active alumni network with, for example, quarterly newsletters and alumni events at conferences

- Play a pivotal role in the global development of investigators, and promote opportunities to work here and in other leading centres. Ensure a cycling and flow of talent through the organisation which will nurture and share knowledge on a global stage, fostering collaborations of the future.

**4.3 Innovation through integration**

*Developing an integrated culture to foster an inspirational environment for collaborative research to boost innovation*

**4.3.1 Collaborating within Moorfields-IoO**

Both Moorfields and IoO are top-ranked internationally as stand-alone institutions. When viewed together, we are world leading in respect of publications and h-index. We have collaborated more closely over recent years, encouraged through formal mechanisms (such as reciprocal representation on each board) as well as through informal relationships. The establishment of the National Institute for Health Research (NIHR) Biomedical Research Centre (BRC) and the identification of theme leads as well as joint teams in disease areas have further strengthened the links between our two institutions.

There is the potential for even stronger internal collaboration; 91% of Moorfields and IoO staff believe that we achieve world-class research by working in collaboration (65% believe that each institution currently operates as a pre-eminent global institution). The move to concentrate on high-patient-impact programmes should help to intensify the collaboration.

To facilitate even closer collaboration, we will need to optimise communication and joint decision-making, with linked structures and processes at all levels within the joint organisation. A new group should be created to coordinate decisions on joint integrated activity for research, clinical excellence and teaching, which are the key
pillars of the world’s top clinical academic centres.

We are seeking to build a new integrated research, education and treatment facility with maximally flexible space. This centre, which will include bioincubator facilities, will contribute greatly to helping collaborations seed and flourish (including those with external stakeholders such as industry), accelerate the R&D programme development, and reinforce our leading position in R&D. There will be appropriate facilities and spaces to maximise interaction. Much can still be achieved while we are in our current location and it is imperative that we do not wait for the new facility to start to implement the goals laid out here.

4.3.2 Collaborating within UCL Partners

A further valuable opportunity for collaborations comes from the ~3,500 medical researchers and clinicians working within UCL Partners. Accordingly, we will seek to develop further fruitful joint projects with other departments and faculties within UCL and with the rest of UCL Partners. Such projects will maximise cross-fertilisation of ideas, increase resource sharing and contribute to the whole translational pathway.

Goals: Innovation through integration

- Set up joint working arrangements, with appropriate resourcing, notably:
  - Integrated and comprehensive R&D delivery with strategic oversight
  - A joint research office
- Create incentives to encourage collaboration, for example by recognising co-applicants in successful grant applications
- Optimise communications, with visible senior support. For example:
  - A regular joint R&D communication outlining ongoing challenges and success stories
  - Regular cross-institution events for each high-patient-impact project
  - Expanded opportunities for multidisciplinary participation
● Linking key internal partnerships to optimise the research pipeline and drive cooperation and innovation within existing infrastructure such as Moorfields Pharmaceuticals, the Eye Bank and UCL Drug Development Unit

4.4 World-leading partnerships

*Heading some of the largest world-leading partnerships with other institutions and industry, to bring complementary skills to bear on some of the toughest research questions*

4.4.1 National and international academic collaborations

We have strong links with other eye institutions, both nationally and internationally. In the UK, around 50% of all ophthalmology consultants undertook some part of their training at Moorfields. Moorfields has also led the way clinically in establishing links with multiple other trusts through the development of satellite centres to treat patients closer to home. Additionally, we have global links through the many international visiting fellows who have spent time at the institutions.

We are currently comparable to other leading eye institutes in respect of inter-institutional collaborative publications (see appendix 1) and were the highest ranked in the UK (Rand UK assessment for NIHR). However, with our strong links, outstanding research capabilities and large, diverse patient population, we have the potential to significantly increase collaborative output.

Looking to the future, we will seek strategic collaborations with institutions that have complementary expertise both within UCL and external to UCL. Examples include the Crick Institute with its huge critical mass of scientists. There should be a clear benefit for both sides, so that the relationship will be sustainable.

Case example

The current collaboration between Moorfields, IoO and Bristol serves as an example for future collaborations.
There is a shared vision, with the right leadership in place to collaborate and deliver
Bristol’s inflammation expertise, Moorfields’ patient numbers and IoO’s research
areas, including genetic and cellular therapy are complementary
The collaboration has facilitated access to new international funding through the
National Eye Institute (NEI) in the United States.
The relationship is clearly defined, with joint appointments underpinned by service
level agreements (SLAs)

4.4.2 Industry collaborations

We have developed productive partnerships with several companies over the last
few years. Looking to the future, we see further opportunity for using our intellectual
capital to attract new interest from the private sector. By developing deeper strategic
relationships with a number of commercial firms, we should facilitate cross-fertilisation
of ideas and the process of translating invention into benefit for patients. (For a fuller
discussion, see the section on funders.)

“In the future, commercial partners will be vital, not only as a source of funding, but as partners
with skills we can use to accelerate translation for patient benefit.”

Goals: World-leading partnerships

By 2020, build four new academic collaborations with carefully selected partners
who have:

- world-class and complementary expertise from which we can benefit
- leaders with a shared vision and the ability to collaborate and deliver
- low risk of becoming a direct competitor in the future
● By 2020, develop deeper, more strategic collaborative relationships with two or three life-science companies

● Create processes to establish and manage collaborations rapidly and efficiently:
  - clear and straightforward repertoire of template agreements, covering such areas as funding, resourcing, publications, intellectual property, service level agreements, royalties, licensing, leadership, number of partners etc
5.1 Attracting resources by delivering outstanding value for our funders

Our joint R&D capability currently offers very good value for funders, as demonstrated by the large volume of high-quality research delivered for relatively modest expenditure. This is facilitated through synergies achieved by the co-location of our two organisations and the excellent clinical infrastructure at Moorfields.

Currently, R&D is funded mainly from government and charities, with significant income from industry and other sources.

R&D faces important funding challenges over the next eight years:

- We expect pressures on our main funding sources: government funding is likely to stay flat or even decrease, which will produce an increasingly competitive environment. Moorfields’ income from clinical services will be pressurised, with an anticipated 20% real-term reduction in tariff and stricter demands from cost-conscious clinical commissioning groups (CCGs). R&D will need to exert itself even more to maximise government funding, develop other funding sources, and demonstrate its value to ensure it gets appropriate sustained internal investment. This view was supported by those surveyed with 83% agreeing that a more diverse funding portfolio is needed.

- Some leading international institutions have substantially more endowed and philanthropic income. This will potentially impact on our competitiveness, not only to attract the top talent but also to secure funding for research areas of long-term strategic importance.

- Given the other significant demands on fundraising for Moorfields, the internal case will have to be clearly articulated.
How are we to meet these challenges?

As we focus on pursuing key research programmes and developing deeper partnerships, we will produce greater value for our funders and so boost our funding levels (BCG 2013). To that end, it is important to ensure that funding sources are always aligned with our overall vision. Opportunistic acceptance of other funding could mean having to split our attention between our set of strategic focus areas and the new programme now being funded, which could put our reputation at risk and might actually impair our fundraising efforts in the longer-term. Working in the context of Moorfields’ ‘Our Vision of Excellence’ strategy, R&D will address and capitalise where possible on the recent NHS reforms to engage commissioners and other organisations such as the NIHR and academic health science networks in the value that research delivers to population health and patient empowerment.

It will be important to emphasise the importance of eye research both nationally and internationally. Eye disease, despite being an enormous determinant of quality of life, can often be in the shadow of large fatal disease areas (e.g. cancer, stroke); it is important to ensure key stakeholders are aware of the growing burden of eye disease. Eye research can also have broader importance as a model for studying approaches that have far reaching implications beyond the eye (e.g. imaging biological processes and stem cell therapy). Ensuring that these benefits are clearly emphasised will be an important component of our communications strategy.

5.1.1 Government

The Department of Health’s 2011 Innovation Health and Wealth report promotes an NHS defined by its commitment to innovation, demonstrated both by its support for research and by its rapid adoption and diffusion of any breakthroughs. The primary innovation measure for government over the next years will be demonstrating that R&D contributes to the growth of the British economy. We will look to strengthen further our value proposition to government in the following ways:

- Increased focus on grant applications for larger translational programmes. We have been successful in structuring similar programmes and in attracting government funding accordingly. Notably, we recently won an increase in NIHR funding.
• Building on partnerships with industry. Industry partnerships are the strongest measure that research activity has potential to contribute to British economic growth.

• Exploring international partnerships. This has the opportunity to attract funding through R&D, and also through clinical links, potentially building on our satellite network model.

• Working with commissioners to enable the rapid deployment of innovative therapies for patient populations and more efficient and patient-focused service delivery models.

Through these approaches, we are looking to increase our government funding by 15% in real terms over the next eight years.

A consequence of increased government focus on economic value is a potential reduction in funding for fundamental research. We will look to secure funding for fundamental research activities through clearly linking it to translational research and by seeking alternate funding sources.

5.1.2 Industry

In the UK, the pharmaceuticals, medical biotechnology and medical technology sectors together comprise about 4,500 firms, employing some 165,000 staff, and registering an R&D spend of nearly £5 billion per year (~£13 million a day). Our leading Investigators have built up productive relationships with several industry partners. Largely thanks to this development, industry funding is becoming an increasingly important funding stream for us: it almost doubled between 2007 and 2012, rising from £1.9 million to £4.5 million per year during that time. Potentially, we can further increase the value we offer our industry partners. We can help shape their understanding of eye disorders by establishing or deepening a few strategic relationships and by adopting innovative measures that benefit both sides; for instance, outsourcing of R&D by industry & incubator areas for new ideas. We aim to double the value of this funding stream over the next eight years.
5.1.3 Philanthropy

Another important source of funding is philanthropic donations from individuals and foundations. Our approach to raising funding from this source for R&D has been largely ad hoc until recently. The campaign to raise money for the new children’s centre was hugely successful and based on research. In future we will take a more concerted approach and, in particular, utilise the high-patient-impact programmes to excite and inspire potential donors.

“A clear vision and strategy coupled with big ideas will excite donors.”

5.1.4 Charities

Moorfields’ charities have been a stable funding source for research (~£1 million per year), with external charities accounting for a further £5.7 million this year. There is potential for us to build on this strong base and attract funding from other charities interested in vision-related R&D.

Innovative approaches to fundraising should be investigated. An example of this is Moorfields’ current collaborative effort with UCL on fundraising for a brand new facility, which opens up opportunities for sharing expertise, pooling resources and accessing the large UCL alumni group. Charitable strategies already in place will provide a rapid and well directed start to these imperatives.

We aim to grow our R&D funding from philanthropy and charities by 25% over the next eight years (this figure is in addition to the money raised for the new facility project).

Goals: Value for funders

Government

- Put in place working arrangements to maximise success of grant applications
  - provide mentoring from successful applicants
actively seek advice from key decision-makers

respond to increasing focus on large coordinated research programmes by submitting at least one major cross-group grant application per year

**Industry**

- Deliver clear value for industry through deeper relationships and innovative working models, thereby doubling funding from this source and expediting patient access to treatments and therapies.

- Explore and create novel revenue-sharing and IP arrangements with UCL Business and others to facilitate innovation and growth through satisfying unmet clinical needs.

- Put in place the required skills and expertise to support development of innovations to application

  - aim to register at least 20 new patents by 2020

**Charities and philanthropy**

- Develop a joint approach with UCL to identify and target key external charities and philanthropic donors in alignment where possible with existing charitable strategies, maximising co-ordination

  - use customised approach for each, perhaps adopting innovative funding models for relieving suffering, advancing health and prevention, finding better treatments for public benefit.

  - track progress via a customer-relationship management system

- Agree on a mechanism for division of philanthropic donations between research and the new facility fund

- Work with the communications teams at MEH and UCL to maximise the public relations ‘good news’ stories highlighting research impact and successes.

**Internal**

- Implement a clear governance process
• Establish a joint process for clear communication of R&D’s value to Moorfields’ financial bottom line, brand and reputation
  
  o e.g. annual joint Moorfields / IoO R&D report

5.2 Gaining original insights through strong clinical informatics and bioinformatics

Informatics is becoming ever more important in many aspects of vision research, from fundamental science to translational studies to tracking outcomes. We have the potential to be a leader in the use of informatics, through our work in three areas: ocular-omics, OpenEyes6 and analytics.

The impact of ocular-omics (genomics, transcriptomics and proteomics of the eye) is sure to be far-reaching for fundamental science research. We are a world-leader in studying inherited eye disorders and in translating genetic research into therapy. We will build on this strong base by looking to establish a data hub and computational framework to model disease processes in the eye. This should link as far as possible with national initiatives including “rare disease” initiatives.

“Clinical data must be captured and be available to researchers. There is so much invaluable information in our large patient population.”

Comprehensive and readily accessible patient data provides an invaluable resource for the identification of potential subjects for trials and, for instance, post-licensing surveillance. We have access to a large and diverse patient population and should soon be collating data on those patients through the OpenEyes project. The project should evolve rapidly to be able to address new questions that the data generates. It can also act as a registry, capturing information not just from Moorfields and its satellites, but also from the patient populations of collaborators. It also allows us to deliver, at the point of contact, the best research evidence base and consensus for treatment, and much more rapid delivery of innovation for every patient. We will look to facilitate the development, expansion and rapid roll-out of OpenEyes, in particular integrated research and clinical evidence and intelligence modules.

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6 “Open Eyes” is an open-source project led by Moorfields Eye Hospital. The aim is to produce a framework for enabling the rapid and continuous development of electronic patient records (EPRs).
To utilise data from ocular-omics and OpenEyes to the full, we will need to develop sophisticated analytical capabilities. Through integration and better understanding of clinical and scientific data, we will optimise identification of new avenues for fundamental science research, translation of research findings into therapies and assessment of innovations in care delivery, and facilitate reverse translation.

Goals: Insights from informatics

- Create an informatics hub with potential for global use; linking, exchanging and covering information from discovery science to outcomes:
  - a global ocular-omics hub to store data on eye-related gene and protein expression
  - a store for outcomes data from ongoing translational studies and real-life clinical tracking of patients

- Provide necessary support for the roll-out of OpenEyes:
  - in all key hospital areas by 2014
  - in at least 25% of eye units in the UK within three to five years

- Develop analytical capabilities, either internally or through collaboration, to gain insights within the informatics hub that will guide research and drive improvement in clinical outcomes

- Integrate strategic development of global research modules into OpenEyes
Appendix 1

RESEARCH PROCESS

This strategy was developed through broad consultation across Moorfields, UCL IoO, and external partners. A web survey was distributed to over 250 members of the organisations, including researchers, nursing staff, allied health professionals and managers; more than 100 people took part. Responses were both qualitative and quantitative, thereby elucidating people’s views on the organisation in its current form, on how it should look in the future, and on the steps needed for getting there.

In addition, individual interviews were conducted with around 30 organisational leaders and non-executive directors, as well as senior figures from key commercial partners and external parties, including pharmaceutical and medical-devices companies. Patient views were collected through hospital staff and via the publications of charities and patient-advocacy groups. The emerging themes were then discussed and developed at meetings with senior leaders.

Analyses were undertaken to test and inform elements of the strategy and to evaluate the challenges and opportunities. These analyses included: assessment of other major eye institutes; comparison of our research portfolio with others; analysis of our staffing mix and productivity; and analysis of our current funding streams and potential future sources of funding.