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World-class education and training are fundamental to achieving the vision of King’s Health Partners. This is a time of major change in education and training, not least in the funding and commissioning of education and training, but also in the delivery and setting of healthcare. The breadth of expertise within King’s Health Partners means that those changes are not challenges, but opportunities.

We need to build on our existing strengths in innovative education and training across a wide range of health disciplines to ensure that, across care pathways from the community to the acute setting, staff are appropriately skilled to deliver care in new settings. It is essential that the entire workforce has expanded opportunities for training and development, hence, for example, we are providing multi-professional learning opportunities to polyclinist system.

An important focus of education and training must be health promotion and disease prevention, as well as empowering patients to better manage their disease. King’s Health Partners, therefore, plays an important role within the South London Health Innovation Education Cluster (HIEC), which consists of thirty health and social care and education providers, including some from the voluntary and independent sector. The expertise of providers came together to enable the fastest diffusion of high quality care and education to improve health and well-being in south London. The South London HIEC is particularly addressing inequalities of care with regard to uptake of screening programmes and educational programmes for patients. The rich ethnic diversity of our local population means that global health is on our doorstep and we must take a lead in this agenda. Hence, we have established a centre for Global Health education and training which provides learning opportunities to local students and those in developing countries.

King’s Health Partners has an essential role in widening participation and to build on our programmes which give opportunities to students who have the talent, but not necessarily the educational qualifications, to pursue careers in healthcare disciplines. Key is our engagement with local school children to encourage them that a career in healthcare is within their grasp. Please let me know if you would like to take part in our widening participation agenda.

The goal for education and training delivered by King’s Health Partners is that across the world, when anyone thinks of education and training, the best is synonymous with King’s Health Partners; we attract the best students and attract and retain the best staff. It is through such education and training that King’s Health Partners will achieve advances in health and well being, locally, nationally and internationally.

Professor Anne Greenough

Clinical Academic Groups (CAGs) are a core element of the King’s Health Partners infrastructure. Their function is to bring together healthcare teams and academic staff across the partnership under a single management structure to integrate clinical and research activities and training and education.

We focus this issue’s Up Close on the Cardiovascular Clinical Academic Group which brings together one of the leading centres in the UK for cardiovascular research with one of the largest cardiac centres in the UK. The integration of the cardiovascular research, teaching and clinical practice is already seeing benefits for patients, both locally and further afield.

Professor Ajay Shah, Head of the Cardiovascular Division at King’s College London and Dr Martyn Thomas, Clinical Director for Cardiac Services at Guy’s and St Thomas’ NHS Foundation Trust, were appointed co-directors of the Cardiovascular CAG in early 2010.

Professor Ajay Shah explains why integration of research, teaching and clinical care is crucial for realising King’s Health Partners vision of better health for all.

“It reinforces the cycle that links scientific research with translational research and with clinical research, innovation and care, which then connects back to basic education and research”, he says, “In this way important clinical questions can be addressed by academic research, and our students can be taught by people whose research and clinical expertise is making a real difference to patients”.

Professor Shah leads the King’s College London’s Cardiovascular Division within the BHF Centre for Research Excellence (BFHCORE) which has a higher than London average of early deaths from heart disease. The hospitals have already made advances in bringing clinical teams together to share innovation and expertise and translate this to improved cardiac treatments.

King’s Health Partners was the first centre in the UK to establish life saving primary angioplasty for all heart attack patients. This pioneering keyhole surgical procedure replaces the need for less reliable drug therapy. It unblocks arteries through use of a small balloon which is inserted and then inflated. The procedure has saved hundreds, of lives already and is now extending to hospitals throughout the UK.

Transcatheter Aortic Valve Implantation (TAVI) is another innovative surgical technique pioneered with the Cardiovascular CAG. Instead of open heart surgery TAVI offers new treatment options for high-risk cardiac patients, such as older patients, by replacing open heart surgery with keyhole surgery through a leg artery or through the apex of the heart.

The expertise gained by performing the technique is passed on through training other clinical groups. Dr Thomas explains: “We facilitate teaching for other clinical groups and act as supervisors in other centres to assist with their first implantations”. The TAVI programme involving both cardiologists and cardiac surgeons started in 2007 at King’s College Hospital and is now performed at both King’s College and St Thomas’ Hospitals. It has become the largest TAVI programme in the UK and is considered a centre of excellence.

In a move designed to bring benefits to patients beyond King’s Health Partners, in October the CAG hosted a world first heart valve surgery conference – PCR London Valves – with the aim of up-skilling surgeons from across the world in minimally invasive heart surgery. It is expected that the training will lead to effective treatment for over 8,000 patients in the UK alone, who may otherwise have been too frail to survive open-heart surgery.

The Cardiovascular CAG have a clear vision, “We aim to be THE place that people want to come to when they want the best in heart treatment, research or teaching”, says Professor Shah.

Dr Thomas is confident that the CAG has the potential to make this vision a reality: “Our experience has shown that, with the adequate support of a multi-disciplinary team, excellent clinical and academic results can be achieved.”
From trial to treatment: Experimental medicine in action

What does experimental medicine mean? To Richard Lane, it meant that uncontrollable and life-threatening diabetes was successfully reversed, and he became the first person in the UK with type 1 diabetes to come off insulin altogether.

Between 1996 and 2004 his blood insulin levels were so high that he had 12 diabetic comas – on one occasion breaking his back in two places when he fell into a coma while driving. Then Professor Stephanie Amiel, the King’s College London RD Lawrence Professor of Diabetic Medicine working at King’s College Hospital, asked him to be one of the first patients in the world to receive an islet cell transplant – injection of insulin-producing cells into his pancreas.

“I was coming to the point where I would have had to retire through ill health,” says Lane, who was then an accountant in Kent. “But the transplant transformed my life.” He has not had a hypoglycaemic attack since.

Now president of Diabetes UK, Richard Lane is one of only 22 people in the UK who have had this treatment, and King’s College Hospital is the first hospital in the UK to achieve insulin independence in a patient. It happened because of a programme of testing innovative new treatments on patients as soon as early tests show them to be safe. This is experimental medicine, and it is a significant priority at King’s Health Partners.

In the short-term, these small experimental trials can bring major benefits to patients with limited treatment options. At Thomas’ Guy’s, King’s College Hospital and South London and Maudsley – patients, for example, with chronic liver disease, leukaemia, asthma, mental illness and diabetes. In the long-term, they will bring benefits to millions by proving the principle, and speeding up the introduction of new treatments.

Professor Frank Nestle, Professor of Cutaneous Medicine and Director of Clinical Research Facilities at Guy’s and St Thomas’, explains that the programme is about harnessing the basic science expertise of researchers at King’s College London and the partner hospitals, translating their findings into treatments, and then using the clinical expertise of the hospitals to provide patients access to those treatments as soon as possible. Usually it takes around five years to get a new treatment into large phase three trials on patients. The experimental medicine programme at King’s Health Partners aims to facilitate translation of clinical research insights into patient benefits in a faster and more innovative manner.

At the same time, he emphasises, the trials are very closely scrutinised to ensure they are safe, and the potential benefits outweigh any risks. “We test concepts in a very controlled and expert environment,” he says.

There are currently 50 trials of potential new treatments under way at the Clinical Research Facilities of Guy’s and St Thomas’s alone. Among them is research into a new diabetes vaccine developed jointly by King’s College London and Bristol University. With safety studies in healthy volunteers now complete, Professor Mark Peake from the Department of Immunology at King’s College London will next year be recruiting patients from south London, to participate in the first studies looking at the effectiveness of the vaccine.

Type 1 diabetes results from the immune system attacking the islet cells that produce insulin in the pancreas. The vaccine works by re-educating the body’s immune system into a protective rather than an aggressive response to the islet cells. It does this by promoting the activity of a type of white blood cell, “police” immune cells, called regulatory T cells.

Patients involved in experimental research have to be carefully selected and assessed for suitability. They can volunteer only after discussing all the treatment options, their risks and benefits, with their healthcare team. For the diabetes vaccine trial, patients will need to have recently developed type 1 diabetes (i.e. within the last few weeks) and have a particular genetic profile.

“This kind of work isn’t being done anywhere else in the UK – it requires a combination of great experimental and clinical strengths,” says Professor Peake.

The first human trials are also under way with new drugs for haemophilia, sickle cell anemia, asthma and sleep apnoea. These are taking place at the Quintiles Drug Research Unit at Guy’s Hospital – an NHS/Academic/industry partnership which has established an international reputation for “first in man” drug testing. Professor Tim Mant, Visiting Professor at the Institute for Health Research, who heads the programme, says that it will be one of the biggest cell therapy centres in the country.

“With sickle cell disease, for example, there are currently very few treatments available, but it is common in the local population,” he says. “We find out points that patients who take part in clinical trials tend to have better outcomes than those who don’t – benefiting from more monitoring and more time with health professionals.

Experimental medicine needs the right infrastructure and care support. Dedicated facilities for clinical research have been built at both St Thomas’ Hospital (opened in 2008) and Guy’s Hospital (opened this year), with another clinical research facility under construction at King’s College Hospital. It is in these dedicated centres that patients taking part in experimental research will be cared for.

“We can carry out cutting edge studies because we have specialist clinical research nurses and other highly qualified staff working with the patients, quality assurance people ensuring everything is running smoothly, and specialist facilities to administer, for example, cell therapies,” says Professor Nestle. “It doesn’t mean we can cure everyone’s disease, but it does mean we can test important concepts in a safe and controlled environment.”

What excites Professor Tim Mant is that the clinical research facility is now part of a multi-layered hub of medicines innovation in the Guy’s Hospital Tower Wing. The 13th floor houses pharmacy production, synthesising special medicines to high specifications. On the 14th floor is the Quintiles Drug Research Unit, where the first “in man” doses of new medicines are administered. The new clinical research facility with wards, day case rooms, a procedure room and Good Manufacturing Practice facility is located on the 15th floor. And on the 16th floor is the home of the comprehensive Biomedical Research Centre – one of only five established by the National Institute for Health Research.

“It’s quite a unique set up, making meaningful outcomes.”

For Richard Lane there was, he admits, a good deal of thinking to be done before he agreed to an experimental treatment. “It was really ill, and I knew I would be a research guinea pig,” he says. But now he is so struck by its value that he raises money for the clinical research facility at King’s College Hospital. “I’m totally passionate about it,” he says.

Find out more at: www.kingshealthpartners.org
Albert used to be an inspector on the buses and he was proud of his memory. “I had instant recall,” he said. “Once I’d learned something it stuck.” But nowadays it is not so good and it seems to decay when he first noticed there was a problem without consulting his diary.

“I found I was doing things twice because five minutes later I’d forgotten I’d done them.” Albert is now 86 and lives on his own since his wife died last year.

“Sometimes I’d do two lots of the same shopping. So about a year ago I decided to go and see the quack.” As a result he was referred to a memory clinic at a new purpose-built centre that had recently opened in Croydon.

No one who has to go to a memory clinic can really be said to be lucky, but Albert benefited from living in a part of south London that provides some of the most advanced dementia services in the country. Integrated memory services have a special focus on diagnosing at-risk patients as soon as possible. Albert was seen at Croydon Memory Service, where people with memory problems are expertly diagnosed and those with dementia but still living at home as well as those needing long-term care all get treatment, counselling and support.

Albert remembers telling his doctor later that the pills were not working. “I was still forgetting things,” he says. “But he told me that they were only to stop his memory getting worse and they do seem to have done that so far.” He keeps in touch with the centre regularly.

Integrated memory services train and are a part of all the different clinical groups – psychologists, psychiatrists, nurses, social workers – to diagnose patients. There is a model that allows a multi-disciplinary team to decide on the best follow-up care for each individual. Performed by South London and Maudsley NHS Foundation Trust (SLaM), these are part of a radical new approach to dementia that should eventually improve the way these patients are treated across the country. Croydon was a site of best practice in the National Dementia Strategy and has paved the way for the next wave of services locally. This is largely thanks to the work of Professor Sube Banerjee who was heavily involved in the initial research and the development of the National Dementia Strategy.

From January 2011, the Southwark and Lambeth Memory Services will provide care for all adults with a memory problem in those boroughs. Where there are co-existing physical health problems, the service can refer into specialist clinics at St Thomas’, King’s College and Maudsley Hospitals. This pulls together experts in geriatric medicine, old age psychiatry, brain injury and a host of other specialisms across King’s Health Partners, to draw on the expertise of all partner organisations.

As well as crossing boundaries of mental, physical and social care delivery, memory problems are benefiting from research into effective interventions. “Early diagnosis and subsequent integrated help are the keys to success in this field,” says Professor Robert Howard, Leader of the Mental Health of Older Adults and Dementia Clinical Academic Group, “If we do our job well, patients will be helped when treatments for Alzheimer’s are so limited.”

“There is still a lot we can do,” says Howard. “A diagnosis means people can prepare and plan for what is going to happen. And once they have accessed the service, they get advice and help where they need it. Many patients are understandably devastated by a diagnosis of dementia. If they become depressed or have other problems, we can help.”

The impetus for a new proactive approach came from a study published three years ago in the International Journal of Geriatric Psychiatry which found most people with dementia got little in the way of specialist assessment. It reported that those who were diagnosed earlier: “appear to improve in terms of quality of life and behavioural and psychological symptoms of dementia.”

Promoting evidence-based treatments is part of the central mission of King’s Health Partners. As Howard points out, while many heart and cancer patients are put through trials of new drugs, it is much rarer with dementia patients.

“Besides giving us new data, patients and their carers really benefit from being in a trial,” he says. “It boosts their morale and they feel something is being done.”

Next year 200 patients will be recruited to a trial for the drug based disease course-modifying agent Rember that appeared in the early trials to be very effective at targeting “tangles” in the brain and reducing the rate of cognitive decline by 81% over 18 months.

Professor Simon Lovestone is the new Director of Research at King’s Health Partners. For the last ten years he has been developing a test for Alzheimer’s. The fact we have no biomarker for the disease has made it difficult to develop early treatments,” he says. “So far this team at the Alzheimer’s Research Department has put forward a new and intelligent solution that helps patients and their carers or relatives aren’t left to deal with things on their own.”

As well as funding research and promoting early diagnosis, King’s Health Partners are also working with a government initiative known as a HIEC (Health Innovations and Education Cluster) which aims to show care workers how to best monitor and look after patients and to educate GPs in making a diagnosis. According to one survey only 31% of GPs believe they have received sufficient training to diagnose and manage dementia.

“Teaching care home staff how to deal with patients more sensitively and intelligently can make a big difference,” says Howard. “Too often patients are treated in a way that makes them angry and distressed so they are prescribed antipsychotics – major tranquilizers. Our research shows that behavioural interventions are better than drugs and now it’s our job to put that information out there.”

At the moment Albert is generally happy “going with the flow” as he puts it, although he has not made any longer term plans.

“I sometimes get fed up but I’ve got friends abroad and I can Skype on my computer and they cheer me up.”

But he has also got something that is still only available to a minority of people with early memory problems – a large, expert support team ready to swing into action when he needs it. It’s a model that was pioneered in London and now replicated in London and across the country. For the future, there is a real hope that improved testing will allow early diagnosis and interventions to prevent cognitive decline and provide support much earlier in the course of illness.
WHAT’S NEW
News articles

**Vision chip restores sight to blind man**
King's College Hospital will shortly become one of only two hospitals in the UK to trial a new retinal implant to help restore sight for patients with degenerative eye disease.

It is hoped the trial - which involves inserting a device underneath the patient's retina has the long-term potential to help patients with retinitis pigmentosa, a group of genetic eye conditions that lead to an as yet incurable blindness.

Mr Tim Jackson, Consultant Eye Surgeon and lead investigator for the trial at King's College Hospital, which is also being carried out at the Oxford Eye Hospital, said: "This is exciting news for our patients, although we will only know how successful it is once the trial has been completed. However, it is an important step forward in the hope that in the future this exciting technology will be able to help the large number of patients with severe loss of vision from retinitis pigmentosa."

**Transforming African mental health education**
King's Health Partners Academic Health Sciences Centre is part of an international consortium, led by the University of Zimbabwe, that has been awarded $1.7 million USD to enhance the mental health education and research capacity in Zimbabwe.

The project is funded by President Obama’s Emergency Plan for AIDS Relief (PEPFAR) and by the US National Institutes of Health and is linked to a further $10 million USD Medical Education Partnership Initiative award to Zimbabwe for HIV/AIDS education. King's College London's Institute of Psychiatry is leading the programme for King's Health Partners.

King’s Health Partners Principal Investigator, Dr Melanie Abas, senior lecturer in the Centre to Global Mental Health, said: “We are excited and honoured to have this opportunity to work with the University of Zimbabwe College of Health Sciences (UZCHS) to meet the mental health education and research capacity needs of the country. Their goal is to break the cycle of declining medical education, fostering talent, and expand and retain mental health professionals.”

For further information on the Centre for Global Mental Health: http://www.centreforglobalmentalhealth.org/

**£2.1 million awarded for study into extending the life of kidney transplants**
The MRC Centre for Transplantation has been awarded a £2.1 million grant from the Medical Research Council (MRC), to fund a three year clinical study into the efficacy of the drug Miroceopt in renal transplantation.

The drug limits the action of a part of the immune system, known as the ‘complement’ system, which would normally attack and attempt to destroy cells from any intruder organism, including the cells of a donor organ.

This is the first major clinical investigation into the usefulness of therapeutic regulation of the complement system in human renal transplantation using this approach, which could ultimately lead to extending the life of kidney transplants.

**World-first to deliver faster treatments**
Science minister, David Willetts, and Health minister, Lord Howe, have announced that King's College London, part of King’s Health Partners Academic Health Sciences Centre will be one of nine universities involved in a world-first initiative to deliver new treatments and medicines to patients faster.

The government’s Therapeutic Capability Clusters programme brings together the life sciences industry, clinicians and academics to work on experimental medicine studies to find new ways to treat or diagnose a range of diseases.

The first two Clusters launched by Mr Willetts and Lord Howe are in inflammatory respiratory disease (such as asthma) and joint inflammatory diseases (such as rheumatoid arthritis). These Clusters are the first in the world to be established around specific therapy areas, and King’s Health Partners will be involved in establishing both.

**King’s Health Partners secures largest grant from Alzheimer’s Research Trust**
King’s Health Partners has secured funding of over £1 million from the Alzheimer’s Research Trust (ART) which includes ART’s largest ever single grant of £715,000.

With the grant of £715,000, Professor Simon Lovestone Director of Research, King’s Health Partners, and his team at the Institute of Psychiatry at King’s College London and South London and Maudsley NHS Foundation Trust, will begin ambitious new studies that will attempt to identify genes that increase the risk of developing Alzheimer’s and develop a blood test to diagnose the disease. The grant of £346,000 will be dedicated to a study that will sequence every gene in 500 people with Alzheimer’s, and compare them with the genes of healthy people. The work will reveal the genetic changes responsible for Alzheimer’s, giving doctors a better chance of predicting who is at risk of developing the disease.

**New advance in brain surgery helps boy smile again**
Four-year old Rehan Khan (pictured), was a patient at the Complex Motor Disorders Service at Evelina Children’s Hospital at Guy’s and St Thomas’ NHS Foundation Trust. He is the youngest patient in the world to undergo deep brain stimulation (OBS) surgery in an operation carried out by neurosurgeons at King’s College Hospital NHS Foundation Trust.

He had the surgery to alleviate dystonia, which causes pain, cramping and muscle spasms. It involves implanting electrodes deep into a patient’s brain and is usually performed on the globus pallidus interna (GPI). However, this was not possible in Rehan’s case, so the surgery was carried out on the subthalamic nucleus (STN). Because he was so young, the target measured only a few millimetres.

It is now over eight weeks since his surgery and Rehan can smile and sit comfortably – something that was impossible for him before.

**King’s College Hospital will shortly become extension of the RCOG**
A team of childhood allergy experts based at Guy’s and St Thomas’ NHS Foundation Trust and King's College London have launched the EAT Study (‘Enquiring About Tolerance’). This is a pioneering experiment which will test whether feeding babies specific foods as part of an early weaning process can prevent allergy later on. This study will provide evidence to help parents decide at what point to introduce their baby to solid foods.

In recent years it has become accepted that avoiding all food sources other than breastfeeding before six months helps prevent basic allergies. However Professor Gideon Lack, who is leading the study, says this is an assumption and that firm evidence is needed. Which is why he is recruiting 1,300 babies who will be split into two groups: one that is exclusively breastfed for at least six months and other that is also breastfed but eating solid foods such as eggs and peanuts from as early as three months old. Three years on, their incidence of allergy will be tested and the results published. To find out more: www.eatstudy.co.uk

Find out more at: www.kingshealthpartners.org