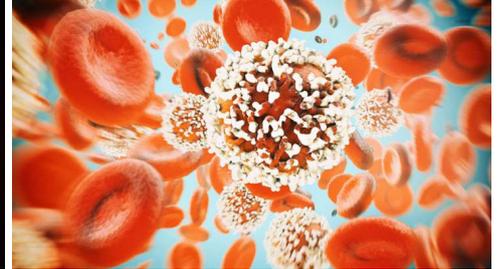
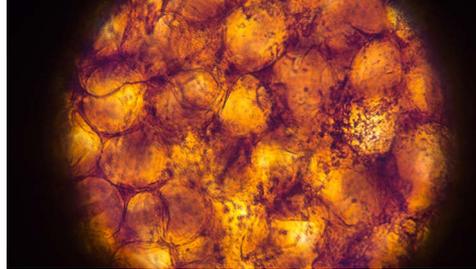


Novel technologies, therapeutics and diagnostics

SHORT TERM OBJECTIVES

Build capability and partnerships for cell and gene therapy – specifically in cell therapies for cancer and for promotion of immune tolerance in autoimmunity and transplantation; and gene therapy for dementia.



King's Health Partners (KHP) has now opened its new [Advanced Therapies Accelerator](#) (£10m, Research England). The Accelerator brings together the London scientific community working in the field of cell and gene-based therapies and is funded by Research England, and led by King's College London (KCL), Imperial College London and University College London. It aims to catalyse London's capabilities and outputs in the area of Advanced Therapies, through fostering collaborative work, facilitating commercial partnerships and creating a microclimate for innovation.

KHP was awarded £6m funding by the Medical Research Council, LifeArc, Biotechnology and Biological Sciences Research Council to create a [Gene Therapy Innovation Hub](#) to rapidly deliver GMP Adeno-associated virus capabilities, while increasing GMP lentivirus manufacturing capacity.

We have developed strategic partnerships with industry – particularly GSK and USB Medical – and nurtured successful spinouts including Neurogeneus (gene therapy for neurodegeneration), Fibrodyne (cell therapy for scarring), [Quell Therapeutics](#) (cell therapy for transplant tolerance and autoimmunity), and Adaptate.

New
research
hubs



Advanced Therapies Accelerator

£10m Research
England

Gene Therapy Innovation Hub

£6m Medical Research
Council

MEDIUM TERM OBJECTIVES

Promote imaging technology and partnerships to improve diagnostics and detection of disease and deliver surgical innovation, techniques and devices.



Our [Department of Surgical & Interventional Engineering](#) incorporates a £10m mock operating theatre to develop new surgical technology, in addition to a unique (in the UK) 'clean room' medical devices manufacturing facility (including £5m funding from Wellcome), co-located in a major hospital to develop technologies in

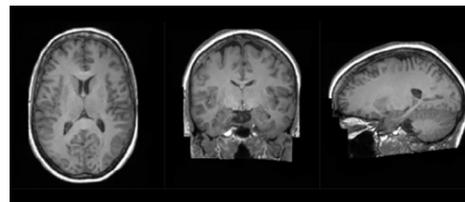
partnership. Supporting its partnerships, KHP is constructing the Research England-funded (£16m) [London Institute for Healthcare Engineering](#) specifically to harness ingenuity and collaboration between industry, universities and the NHS.



Leading the exploration of applying Artificial Intelligence (AI) to healthcare, KHP is expanding its [AI Centre for Value-Based Healthcare](#) to a total of 4 universities, 6 industry partners, 11 small and medium-sized enterprises (SMEs) and 11 NHS Trusts across the south east (with £16m from Office for Life Sciences).

KHP has a very healthy pipeline of clinically relevant innovation in MedTech, including 3 recent National Institute for Health Research (NIHR) i4i awards, and the successful spinout [Hypervision Surgical](#), which uses photonics alongside AI to guide cancer surgery.

KHP has actively created and developed strategic industry partnerships in MedTech, including a new theme of low-field MRI in our collaboration with Siemens Healthineers. Notably, KCL and Guy's and St Thomas' NHS Foundation Trust (GSTT) are the only academic and NHS partners with the new [NVIDIA supercomputer Cambridge-1 – the UK's most powerful supercomputer](#) – and are leading the early 'demonstrator' programmes which will use MRI brain scans to generate synthetic brain images to support research into earlier and more accurate diagnosis.



Finally, [KHP Academic Surgery programme](#) has worked with company Proximie to use technology to deliver surgical innovation, [transmitting live surgery](#) to allow virtual collaboration.

LONG TERM OBJECTIVES

Develop and promote early detection and novel interventions to reduce the burden of mental illness.



Construction is progressing of the new [Pears Maudsley Centre for Children & Young People](#), a collaboration between KCL and South London and Maudsley NHS Foundation Trust (SLaM), to provide a dedicated facility to improve services and research into mental health issues facing children and young people.

Council Developmental Pathway Funding Scheme), and invested in therapeutics such as COMPASS, a novel digital therapeutic. With therapist support, [COMPASS](#) treats illness-related anxiety and depression for people with long-term physical health conditions. This is being tested in 8 NHS services and a national trial in which people self-refer via 5 charities (including Crohn's & Colitis UK, MS Society and Kidney Care UK). Early results show improvements in outcomes of depression, anxiety, distress and functioning. COMPASS is CE marked as a Class I medical device and KCL is exploring commercialisation avenues.

More broadly, KHP has established the [Economic and Social Research Council \(ESRC\) Centre for Society & Mental Health](#), seeking to bring fresh insights from the social sciences into psychiatry and psychology.

KHP has developed a new digital therapy for paranoia (supported by the Medical Research

The ESRC Centre for Society & Mental Health outputs

1

rapid review commissioned

61

academic papers published

3

blogs delivered

6

podcasts broadcast

£1m

and more in **grant funding** obtained to support COVID-19 related research

Transforming system-wide quality improvement and outcomes

SHORT TERM OBJECTIVES

Develop an Academic Health Sciences System to reduce system-wide health inequalities through shared expertise in improvement and implementation sciences.

KHP has significantly progressed development of the Academic Health Sciences System with partners and networks. Our collaborations facilitating this include numerous partnerships mentioned in other sections, in addition to jointly founding 'SC1' Innovation District to develop a world-class health science innovation community. Leveraging our global networks, we have

shared experience and expertise nationally and globally (in addition to training mentioned in other sections).

KHP has also developed a 'learning health system' framework focused on the [remote delivery of mental health services](#) across south London.

KHP's national and global reach:



The pandemic response from the [Centre for Implementation Science](#) (part of KHP, with the south London Applied Research Collaboration (ARC) and Health Innovation Network (HIN)) included:



Recruiting

28,200

study participants



Generating

£1.2m

research income



Disseminating research in

297

peer-reviewed papers



886

attendees and global contributions were welcomed by our [clinical academic innovation workshops](#).



25

[local people](#) worked with KHP and partners (including [Urban Dandelion](#) to support the collective endeavours of our local community) to recommend personalised care solutions to NHS England for the COVID-19 response.



KHP runs the global [Masterclass in Implementation Science](#)

70

delegates



and the [Annual UK Implementation Science Research Conference](#)

200

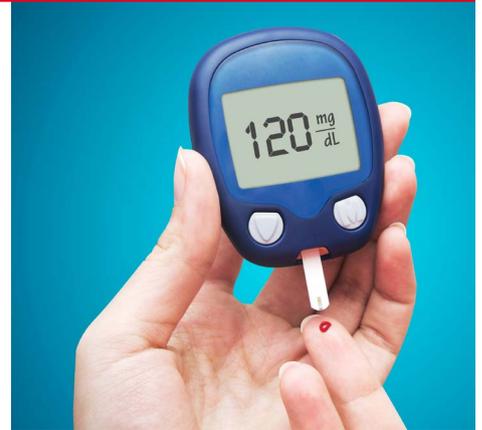
delegates annually

MEDIUM TERM OBJECTIVES

Work across our system to improve detection and control of hypertension, improve insulin control, reduce variation in physical health care of people with mental illness.

KHP is leading a range of work tackling this objective, including supporting integration of care for adolescents and young people with epilepsy (£210,000 grant), men with severe mental illness and erectile dysfunction (£200,000 grant), people with cystic fibrosis and eating disorders (£25,000) and people with Leukaemia (£460,000 grant).

With partners we have received designation and funding as one of 7 [NHS England Early Implementer Sites](#), delivering (with over 7,000 patients) and evaluating the Ottawa Model for smoking cessation (2020–2022, finding a 28-34% success rate).



KHP [Diabetes, Endocrinology and Obesity \(IDEO\)](#) working with partners and the South East London Integrated Care System (SEL ICS) received £463k funding to continue the [pilot](#) for patients with Type 1 diabetes and disordered eating (T1DE), with over 40 patients showing improvements in HbA1c. IDEO also co-authored a revolutionary study on Semaglutide Treatment Effect in People with obesity (STEP-1) resulting in a third of participants achieving 20% weight loss, the first [double-digit weight loss result for an obesity medication study](#).



“This is the first time that we have an effective and safe drug that achieves double-digit weight loss in patients living with obesity. Currently, with the exception of bariatric surgery, we do not have effective treatments available in the NHS for most patients living with severe and complex obesity....

“Semaglutide will revolutionise treatment for obesity for large number of patients who are struggling to lose weight with lifestyle changes alone. Its use could help with remission of prediabetes and type 2 diabetes, improving cardiovascular risk factors and management of other obesity-related complications.”

Prof Barbara McGowan, Consultant and Honorary Reader in Diabetes and Endocrinology, GSTT



£1.7m

funding was secured for the [Integrating Mental and Physical Healthcare Systems \(IMPHS\)](#) project at SLaM.



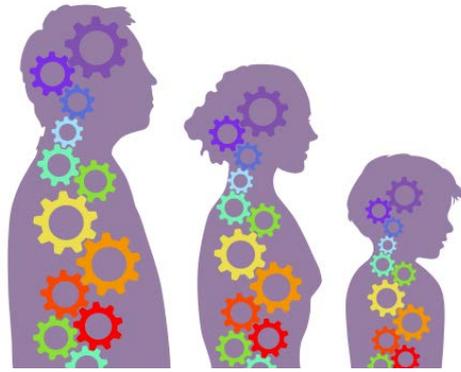
This helped

66% of around **700**

[calls result in care being delivered in a mental health setting](#), avoiding referral.

LONG TERM OBJECTIVES

1) Embed patient reported outcomes as part of a digital offer to people in south east London giving patients greater control over their health and 2) Work with partners in public health, local authorities and the ICS to improve health outcomes across the life course (long-term).

**Objective 1**

KHP is leading the development of patient reported outcomes measures (PROMs) across programmes, focusing initially on integrating mental and physical health measures in our [Mind & Body programme](#). Responding to COVID-19, building on the Integrating Mental and Physical healthcare: Research, Training & Services ([IMPARTS](#)) programme, KHP successfully launched e-IMPARTS to remotely collect PROMs; now used in over 50 outpatient clinics (including post-COVID-19 services) since June 2021.



- IDEO is leading the development (with £700k Innovative Medicine Initiative funding) of pan-European Health Outcomes Observatories for type 1 and 2 diabetes (as part of EUR 10 million public-private partnership).



Our [Life Lines project](#) provided more than 1,400 Android devices to over 150 NHS hospitals in April 2020, supporting more than 100,000 virtual visits connecting families with their loved ones in intensive care, enabled through £2.4m philanthropic support and major commercial partnerships. Additionally, we have £350k funding to develop and evaluate a digitally enhanced intensive care recovery pathway, embedding digital innovation responding to COVID-19 into our long-term offer.

**Objective 2**

KHP's Children and Young People's Health Partnership programme has progressed its [targeted and universal approach to integrated care for children](#) (adopted by NHSE as a population health management exemplar); for children with long-term conditions, this has already reduced emergency department contacts by 49%, non-elective admissions by 45%, and seen 60% of children achieve clinically-measurable health improvement.

Cively Saunders International | NIHR | National Institute for Health Research | NHS | South East London Commissioning Alliance | Partnership of Clinical Commissioning Groups

Managing breathlessness at home during the COVID-19 outbreak

Many pre-existing conditions, such as heart or lung diseases, cause breathlessness. Breathlessness can be very frightening and distressing, even in milder cases, and may be worsened by fears relating to the corona virus. During the current corona virus outbreak, you may have reduced access to your usual support networks. It is important that you continue the usual treatments for your underlying conditions (e.g. inhaler). **It's okay to contact your usual health and social care team for support.**

If you think you may have corona virus, please use the 111 online corona virus service to find out what to do (111.nhs.uk). If you are unable to use the online service, please phone 111.

The following steps may help you feel less breathless. You might find some of these steps more helpful than others. Try them out and use the ones that you find most helpful:

Finding a comfortable position can ease your breathlessness, try these:

Sit upright in a comfortable armchair with both arms supported on the chair arms or cushions. Let your shoulders drop and relax. Rest the soles of your feet on the floor.	Sit on a chair and let your body flop forwards. Rest both arms on a table or your knees to support you.	Lie on your side propped up with pillows under your upper body. Tuck the top pillow into your neck to support your head. Rest your top arm on a pillow placed in front of your chest and your top leg on another.
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In your comfortable position, loosen your wrists, fingers and your jaw.

Abdominal and tummy breathing
Rest a hand on your tummy and breathe in gently to feel your tummy rise. Then breathe out slowly through your nose or your mouth. Rest and wait for the next breath to come. You may find it helpful to purse your lips while you breathe out slowly as though you were making a candle flame flicker.

Slowing down
When you are comfortable with the tummy breathing, try to slow down the speed of your breathing. When you slow down, your breathing becomes deeper, which is more efficient. Imagine air filling your tummy like a balloon. Practising regularly will make it easier to do when you are breathless.

Breathe a rectangle

- Once you have found a comfortable position, look around for a rectangle. This might be a window, a door, picture, or even a book or television screen.
- Now follow the sides of the rectangle with your eyes as you breathe, breathing in on the short sides and out on the long sides.
- Gradually slow the speed that your eyes move round the rectangle, pausing at the corners to help slow your breathing.

During the pandemic our respiratory and palliative care teams worked with primary care, community services and local hospice teams to rapidly develop [COVID-19 specific guidelines for oxygen use in the community, breathlessness and palliative care](#), underpinning the launch of 'Hot COVID clinics' in the community and Long-COVID clinics in hospital.

Working with the HIN, ARC, SEL ICS and St Christopher's Hospice, KHP also produced [ethics guidance](#) to support clinicians to advocate for patients and promote and support good decision-making about care.

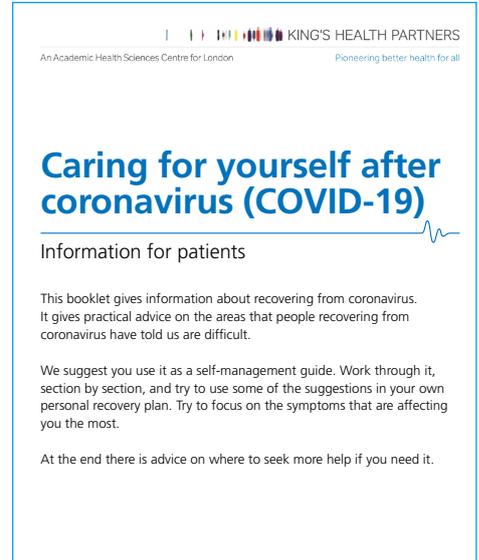
Dr Joel Meyer (left) and Prof Louise Rose (right) were part of the team which pioneered Life Lines.

Leading urban population health

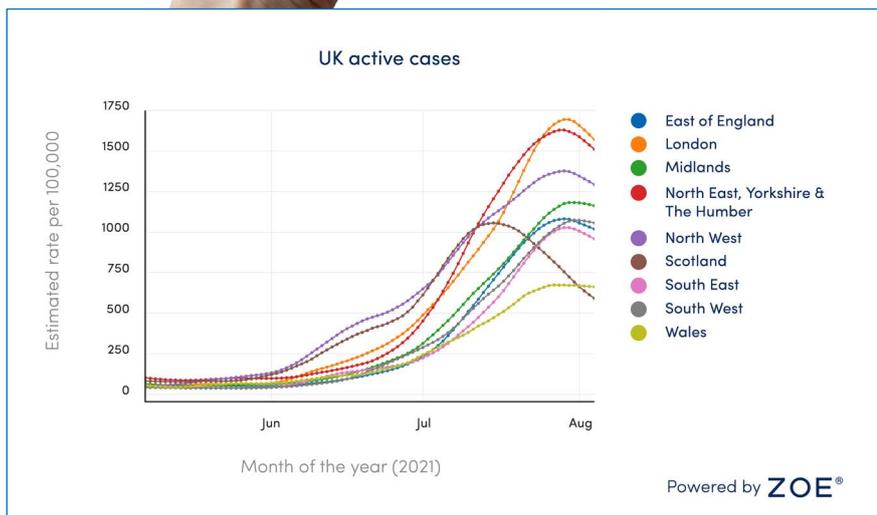
SHORT TERM OBJECTIVES

Launch our Institute of Population Health integrating clinical, mental health and social sciences in primary research and intervention methodologies (as well as team-based learning). This includes specific activity in social science and mental health, led by our ESRC Centre for Society and Mental Health.

The potential has been demonstrated through the [COVID-19 Symptom Study](#), a pioneering, app-based study into COVID-19. Using community symptom monitoring, the app provides [near-real-time estimates of COVID-19](#) incidence and experience to inform the UK Government's decisions. With over a million registrants on the day it launched. Recent research using the app data has generated insights into vaccine efficacy, vaccine hesitancy, understanding of variants and Long-COVID.



Considering Long-COVID, KHP together with the SEL ICS, produced [the first Long-COVID guidance for patients](#), in addition to developing Long-COVID clinics and local network services.



Transmission rates for COVID-19 in 2021 tracked across the UK by the COVID-19 Symptom Study app.

In the year up to March 2021



40 more than 40 **scientific discoveries** were generated by the study.



35 the study **linked 35 symptoms with COVID-19**, including anosmia which was subsequently added to the UK Government's testable symptom list.

MEDIUM TERM OBJECTIVES

Ensure local patients are offered Mind & Body and Vital 5 screening routinely, as part of our shared system-wide population health strategy (medium-term) and connect the learning from our local communities with our global health work to further spread learning and skills to wider international communities.

KHP's collaboration with [Clinical Effectiveness \(CE\) SEL](#) is critical to support the screening of the [Vital 5](#) within patients known to primary care, standardising the templates used in EMIS (the most widely used clinical IT system

for primary care in the UK) for long-term condition management. Templates within one borough already incorporate Vital 5 screening and this will expand across south east London through CESEL.



The Vital 5

Five factors that have a major impact on health at an individual and population level.



Blood pressure



Obesity



Mental health



Smoking status



Alcohol intake



Recently, KHP partnered with the South Asian Health Foundation to support their webinar series sharing COVID-19 knowledge between India and the UK. [One exchange was viewed by millions on India Today TV](#). All COVID-19 seminars and resources (including our global Meet the Expert global clinical seminar series, with 4,000 attendees) have been collated on our [globally accessible e-learning platform the Learning Hub](#) (which has 14,000 registered users).

Outside of pandemic support, over 50 volunteers from across KHP have delivered 11 online courses to over 320 medical, nursing and midwifery students in [Somaliland](#). In Zambia we are supporting [improvements in maternal and neonatal health](#).

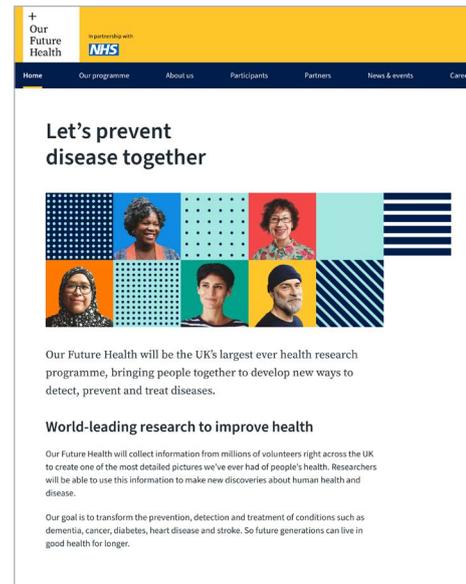
A portfolio of research grants is enabling vital work in Sierra Leone, including the NIHR-funded Stroke in Sierra Leone research programme developing one of the largest stroke registries in Africa.



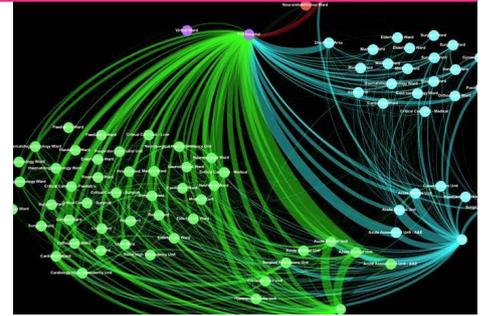
LONG TERM OBJECTIVES

Use our data and genomic capability to develop polygenic risk scores and improve targeted interventions in our communities (and in mental health). Develop data-driven platforms with linked health and social care records to inform a Learning Health System.

During the pandemic we pivoted this focus to establish an Equality in Vaccination task force. Enriched by community focussed interviews, this work led to a £2m partnership programme to research and act on medical scepticism and trust more broadly.



Additionally, KHP conducted research into the use of [Polygenic Risk Scores \(PRSs\) to discriminate cases of ankylosing spondylitis](#) from healthy controls and individuals with chronic back pain. Following this work, Prof Brown is coordinating national collaborative programs in research in polygenic risk scores as clinical tools, and he continues to contribute to Our Future Health which will be the [UK's largest ever health research programme](#). We also launched the largest ever (NIHR-funded) [study of eating disorders in England](#) to expand research and accelerate treatments.



SLaM (Maudsley BRC) has developed a psychosis dashboard, VIEWER, which uses Clinical Record Interactive Search data modelling methods to extract clinically focussed data for patients with psychosis from local clinical data. Results are picked up by [COGSTACK](#) (our award-winning AI information retrieval and extraction platform) and have had results within neurotoxin dosing for tariffs, all females of child-bearing age prescribed sodium valproate and the first Seizure Clinical Audit. The programme also received key funding including on [DATAMIND](#), a Hub for Mental Health Informatics Research Development. Finally, KCL is co-leading a MRC funded [mental health data-hub](#) which will extend applied informatics across the UK.

Workforce innovation and sustainability

SHORT TERM OBJECTIVES

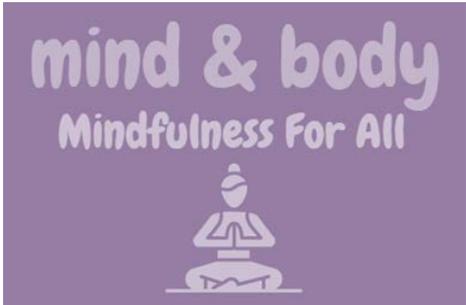
Develop accessible learning, including patient-focused and staff education, building on the strength of the KHP Education Academy to create a learning health community, locally and globally.



In a swift response to COVID-19, KHP grouped vital resources on our Learning Hub, including those for redeployed staff and developed the [Meet the Expert series with the European University Hospital Alliance](#).

Working with South East London Clinical Commissioning Group and the Health Innovation Network to facilitate system-wide learning and exchange, we hosted a series of primary care webinars (led by Dr Rachna Chowla, the first GP to join the KHP Executive, 490 people joined or viewed) sharing COVID-19 and non-COVID-19 knowledge.

Expanding our offer through partnership with Royal Brompton and Harefield following its merger, the Cardiovascular and Respiratory Partnership Programme has delivered virtual short courses and developed a virtual training calendar so trainees can access all opportunities irrespective of their work venue.



Our Mind and Body programme developed patient-facing self-help resources for people with health conditions (over 12,000 views), and mindfulness resources were offered across SEL through the [Mindfulness for All platform](#) (over 300 meditation video views).



MEDIUM TERM OBJECTIVES

Harness our partnerships' power to increase research and education sessions across our diverse and multidisciplinary workforce to improve research engagement, staff retention and development throughout their careers, and building on diversity and inclusion initiatives within our partnership, we will develop and evaluate approaches to enhance opportunities for black and minority ethnic staff and students.



KHP established its '[Realising your Potential](#)' programme for staff to develop their careers through workshops, applications and interview skills training, networking and careers conversations.

This year, the King's Health Sciences Doctoral Training Centre's Clinical Academic Training Hub has provided careers support, training and information for early-stage clinical researchers (predominantly doctoral students). [The Hub](#) showcases the diversity of our clinical academic community through researcher profiles and runs network-building events. Priority areas were identified through wide consultation, including with students, academic leads and pre-doctoral NIHR Clinical Training Fellows at both GSTT and Maudsley BRCs.

Our [discover healthcare website](#) was created to help recruitment into hard-to-reach professions, and last year over 20,000 unique users visited the site demonstrating the demand for this as a resource and its success in reaching the target audience.

KCL's award-winning [Civic Leadership Academy](#) enhances opportunities for minoritised students through leadership development while contributing to the work of local community organisations. In its pilot year (2019–20), 80% of the cohort of second year undergraduate students were from minority backgrounds and 70% identified as an ethnic minority. Over a year, Civic Scholars commit to 240 hours of service through placements with community partners and take part in a leadership development curriculum to become [highly employable, civically minded and engaged people](#).

LONG TERM OBJECTIVES

Develop a compassionate, Mind & Body-trained workforce, who are data and technology skilled and thereby better able to lead advances in health, care and medical technology.

Over 900 [Mind & Body Champions](#) have been recruited across the KHP partnership, undertaking relevant training and becoming advocates in their area for the importance of treating mental and physical health as one.

The staff support programme at KCH, supported by Mind & Body, was the [winner of the HSJ Awards 2020 Workforce Initiative of the Year](#).

The IMPARTS Short Course '[Integrating Care: Depression, Anxiety and Physical Illness](#)' is hosted on Future Learn, which allows people nationally and globally to access the course. Across 4 runs of the course, there were 14,512 UK enrolments and 12,474 non-UK enrolments across 150 countries.



Staff achievements

Over the past year the commitment and achievement of our talented staff has been recognised through a range of appointments, honours and awards which we are proud to celebrate here.



Prof Robin Ali



Prof Lord Ajay Kakkar



Prof Stephanie Amiel



Prof Lucy Chappell



Dr Caroline Jolley

To support with its continued success progressing advanced therapies, KHP has recruited renowned expert **Prof Robin Ali**.

KHP appointed [a new Independent Chair](#), **Prof Lord Ajay Kakkar**.

Prof Stephanie Amiel (KCL) was given an award at Diabetes UK 2021 to honour her significant role in revolutionising understanding of hypoglycaemia and delivering diabetes structured education.

Prof Lucy Chappell and **Dr Caroline Jolley** were nominated as the British Medical Association [role models for Women in Academic Medicine](#).

Prof Lucy Chappell (Prof of Obstetrics KCL/GSTT) has been appointed as the next [Chief Scientific Adviser](#) for the Department of Health and Social Care.

Prof Jane Sandall CBE has been appointed as NHS England and Improvement's [Head of Midwifery Research](#). In this role, Prof Sandall is designing and leading the midwifery research strategy for NHS England and NHS Improvement on behalf of the Chief Midwifery Officer for England.



Prof Jane Sandall



Dr Nicola Byrne



Dr Ingrid Wolfe



Prof Peter Goadsby



Prof Sir Simon Wessely

Dr Nicola Byrne, formerly Deputy Medical Director, Caldicott Guardian and Chief Clinical Information Officer at South London and Maudsley NHS Foundation Trust, was appointed [National Data Guardian](#) for Health and Social Care in England.

Dr Ingrid Wolfe, Consultant in Child Public Health at Evelina London Women's and Children's Healthcare, and Director of the Children and Young People's Health Partnership, was appointed to lead the [KHP Women and Children's Health](#).

The renowned [Brain Prize](#) was awarded to **Prof Peter Goadsby** for his pioneering migraine research.

KHP was given the award of becoming a [Tessa Jowell Centre of Excellence for brain tumour care](#).

Prof Sir Simon Wessely was [elected to the Fellowship of the Royal Society](#) and [two colleagues have been appointed as Senior Investigators for NIHR](#).

Elsewhere across the partnership, a wide range of our staff have been recognised for their tireless work throughout the year, with several awards in the [New Year's Honours list](#) for services to midwifery, autism, medical education, critical care and services during the COVID-19 response, in addition to recent [recognitions in the Queen's Birthday Honours](#).