Department of Health & Social Care

DEPARTMENT OF HEALTH & SOCIAL CARE DESIGNATED ACADEMIC HEALTH SCIENCE CENTRE (AHSC)

2017/18 ANNUAL REPORT

Note: Please note this form should be completed in font no smaller than 10-point Arial.

1. ACADEMIC HEALTH SCIENCE CENTRE DETAILS

Name of the Department of Health & Social Care Academic Health Science Centre:
UCLPartners

Contact details of the DHSC AHSC lead to whom any queries and feedback on this Annual Report will be referred:

Name: Professor David Lomas

Job Title: UCLPartners Academic Director and UCL Vice Provost (Health)

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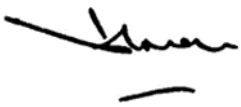
Signed:



2. OVERVIEW OF ACTIVITIES (no more than 4 pages)

Please provide a brief overview of activities for your AHSC for 2017/18 financial year, addressing the following points:

Progress with further aligning the strategic objectives of the NHS providers and universities in order to harness and integrate world-class research, excellence in health education and patient care;

Over 2017/18, our six 'Academic Medical Centres' (AMCs) have continued to progress core objectives in the areas of: i) Neuroscience; ii) Child Health; iii) Infection, Immunity and Inflammation; iv) Cancer; v) Cardiovascular; and vi) Eyes and Vision. These programmes map onto and are integrated with the NIHR Biomedical Research Centres (BRCs) that fall within UCLPartners: Great Ormond Street Hospital (GOSH)-UCL Institute of Child Health, University College London Hospital (UCLH)-UCL, Moorfields-UCL Institute of Ophthalmology (IoO), Barts Health (Barts)-Queen Mary, University of London (QMUL). The BRCs provide critical mass and resource from which to enable our translational strategies. In addition, each AMC has a major programme of strategic capital development joint between HEI and NHS partners, requiring a fundamental commitment to partnership working at all levels of the organisations.

At an operational level, alignment is ensured through the six AMC Boards, chaired by the AMC Programme Directors (PDs), which bring together colleagues from the relevant NHS Trusts and University partners, BRCs, Academic Health Science Network (AHSN), Collaboration for Leadership in Applied Health Research and Care (CLAHRC), informatics, education, and care, to enable a collaborative approach and ensure sharing of best practice. The PDs meet regularly at AHSC Planning and Performance Executive meetings. Each strategic capital development project also has its own project governance structure.

Summary of progress against specific short, medium and long–term objectives in full application:

***Research*:**

Short term: *(i) Develop metrics:* The AHSC commissioned a metrics analysis from Elsevier's 'SciVal' at the outset of its 5-year term. We have also drawn on metrics provided for the BRC accreditation process.
(ii) Create cross-cutting initiatives: Established in Population health, Informatics, and Personalised medicine.
(iii) Enhance AMC Programme coordination: A team of research coordinators, partnership and project coordinators, and industry partnership managers provide support to the AHSC.
(iv) Exploit '*Therapeutic Innovation Networks':* The networks bring together collective capabilities across key modalities (small molecules, biologics etc.) to create a more coordinated and accessible point of engagement for industry. A major funding application is underway to support the development of the TIN communities.
Medium term: *(i) Francis Crick Institute 'attachments':* We have several joint strategic appointments and ~60 staff in 'attachments' at the Crick (secondments/satellites).
Long term: *(i) Forge links with Oxford and Cambridge:* We have significant strategic partnerships with Cambridge through the UK Dementia Research Institute and with Oxford and Cambridge though MedCity, Health Data Research-UK and the Alzheimer's Research UK (ARUK) Drug Discovery Alliance.
(ii) Establish an international partnership per AMC: Notable partnerships are established in Neuroscience with KU Leuven and the Neuroscience Center Zürich; Infection Immunity and Inflammation with the Africa Health Research Institute, University of Zürich and Duke-NUS Medical School; Child Health with SickKids Hospital, Boston Children's Hospital, Chulalongkorn University and Chongqing Children's Hospital, Eyes and Vision with multiple Indian partners (£6m GCRF award), Cancer with Zhengzhou University, Dana-Farber Cancer Institute and UCSF Medical Centre.
(iii) Achieve world-class outputs in all AMCs: See AMC Programme progress below.

***Education*:**

Short term: *(i) Progress clinical PhD programmes:* QMUL and UCL offer numerous clinical PhD opportunities and UCL has a Wellcome Trust clinical PhD programme. *(ii) Establish Quality Improvement (QI) Fellows programme:* UCLPartners delivered its third cohort of Programme in 2017/18, taking the total fellows to 88. Through the programme's development, it became clear there was a need to support staff who are interested in quality improvement at an earlier stage in their careers, leading to the launch of the Aspiring Improvers Programme, supporting 12 participants to develop their skills and capability. On a national level, UCLPartners worked with the Health Foundation to recruit members for their Q network, with 88 members in the region.
Medium term: *(i) Establish programmes to encourage 'precision medicine':* The Experimental Medicine Academy (EMA) is a programme of work to support experimental medicine and translational research, funded through the Education theme of the UCLH BRC. It seeks to build regional and national capacity in experimental medicine, by providing training and development opportunities for the entire research community, nurturing leadership qualities in early career researchers and driving change in key priority areas.
(ii) Roll out Academic Careers Office provision across the partnership: The UCL Academic Careers Office offers courses that are available to all, e.g. Ignite, miniMD and ADAPT personal development schemes.
Long term: *(i) Research awareness & critical appraisal skills permeate education programmes:* In progress.

***Care Quality*:**

Short term*: (i) Adoption and promulgation of quality scorecard:* During 2017/18, UCLPartners supported all 15 AHSNs in England to adopt the use of the Life QI platform. Within our region there are now 447 organisations (across primary and secondary care), 3,504 registered users (with ~25% demonstrating activity

in the last 30 days), working on 1,241 active projects (increased from 506 in 2016/17). We are now seeing evidence of shared learning at scale both within and across organisations e.g. NHS improvement maternal and neonatal health safety collaborative. Visibility of QI projects and professionals across the UCLPartners geography also enables collaboration with local and national QI communities. *(ii) Develop systematic application of best practice PPI:* UCLPartners has developed and continues to maintain a network for Involvement and Engagement Leads to support systematic application of best practice, and learning and development of Leads. Over 140 staff are involved and individual support is available from the Patient Insight and Involvement Lead. We continue to work on this network with the NIHR National Director for Patients & the Public, hosted at UCL. We have increased our group of patients and carers who get involved in our work to over 60 individuals and started a Patient and Public Colleagues Journal Club as a learning and development initiative. Children and families are actively involved in the NIHR GOSH BRC through their Generation R London Young Persons Advisory Group, and Parent and Carer Research Advisory Group, respectively. Our Patient Insight and Involvement Lead is a member of national working groups set up by INVOLVE on assessing impact in PPI, and best practice for involving children and young people in research. *(iii) Forge closer links with CLAHRC to inform research agenda:* Close links are established via the AHSC Populations and Lifelong Health Domain and CLAHRC representation on key AMC steering groups. *(iv) Establish national networks in areas of specialist expertise (e.g. rare diseases):* Our AHSC is committed to partnership working, notably across London and the South East through MedCity, but extending across the UK through the new UK Dementia Research Institute and Health Data Research-UK. The AHSC also continues to progress the Zayed Centre for Research into Rare Disease in Children, a new national Institute that will allow us to more accurately diagnose, treat and cure children with rare conditions.
Medium term: *(i) Introduce health informatics to subserve major integrated pathways aligned with AMCs:* UCLPartners has been working with NHS England and other partners to develop a new digital maturity self-assessment tool. The tool focuses on meaningful use of technology and asks Trusts to evaluate their state of readiness, capabilities and enabling infrastructure to operate paper-free at the point of care. We have also been accredited as a node of the new Health Data Research-UK Institute and established the 'Discovery East London' project (see informatics section).
Long term: *(i) Achieve demonstrable improvement in each AMC:* See below.

A brief summary of progress made in each approved AHSC programme as detailed in full application:

Cancer AMC:

- In February, CRUK announced it will invest ~£9m over the next five years into research at the CRUK & UCL Cancer Trials Centre. UCL, Barts, QMUL, King's Health Partners and the Francis Crick Institute are working to develop the relationship with CRUK around a major bid.
- The CONCORD-3 study, led by LSHTM, has shown that cancer survival has generally increased but trends vary widely between countries, particularly for some childhood cancers.0
- An international study, led by QMUL and funded with a £5m grant from CRUK, has been launched to answer the final questions before aspirin is recommended to reduce cancer risk.
- The PRECISION Trial found that an MRI scan and targeted prostate biopsies are significantly better at making a positive prostate cancer diagnosis than standard biopsies;
- Researchers from the Barts Cancer Institute and the Francis Crick Institute have profiled tumour microenvironment evolution in a type of ovarian cancer (CRUK and ERC funded).
- An AHSC workshop is planned to continue to align strengths in cancer population health and epidemiology between LSHTM, Barts and UCL across the AHSC partnership as a whole.
- Work will begin shortly on a new CRUK Early diagnosis grant in partnership with the Discovery project at QMUL, led by Jon Robson (GP), to look at integrated primary and secondary care datasets for lung cancer patients diagnosed in NEL and identify opportunities for earlier intervention.

Cardiovascular AMC:

- A site has been identified for the joint QMUL/UCL Cardiovascular Device Innovation Centre. The Centre was awarded £3.1m in *European Regional Development Fund* (ERDF) funding in 2017, in addition to the £10m already raised. Two Devices Chairs started in post in March 2017, funded by Barts Charity.
- Barts-QMUL and UCLH-UCL were awarded BRC grants for the period April 2017 – March 2022.
- Professor Steffen Petersen was appointed as new UCLPartners CV Programme Director.
- A QMUL and UCL study using the genetic and electrocardiogram data of 67,000 people from UK Biobank has discovered 30 new gene locations that determine how the heart responds to and recovers from exercise. Results are published in the journal Nature Communications.
- The Academy for Young Clinicians has enabled 45 PhD registrations across QMUL/WHRI and UCL.

Child Health AMC:

- The AMC continues to progress the new Zayed Centre for Research into Rare Disease in Children, a partnership between GOSH, UCL, and the Great Ormond Street Hospital Children's Charity to establish a bespoke new integrated and translational facility, scheduled to be completed in early 2019.
- GOSH BRC have been awarded £37m by the NIHR to carry out pioneering paediatric research for the period April 2017 – March 2022.
- The CLUSTER consortium has been awarded £5m from the MRC and Arthritis Research UK. Starting in July 2018, the childhood arthritis study aims to help clinicians to target specific treatments for patients.

- North Thames Genomic Medicine Centre's (GMC) has recruited 5,200 genomes to the 100,000 Genomes project for rare diseases, ~ 28% of those recruited nationally.
- According to a study led by QMUL and University of the Punjab, Pakistan, high-dose vit.D supplements improve weight gain and the development of language and motor skills in malnourished children.
- In October 2017, the Centre for Adolescent Rheumatology (at UCL, UCLH and GOSH) received a £2m funding renewal from ARUK to support its pioneering research over the next five years.
- GOSH secured £3m extra funding for its Somers Clinical Research Facility centre.
- A study led by the Institute of Child Health has identified a genetic cause for movement disorders in a cohort of children previously diagnosed as having cerebral palsy, leading to promising new treatments.

Eyes and Vision AMC:

- The Moorfields/ IoO BRC and CRF bids were successful and commenced a 5-year term in April 2017.
- The results of the ground-breaking London Project to Cure Blindness clinical study have shown that a stem-cell based treatment has been successfully used to treat wet age-related macular degeneration (AMD) in two patients. The patients went from not being able to read at all even with glasses, to reading 60-80 words per minute with normal reading glasses. Results from the study to date suggest that the treatment is safe and effective. The results were covered in the media in the UK and beyond. Planning is underway for a continuation of the project and funding is sought for a large scale spinout.
- Moorfields is one of the top performing sites nationally (20-25 patients recruited per week) in the 100k Genome Project. The team have recruited over 2,400 individuals to the study to date (split across over 1,130 families). Currently on track to meet target, which has increased from 2,155 to 2,853, thereby helping to maintain contracted income levels and high profile of North Thames GMC into 2017/18.
- The Moorfields/UCL DeepMind team have spent time improving the main research paper and developing models directly relevant to a clinical workflow. Further discussions have continued with NHS England with a view to supporting a detailed trial to provide data to support large scale roll out.
- Moorfields was awarded £424k over 4 years for the NIHR BioResource Centre for Translational Research in Common and Rare Diseases. This will allow continuation of rare eye disease research and provide opportunities to collaborate in stroke, cardiovascular and autoimmune diseases.
- In April 2018 Moorfields had 8 of its staff included in a list of the most influential people in the world of ophthalmology. The Ophthalmologist Power List 2018 honours 100 clinicians, scientists and engineers who have made a significant contribution to their field.

Infection, Immunity and Inflammation (III) AMC:

- The Institute of Immunity & Transplantation, a new international centre of excellence in immunology research, is being developed in partnership between UCL, Royal Free London NHS Foundation Trust and the Royal Free Charity. Planning permission has been approved by Camden Council and a building contract has been awarded. Work has now started at the Royal Free site.
- Clinical researchers at Barts NHS Trust and QMUL have found that one year on from a single treatment with a gene therapy drug, participants with haemophilia A (the most common type) are showing normal levels of the previously missing protein, effectively curing them.
- The TB Network is developing plans to extend the **el**ectronic **C**linical **I**nfection **D**atabase (elCID) to capture clinical TB data and roll out across the partnership to improve links between research initiatives, clinical data and patient management.
- UCL research is behind the first successful gene therapy trial to treat haemophilia A, the most common type of the disease. Researchers developed the haemophilia gene therapy, which was licensed in 2015 to US biotech company Biomarin. The licensing led to increased investment in the research and the acceleration of clinical trials.
- A joint UCL-QMUL PhD programme in inflammation has been developed (up to 12 posts over three years), part funded by industry with applications opening in spring 2018.

Neuroscience AMC:

- The last year has seen a continued focus on the development of the UK Dementia Research Institute (UK DRI). In March 2018, it was formally announced that it would receive £40m via the MRC, which will enable the development of an entirely new translational facility, hosting the central hub of the UK DRI and UCL's Institute of Neurology.
- UCL has established an MoU with KU Leuven with an initial focus on neurodegeneration which will open access to new facilities, notably Imec (an international R&D and innovation hub, active in the fields of nanoelectronics and digital technologies linked to KUL), and enable joint applications.
- The Wellcome Trust Centre for Neuroimaging was successful in its renewal for a further five years.
- The first blood test that can predict the onset and progression of Huntington's disease has been identified by a UCL-led study, which will help test new treatments for the genetic brain disorder.
- New diagnostic criteria incorporating imaging and cerebrospinal fluid abnormalities have been developed from UCL-led research

Summary of the AHSC's contribution to economic growth, including partnerships with industry:

Key industry-partnership developments over 17/18 include:

- The CV Devices Hub award at QMUL funds a series of projects that will lead to the creation of a unique, one-stop Cardiovascular Device and Therapeutic Innovation Centre 'CVDHub'. This unique facility will act as the interface to facilitate the engagement of CV businesses across the UK through bespoke innovation support and will broker collaborations with London's academic/scientific knowledge base. The CVDHub aims to support business competitiveness and to develop/deliver new CV products/technologies and to exploit the economic potential of the global cardiovascular device market (estimated value $65.7 billion; 9% annual growth rate).
- In October 2017, Grail signed a clinical trial agreement with UCL and UCLH to perform a biomarker study linked to CT screening in 15,000 participants for the early detection of lung cancer. The signing of this collaboration agreement for £24m represents a significant achievement from our support services, which enabled the agreement to be signed just one-year after the initial approach by the company.
- Through engagement with Athena Vision/former MeiraGTx UCL/MEH spin out company we have increased our support to five currently active gene therapy studies. These are three therapeutic trials for CNGB3, LCA2 and RGPR, and two long-term follow-up studies for LCA2 and CNGB3. We are also moving the world's first ocular gene therapy in a human onto a much larger scale.
- NIHR GOSH BRC spinout Orchard Therapeutics announced in April 2018 a strategic agreement, under which GSK will transfer its portfolio of approved and investigational rare disease gene therapies to Orchard, securing the continued development of the programmes and access for patients.

Translational Research Office (TRO): The TRO continues to act as a catalyst for enterprise activity, working closely with the enterprise community across London and the south east to promote the AHSC's strengths. The value of the TRO portfolio now stands at £90.4m, growing from £81.9m in 2015/16. The TRO secured £1.2m in 16/17 to seed early translational projects and developed a relationship with Ono Pharmaceuticals (value £280k), and facilitated a £4.3m research partnership with CellMedica.

International recruitment: Our AHSC is cognisant of leveraging the UK's unique strengths to recruit the best candidates from across the world into leadership positions. Future-focussed initiatives such as UK DRI, HDR-UK, the Zayed Centre and IIT epitomise the world leading research and clinical environment offered by our partner organisations, and the AHSC has played a role in enabling major international appointments.

NHS Innovation Accelerator: The NHS Innovation Accelerator (NIA) is a national accelerator hosted at UCLPartners, which supports dedicated individuals to scale their high impact, evidence-based innovations across the NHS and wider healthcare system. There are now 36 Fellows, with 11 recruited in 2017.

Digital health: The London AHSC/Ns are partners in DigitalHealth.London, alongside MedCity and NHS England. It aims to accelerate the adoption of digital innovations across health and care, and pioneer their adoption by the NHS, by matching innovators with NHS need, and supporting them to navigate the UK health environment. In 2017/18 it ran its third year of London's acclaimed Accelerator programme, looking for up to 25 innovative SMEs who are developing solutions to some of the NHS' most pressing challenges. So far DigitalHealth.London has worked with 61 companies and provided 600 hours of support, helped secure 27 research collaborations, and supported companies to launch 25 new products. Additionally, alumni have secured more than £15M in funding, and 50 NHS contracts.

RDS London: RDS London is a collaborative project between Queen Mary, King's, Imperial and UCL, which will receive £6.3m from the NIHR to continue offering free and confidential advice to researchers, drawing on a unique breadth of experience and a proven track record in improving funding applications.

Progress on the development and delivery of an appropriate e-Health informatics platform:

Data science: In February 2018, it was announced that UCL, Imperial, King's, Queen Mary University of London and London School of Hygiene & Tropical Medicine were successful with the award of a node for HDR-UK. HDR UK is initially awarding £30m to six sites across the UK to address challenging healthcare issues through use of data science. A further £24m will be invested in upcoming activities, including a Future Talent Programme and additional partnership sites.

Genomics: UCLPartners is a partner in Genomics England. Led by GOSH, seven NHS Trusts in north London are part of the North Thames Genomics Medicine Centre (NTGMC), which is recruiting patients to the 100,000 Genomes Project to support the delivery of more personalised diagnosis and targeted therapy for patients with cancer and rare diseases. As of May 2018, 1,300 researchers are working with data from the 100,000 Genomes Project as part of part of 25 GeCIP (Genomics England Clinical Interpretation Partnership) domains, mainly covering cancer and rare disease. GeCIP members currently have access to 44,067 genomes and clinical data for over 60,000 participants.

Discovery East London: The Discovery East London project, hosted by the Clinical Effectiveness Group at QMUL, involves GP practices, acute/mental health trusts and the Clinical Commissioning Groups (CCGs) from across the inner north east London boroughs. The programme will establish, deliver and manage a secure data service with linked identifiable data from all systems supporting direct healthcare in east London.

Overview of any significant developments associated with the leadership, strategy and governance arrangements which might impact on the delivery of the aims and objectives of your AHSC:

Dr Charlie Davie has been appointed as the Managing Director of UCLPartners. UCLPartners also began a new relicensing cycle for the AHSN from April 2018. This introduces further license requirements, which have a greater emphasis on national delivery and coordination across the 15 Networks. UCLPartners is redefining

its strategic direction within this context, and the AHSC annual objective-setting exercise has taken this into consideration, to ensure integration and alignment of priorities.

This form must be submitted, by e-mail, no later than **1pm Thursday 17 May 2018** to Dr Caterina Lombardo (Caterina.Lombardo@nihr.ac.uk). Please feel free to provide any other information you wish (in a separate annex) that demonstrates the progress made with your AHSC in 2017/18.

The Annual Report aims to capture progress against the stated objectives, specific themes and work programmes as set out in your application, in order for the Department of Health to be able to understand the overall progress of the AHSCs. However, please note that we will not be providing feedback on the AHSC Annual Reports.

A signed copy of this report should be sent no later than **24 May 2018**, to:

Dr Caterina Lombardo
NIHR Central Commissioning Facility
Grange House
15 Church Street
Twickenham TW1 3NL