Institution: University of East London
Unit of Assessment: 3 Allied Health Professions, Dentistry, Nursing and Pharmacy
1. Unit context and structure, research and impact strategy

1.1 Overview and origins of the Unit

Allied Health at the University of East London has a rich history going back over 50 years with the development of degree programmes in Physiotherapy, Pharmacology and Health based in the School of Health Sport and Bioscience (HSB). Like all programmes at the then North East London Polytechnic, they had a local and vocational focus from which a fledgling research core evolved, particularly in the areas of Bioscience and Health. The recognition of a strong research environment in HSB, goes back to the RAE2001. The creation of the Institute for Health and Human Development (IHHD) led by Professor Adrian Renton in 2006 was a direct response to the wider demand and growth of research in health and the need to better understand and serve the local and evolving requirements of East London. With an emphasis on public health, health inequalities, wellbeing and communities, the focus of the research in both the institute and school is closely aligned to the needs and interests of the diverse population groups of East London and the global connections of the more recent arrivals from Africa and Asia. The future research strategy for the school and institute is an evidence-based approach to solving the health challenges facing these diverse groups, acknowledging that well communities are a prerequisite for health.

1.2 Structure

The UoA has contributions from the institute and four departments within the school. Within the departments of the school there are self-organising dynamic research clusters and research groups. These divisions nevertheless do not inhibit synergistic relationships that connect researchers through research-informed teaching, collaborative projects, PGR supervision and research seminars.

The original remit of the **Institute for Health and Human Development (IHHD)** was to develop interdisciplinary research in health and wellbeing. Although embedded in the local communities of East London, the institute has a national and international outlook. The research staff of three (2.4FTE) professors, a reader, six (4.1FTE) research fellows and four (3.2FTE) research assistants are supported by two (1.8FTE) administrative staff. Their mission is to:

- conduct high quality multi- and trans-disciplinary theoretical and empirical research into the social, economic and cultural production of health and wellbeing.
- develop and evaluate innovative interventions to enhance health and wellbeing.
- promote inter-sectoral actions for health at multiple levels of individual, community and society as a whole.
- provide excellent CPD to support evidence-based policies and practices.

The School of Health Sport and Bioscience is primarily teaching focused but is fully aligned to the University's Vision 2028 strategic vision to be a research-informed, evidenced-based and industry-ready University. Research within the school has strong allied health practitioner impact, with patient and public engagement central to development and delivery. This praxis informs teaching in the academic school, with undergraduate teaching in NHS-aligned academic disciplines such as biomedical science, physiotherapy, podiatry, sport therapy and latterly, nursing. Other important programmes include pharmaceutical science, pharmacology, public health and health

promotion. Inevitably, research clusters and groups emerge from these teaching areas. Introduction of the BSc (Hons) Adult Nursing in 2018 and the Fd.Sc. Nursing Associate Apprenticeship programme in 2019, provides a strategic opportunity to develop a program of research in nursing at UEL. With NHS placements and internships leading to enhanced employability of our students, this presents a pathway to a career in research for one of the most ethnically diverse student populations in Europe: over 65% of our students identify as BAME.

1.3 Research themes in our submission include a broad range of topics, but there are clear themes related to the health priorities of our local communities. For example, alleviating anti-microbial resistance, fostering 'well communities'; reducing health inequalities; and promoting social prescribing. Evidenced by our outputs, our research addresses: diagnostic technologies; mechanisms of disease and immunity; drug discovery; therapeutic interventions, including robotics; environmental health, substance misuse and community health. Specific disease areas include addictive behaviours; zoonotic infection in Europe and Africa; mental health; musculoskeletal and neurological disorders; and respiratory health. The responsiveness and flexibility of our departments and research groupings is currently being demonstrated by how quickly they have responded to the current COVID-19 pandemic. For example, researchers in the school were key participants in setting up and running the Nightingale Hospital (including nursing, physiotherapy, sports therapy) in the ExCel Centre, London. Our researchers continue to support Newham Public Health with expert advice and analysis of their responses to the coronavirus pandemic and its wider impact, including the disproportional impact of the pandemic on local BAME communities. Professor Sally Cutler is serving as clinical lead for thousands of students, staff and the wider community.

1.4 Research and Impact Strategy Achievements

In REF2014, we described seven strategies centred around well communities research, to sustain and expand our allied health research environment for public harm reduction and improving health outcomes in neighbouring East London communities. We further planned to leverage our global researcher networks for inward research investment. Global drivers and a major re-structure of the University and the School in 2017 have since recalibrated the full implementation of some of those strategies. By the end of 2020 IHHD will be integrated into a new Institute of Connected Communities to promote well communities with a broader scope that includes cybersafety, online harms and methodological innovation, without losing their traditional research focus in human health and wellbeing. The driver for these changes was a response to stakeholder needs and a strategic focus on the UN's 2030 Agenda for Sustainable Development (SDG goals; 2016). This further harmonised our allied health research environment under the university's strategy (Vision 2028), with a focus on "Society, Health, and Well-being" (SDG 3), "Tackling health inequalities" (SDG 10), and societal harm reduction under "Peace, Justice and Strong Institutions" (SDG16).

In REF2014, 86% of our UoA submission was rated world leading or internationally excellent (19% and 67% of our submission respectively). This represented a significant step-change in the quality of research outputs, impact and environment since RAE2008. In REF2014 we submitted 14.8 FTE researchers in UoA3, this has grown to over 29 in REF2021 and the impact cases are aligned with the SDG priorities, building on our research since 2005. We outline below the extent to which the UOA has achieved the strategic aims set out in REF2014 for the current period.

a. Continue to support experienced researchers and develop early career researchers (ECRs)
   This has been an integral part of the ongoing strategy (see **Section 2 People)**. Allied health researchers at every level have been encouraged to maintain and increase their research networks through collaborations, supervising PGRs in experienced teams that include

externals and disseminating research outcomes through publications and conference presentations. ECRs are supported to accept appropriate levels of responsibility for research fundraising, including Fellowships. In house mentoring of ECRs includes one to one meetings, workshops, sessions on grant-writing and dissemination strategy. A good example of the success in this area is the research on social prescribing, one of our impact cases led by Bertotti (recently promoted to Reader) and supported by Frostick, which have projected them into national leadership in this area.

b. Strengths in contributing to clinical guidelines/recommendations; and ensure our work receives maximum academic exposure by targeting top journals and maximising citations.
The Institute almost doubled the output volume of systematic reviews and evaluations compared to the previous REF period. We further developed our capacity for conducting systematic reviews that underpinned NICE guidance and informed our programmes of primary research (see outputs). We maintained our active membership of the Cochrane Collaboration, primarily through the Cochrane Qualitative and Implementation Methods Group, delivering workshops at international conferences, updating the Cochrane Handbook, and publishing guidance. During this period, the UoA produced several systematic reviews including youth involvement in research-1 (Harden), suicide prevention-1 (Netuveli), allergen immunotherapy-4 (Netuveli)).

c. Increase the size and number of collaborative inter-disciplinary bids with established and new partners, locally, nationally and internationally and maximise the non-academic impact of our research.
See section 4 **Collaboration and contributions to the research base, economy, and society**. Currently, we have projects with Hackney Council for Voluntary Services, London Borough of Newham, Tower Hamlets, Department of Health, Public Health England, NHS England, Conexus, Bromley by Bow, Office for Communications, European Union with a value of about GBP299K.

d. Deliver major increases in the size and nature of our external funding applications targeting:
See section 4 **Collaboration and contribution to the research base, economy, and society**. There was appreciable increase in the number, variety and quality of research bids, as evidenced by grant successes. A few examples include funding from RCUK and NIHR, the Commonwealth Fund, the Society for the Study of Addiction (externally funded PhD scholarship) and various GCRF funds were competitively awarded.

e. Develop further our research-training environment for researchers at all stages of development from post-graduate student through to senior professor
See section 2. The strategic alignment to the UN Sustainable Development Goals in 2016 has harmonised multidisciplinary research under one major theme. ECRs and PhD students join research groups where they are mentored by the Professoriate. In addition to the opportunities offered to the staff through seminars, discussions and conferences we evolved the idea of the “Living Laboratory”: non-academic partners from local government, third sector and health services are peer-mentored in participatory research methods.

f. Seek to develop joint PhD studentships in collaboration with our partners and grow our numbers of RFs and PhD students.
See Section 2 on PGRs. During this period, the UoA completed over 30 PhD students compared to 14 in the previous REF, through revised PGR support and improved training of ECRs as supervisors in teams with experienced academics. A higher proportion of students

were externally funded and completion rates were greatly improved compared to REF2014. An early strategic decision was made to commit to a long-term investment of the majority of the QR funding into supporting PhD scholarships in key strategic research areas. This has the added benefit of creating and supporting local research groups and their embedded senior researchers.

2. People

2.1 Staffing Strategy, Recruitment and Retention

The staffing strategy within the UoA is designed to support research-informed teaching of our very ethnically and racially diverse student body. Our undergraduate students primarily come from the local East London community, but with a significant international component particularly at PG level (taught and research) who also reflect and enrich the diversity of East London. The staffing strategy is designed around delivering research and consultancy objectives for the same ethnically and racially diverse local, national, and international constituencies.

A key component of the school's strategy for attracting and retaining high calibre research active staff, is to encourage new staff to maintain research relationships (e.g., by holding honorary positions at previous HEIs) and grow their research networks. This is exemplified by Smyth who joined the school in 2015: she continues to collaborate, publishing and submitting funding applications, with her former colleagues, which gives access to the resources at the collaborating laboratories at King's College London. This practice has extended to our new nursing colleagues and an example is Davies who maintains strong relationships and performs consultancy work with various NHS partners which enhances income generation and offers research possibilities. All new staff are inducted into the institutional research support, research ethics and integrity practices as a matter of routine. Additionally, all researchers are mentored by the Professoriate ensuring that good practices are disseminated, and that effective one-to-one support is available. ECRs are been research-mentored towards PI status through open competitions for university and school PhD scholarships, funded by REF2014 QR allocations, which has been a central pillar of our long-term research investment strategy. During the period, several IHHD staff won honorary contracts within the NHS (Harden, Bertotti, Van Bortel, Findlay, Renton) ensuring that our research is driven by, and embedded in, health-related policy and practice. Additionally, staff are encouraged to make links with local health providers: for example, Sharpe and other colleagues are embedded in local authority public health committees where they provide expert advice, rapid reviews, data evaluation and so forth.

2.2 Equality Diversity and Inclusion (EDI)

The university's EDI policies are central to the staffing strategy of the school and institute. UEL gained Athena SWAN Bronze Award in 2017 and Race Equality Charter (REC) Bronze in 2019, with staff from the UoA acting as key drivers in both of these achievements. For most of the process, Corcoran chaired the university Athena SWAN self-assessment team (SAT) and Morgan led on data analysis and Wilson chairing the REC SAT. Corcoran also provided support for the psychology application which gained the Bronze award in 2018. HSB will submit a departmental bronze Athena SWAN application in April 2021. More than 50% of the UoA staff are either BAME or female, as an indication of progress this number was less than 25% in 2005. Staff within our UoA are working closely with the newly formed Office for Institutional Equity (OIE), to which Wilson was appointed as Dean in 2019, to better align our staff and the research we do even more with the diversity of our student body and the local community, to achieve this an OIE officer is embedded in the school.

2.3 Research leadership

Research Leadership of the UoA is in the hands of the Professoriate, including Harden, Findlay and Netuveli in the Institute and Turner, Corcoran, Cutler in HSB. Morgan is the Director of Impact and Innovation with overall responsibility for leading the school in research. Corcoran provides an example of the supportive environment within the unit as she was submitted to RAE2008 as ECR, promoted to Reader 2009 and submitted to REF2014 as Professor. The Professoriate have regular joint meetings to ensure our research strategies are operationally aligned in the research groups and institute.

2.4 Researcher Development and ECR

The UoA has taken an inclusive approach to developing researchers at all levels. This has led to other promotions to Reader and Professor during the period, including Morgan and Bertotti to Reader, with Cutler and Seed from Reader to Professor, all are now taking leading roles in the UoA in 2020. UEL provides excellent training opportunities for researchers at all levels, both at School level and through central provision. Researchers in the school are encouraged to participate in the Researcher Development Excellence framework delivered by the Graduate School which is researcher-driven through software training, networking events, UEL's Annual Research Conference, College Research Meetings, social media, and public dissemination. Staff are also encouraged to apply for central and school research initiatives, this has led to many staff being awarded funding for short sabbaticals, funding for PhD studentships, post-doctoral internships, international travel, general research expenses and conference fees.

Evidence of the effectiveness of the mechanisms specifically designed to support new and existing ECR including UEL Early Career Researcher Awards (60k) for Esposito and Ayoub. Further testament to the success of our ECR development processes by the professoriate is the fact that some of our researchers have been able to advance their careers elsewhere during the current REF period. Many have progressed to senior positions including George to Reader at Leeds Becket 2017; Rallis to Essex 2020; Mkrytchyn to UWL as a Director of Research in 2020. Our internal funding policy for developing researchers has resulted in external funding success including a John Goldman Fellowship awarded to Esposito GBP128,000 at UEL 2017 for researching Mixed Lineage Leukaemia in Children. Rahman was awarded a British Council and RSC Grant (GBP31,900) in 2017, he was also awarded a Newton-Bhabha grant (GBP11,200) in 2017 for a PhD placement of an Indian student at UEL, and a Commonwealth universities Fund (GBP58K) for 5 professional fellows to in 2016-2017; Rahman was also successful again with an award to fund three Commonwealth Fellows (37K) in 2020.

2.5 Research groupings

To further support and develop our researchers and PGRs, all research active staff and PGRs belong to at least one of our research groups or work closely with colleagues in the institute:

The Medicines Research Group (2007) embraces translational medicine themes underpinning Global Health across the biomedical disciplines concerning the quality, safety, and mechanisms of action for prescription and over the counter medicines. The Group's multidisciplinary expertise spans drug discovery and development, chemistry, toxicology, addiction pharmacology, pharmacognosy, microbiology and biopharmaceuticals. Colleagues from the group lead by Corcoran were involved in one of the first EU human trials of e-cigarettes as a smoking cessation aid to reduce lung cancer incidence in nicotine addiction (with colleagues in the school of Psychology *UoA4*). They have also

developed a fruit fly model of alcohol addiction in collaboration with Society for the Study of Addiction including a fully funded PGR student.

The Infection & Immunity Research Group (2009) focuses on microbiology and immunology as core medical sciences, host pathogen interactions; virulence factors; immunity and transplantation research; antimicrobial drug resistance in communities. The work of the group has significant reach outside academia. Mkrtchyan worked with colleagues in Armenia and India on the assessment of community reservoirs of antimicrobial resistance, the result of this study is beginning to change local public policy. Cutler has several international collaborations including in Nigeria (Africa Research Excellence Fund) and Japan. Our immunologists research novel therapeutic interventions to improve tolerance of organ transplants reducing NHS costs and improving quality of life for transplant patients (Smyth's research funded by Rosetrees Trust and the British Heart Foundation).

The Clinical Research Group (2017) focuses on translational and clinical applied health research for the alleviation of human chronic disease. Gallagher received GBP252K from the Scholl Fund to evaluate the clinical cost-effectiveness of prefabricated foot orthoses for people with early Rheumatoid Arthritis. The group has also been involved in Crohn's disease research with Seed and Carpenter receiving funding for UK clinical trial on benefits of exercise. Turner has been involved with multiple partners working on robot-assisted therapy for the upper limb after stroke which could have significant clinical applications in the future.

The Applied Sports and Exercise Sciences Group (2020) is our most recent and is led by a relatively junior lecturer, Galbraith. The focus of the group is community level sport and exercise interventions. Their success includes ASICS and compression garment-funded PhD students; publications on cognitive benefits of fitness and exercise; research on wearable technologies and performance enhancement in elite sport, strength and conditioning; and sport psychology, in collaboration with colleagues in psychology. The strategic plan for this group is to develop sufficient critical mass to enable submission in a futre sports and exercise science, or leisure and tourism unit of assessment.

2.6 PGRs

Delivery of the research objectives of the UoA is heavily reliant on our strategy of investing in PGR students. Starting with admissions, applicants go through a structured procedure including interview and are recruited on a combination of their academic performance, research potential and possession of core competencies for the project they will pursue. The process is led by our PGR leader Cutler with support from Morgan as Director of Impact and innovation. PGRs are supported by internally and externally funded studentships, we have also been very successful in attracting self-funding students. Since RAE2008 we have created PhD bursaries and also secured PhD studentships through external research grants such as ASICS, Society for the Study of Addiction and NIHR CLAHRC funded studentships. Our PhD student cohort has grown from 8 at the start of the REF period to 28 currently enrolled for PhDs and a further 7 MRes students. Many were former undergraduate or postgraduate taught students. One such example is Bashir who was a successful international MSc student, she then returned to complete her PhD part-funded by the school, she is now working as a lecturer in her home country. We have worked hard to improved overall satisfaction which has risen from 56% in 2015 to 67% in 2018 (PRES 2018), these results compare favourably with our benchmarking institutes. The general improvements in student satisfaction and completions can be partly attributed to support and training from the graduate school. An example of how they have worked to support our students is the collaboration with Queen Mary's University of London, which furnishes our students with a comprehensive array of training programmes under the Researcher Development Framework. These opportunities include: academic writing, presenting at

conferences, grant writing by bidding for career development funds and travel grants and other training aligned to enhance the PGR experience. Training needs are regularly reviewed by supervisory teams and through an annual monitoring review process coordinated centrally. The Graduate School also provides competitive support for PGRs to have short external placements under their internship scheme, providing opportunity for more specialist training as required. This scheme has enabled PGRs to have short placements in specialist laboratories including recently to Japan and Germany to learn a technique essential to their studies and another who undertook fieldwork studies in Nigeria. This training also provides opportunities for the PGRs to develop their grant writing skills.

The quality of the supervisory experience for PGRs was one of the top scoring categories following the 2018 PRES survey. Our UoA had 91% as opposed to 83% for UEL in 2015 and the post-92 sector norm of 86%. All PGR students are aligned with one of our research groups which provides wider support and are required to participate in our PGR research conferences, journal club and attend university research seminars. One example of the strength of our training and support is that in 2019/20 several of our PGRs contributed towards national competitions such as three-minute thesis (3MT), with one progressing to the national finals.

3. Income, infrastructure and facilities

3.1 Income

Being a relatively small unit of assessment and based in a post-92 institution primarily focused on teaching, we are creative in how and where we apply for funding. Although we do compete for more conventional funds, this is often with external partners from the larger research units. Our major sources of funding are for projects which build on our strengths of working with UK central government bodies, NIHR, NHS, NICE, London borough councils and various charities. We use our position and impact as a university embedded in the local community with a commitment to improve their health and wellbeing. Key examples of larger grants include Findlay as PI of the Big Lottery funded Well London (Phase 2) programme (GBP500k to UEL) which forms part of an impact case study; Harden as the PI of a NIHR funded project “Antenatal Equity: Improving Access to and experience of antenatal care (REACH)” (GBP2m with GBP896K to UEL), two projects funded by UCLPartners: “Low Birth-Weight in Newham: Definition, antecedents and prevention” (GBP400K), and “The impact of "churn" on health and health services in Newham” (GBP399K). Netuveli is CI in a large UKRI GCRF (through MRC) project led by Moorfields Eye Hospital Trust, UCL, UEL, Imperial College London and Oxford; the ORNATE India project (GBP6.9M, GBP298K to UEL). We have also been successful in attracting funding to do basic research including Gallagher awarded GBP252k from the Scholl Fund and Seed and Carpenter receiving funding for Crohn’s UK clinical trial on benefits of exercise (GBP36k) Smyth was co-PI for a British Heart Foundation grant on Organ Transplantation with her collaborators at King’s College London (GBP257,000). Rahman secured Commonwealth (GBP58,825 in 2017 and GBP36,300 in 2020), Newton-Bhaba (GBP11,200) and British Council (GBP31,900) grants as lead applicant. Turner was part of a consortium which secured GBP3.1m for a “Robot-assisted therapy for the upper limb after stroke – RATULS trial” (UK-NIHR / Dept. Health funded; 2014-2019). The variety and size of the funding the unit has successfully competed for is testament to the positive and creative environment we have developed during the period.

3.2 Income from SMEs, consultancy and project evaluation

The school hosts several SMEs including Oppilotech Ltd and ZEAB therapeutics who use our laboratory facilities to undertake research and service contracts. Both companies started from research ideas generated within the school including from George and Raynham (antimicrobial

peptides) leading to the formation of Oppilotech Ltd and Morgan (bile acids) and the formation of ZEAB therapeutics. These companies have gained significant financial backing from the private sector and now employ several full-time staff to develop their ideas. A third company, BiosearLab is a Community Interest Company, specializing in conducting biomedical research on issues of interest to the local and broader community. The existence and success of these companies is evidence of the impact of our research. Confidentiality about their projects prevents us from using them as an impact case study. The operational activities of the companies generates significant direct and indirect income for the UoA which is reinvested in research within the unit. In addition to the income, students and staff from the university benefit from the individuals and equipment the companies attract. In addition, the proximity of the companies and the entrepreneurial environment they provide creates an alternative vision of how research can be done and an alternative career path for our students and ECR. In terms of consultancy and evaluation work the connection of some staff to the NHS have resulted in several evaluation projects including a Strategic Interventions in Health Education Disciplines (SIHED) Challenge Fund project worth GBP50K, this is seen a growing area of research income.

3.3 Infrastructure and facilities

Our research has benefited from continual school and institutional investment in superb facilities and state-of-the-art equipment and laboratory facilities (GBP1.5m from 2014-2018). We have refurbished office space for the PGR students including dedicated spaces for those doing research and students in the writing phase. We have also added a dedicated laboratories and space for those undertaking their research in sport (GBP300K). Other office space includes specific meeting rooms for IHHD which make it easier for researchers to undertake qualitative research. In addition, the space will allow us to fulfil our ambition to become the local hub for applied health research and knowledge exchange for health, social care, community and business organisation across East London.

There has been major investment in equipment for our medical laboratories including the award winning vicon *10 camera motion capture system*, additional gait assessment systems (*Data Gait; Mat Scan*), upgraded *Portable UltraSound* imaging, *KinCom dynamometer*, *Oxycon*, to support of supporting the work of Gallagher and other colleagues. We have invested in Robotic technology *(Interactive Motion Technologies, Inc.*) to complete research by Turner at clinical sites including Addenbookes Hospital, Cambridge and UCL Partner Trusts. We continue to refurbish and upgrade our wet laboratory spaces including restructuring our Cell Culture Facility. There has been substantial investment in genomic/proteomic and cellular and ion channel electrophysiological equipment (*e.g., Accuri C6 FACS, gel documentation systemFlow cytometry, real-time PCR thermocyclers, Electrophysiology workstation, LC-DAD and LC-ESI-MS systems, Latach QC8500 analyser*) to support the research of staff and PGRs and even our colleagues in the SMEs.

3.4 Benefits in kind

Our networks and collaborations provide additional *benefits in kind* that are just as valuable as income, for example students and researchers are granted access to labs and equipment in other universities via collaborators including the London Metabolomics Network (UCL, Imperial, QMUL and King's College London). Other colleagues receive benefit in kind through working with health service staff time on projects like REACH (Barts & The London) and ORNATE India (Department of Health, Govt. of Kerala).

4. Collaboration and contribution to the research base, economy and society

4.1 Research collaborations, networks and partnerships

The overarching philosophy which underpins our research at UEL and in the UoA is to undertake research that has impact in the East London community, but also nationally and internationally. The a*cademic networks* of staff are widespread and have grown extensively throughout this period with high quality collaborations with colleagues all over the world. All staff are encouraged to develop and participate in relevant research collaborations, networks, and partnerships with researchers to maximise the quality, reach and impact of our research.

We currently work with local, regional, national and international collaborators including:

a. Local and regional

- In 2012, the Schools of Health, Sport & Bioscience and Psychology set up the UEL Health Commission to showcase UEL's research for health leaders and policy makers and to ensure that our research continues to address relevant research questions going forward. As a result of the commission, later in 2012, UEL joined University College London Partners (UCLP); whose purpose is to translate cutting edge research and innovation into measurable health gains for patients and populations locally, nationally, and internationally. This is an important strategic method of supporting our research. Since joining the partnership, our public health topic expertise and long-standing experience in collaborative research with end users has been used to support UCLP's successful Academic Health Science Network (AHSN) application. The UCLP AHSNs is one of only five accredited networks in the UK. Since joining UCLP in 2012 the relationship continues to support UEL research, with numerous benefits and outcomes which is evidenced in our three impact case studies.
- Our UoA colleagues represent UEL as one of the four university partners (alongside UCL, LSHTM, QMUL) in the North Thames Collaboration for Leadership in Applied Research in Health and Care (CLAHRC) led by UCL (Harden, Netuveli, Renton, Sharpe, Moore) attracting funding of GBP10m 2013-2019 from the NIHR). The North Thames CLAHRC is a collaboration of 54 partners, including world leading universities, the NHS, UCL Partners, local authorities, patients, the public, industry, and charities. The aim is to improve health outcomes and reduce inequalities through world class applied health research. During the period, our UoA lead the child and adolescent theme within the CLAHRC (Harden), have supervised a CLAHRC funded UEL PhD student (Harden, Sharpe) and have developed and evaluated a 'Young Commissioner' model to ensure that public services are designed to better meet the needs of children and young people (Harden, Sharpe) and this forms one of our impact case studies. This model has been identified as best practice by the NIHR and NHS England and is now being implemented in other areas across the country.
- The CLAHRC will continue as the North Thames ARC with renewed funding (NIHR, GBP10m, 2019-2024). We will continue to represent UEL within this collaboration. Staff with world leading track records in applied health research from our UoA and more widely in UEL are named as key investigators (Harden, Netuveli, Van Bortel, Brimicombe, J Turner) alongside staff from UCL, City, QMUL, LSHTM, and the LSE.
- Working closely with our community our biomedical, nursing and IHHD colleagues have been supporting the COVID-19 efforts through the NHS Nightingale hospital provisioning, staffing community testing, and providing data evaluation and rapid reviews to support Newham public health. In response to the national COVID vaccination scheme, nursing colleagues, are contributing their expertise to Newham Health Collaborative by training and educating local volunteer vaccinators, in addition to extending student nurse placements into the vaccination hubs to support this national initiative.

b. National and International

- Bertotti and Frostick from the IHHD lead on evaluation and training development of social prescribing in this Network an NHS funded national network with 1,500 members (commissioners, practitioners, lay members, researchers). The network aims to support the development of social prescribing nationwide and internationally.
- The IHHD team lead by Bertotti is in partnership with Elemental an award-winning tech for good company which designs and provides digital tools to support the roll out of social prescribing in the UK and internationally. In this partnership we are developing digital tools to support those delivering social prescribing to assess the economic and health impact of this intervention.
- Carpenter and Seed worked closely with Crohn's UK, Hertfordshire, alongside Newcastle & others to investigate the benefits of exercise in managing Crohn's disease.
- Casalotti and Pendry along with colleagues from the school of Psychology have been working closely with an Alcohol Addiction Project in East London with Build on Belief, a Peer-led community addiction service.
- Smyth works closely with former colleagues at King's College London on projects to improve organ rejection therapeutics.
- Nigel Davies is part of a collaboration with King's College London on an NIHR funded *post-Francis* national evaluation of the implementation of regular nursing rounds in acute hospitals.
- Turner is a key participant working with the EU rehabilitation trial RATULs (Robot Assisted Training for the Upper Limbs in Stroke), which incorporates numerous partners including UCL partners with the aim of improving recovery from stoke injury.
- Cutler has been involved with two ECDC-funded tenders on analysis of tick-borne disease burden and neuroborreliosis to inform European policy.
- Reddy is working closely with colleagues in Brazil to design novel therapeutics for the neglected tropical disease leishmaniasis using *in silico* and synthetic technologies. The project is funded by the Brazilian Government.
- In India Rahman has used funding from the Commonwealth Fund, Bhaba Fund and CGRF to disseminate awareness of antimicrobial resistance.
- In 2014, the IHHD was invited to evaluate the existing health system in Kerala, India and helped to lay the infrastructure for a Primary Care Service; first of its kind in India. Netuveli is part of an ongoing GCRF funded project (2018-21) to prevent blindness due to diabetic retinopathy with collaborators from Moorfields NHS Trust, UCL, Imperial College London, Oxford, Kings College London, and partners from India including the Govt of Kerala. A direct impact of this project is the development of a diabetic retinopathy care pathway based on the UK model but for low- and middle-income countries. This model has been formally adopted by Kerala Health Services and is under consideration in other states of India. UEL is the *primary partner in this project for the evaluation of the process and implementation.*

4.2 Public understanding of science

This section will highlight some of the many examples where members in the UoA take part in public engagement activities which enhances our interactions with the world outside the University. Several colleagues from the Medicines Research Group use their knowledge of science and applied health to work closely with the Anthony Nolan Trust to increase the number, racial and ethnic diversity of individuals on the bone marrow register. Another group of colleagues worked on projects in East London around public health messaging for diabetes. Colleagues in the Infection & Immunity group and Public Health work closely with local education authorities on a Lice Education program

in schools. Other projects include working with Newham Science After-School Clubs, tackling awareness about TB and a Wilderness Exercise program for young people. Since the start of the COVID-19 pandemic staff (Cutler, Sharpe, and Morgan) in the UoA have been involved in numerous initiatives around the public understanding of the impact of COVID-19 and engaging with all forms of media including newspapers, radio and television and feeding into the government call for expert comments.

4.3 Peer esteem

This UoA brings together expertise to carry out research on health and wellbeing and their social, economic and cultural determinants. The research produced has developed the capacity to influence and drive changes in health policy, service intervention and health system design locally, nationally and internationally. Research in this UoA is strengthened by our position and membership of key committees and boards in the NHS. Examples include Perry is convenor for the Council of Deans (England) in her role she can Influence policy and practice in healthcare education. Pendry is a member of the governments Herbal Medicine Advisory Committee (HMAC). Bruce-Low is on the scientific advisory board for UK Active. Abrahamson is a member Registrant Board Member of the Complementary and Natural Healthcare Council and also National Chair of the General Council of Massage Therapy. Rahman worked as a member of the Scientific committee on the Young Scientists' Meeting on Advances in Phytochemical Analysis organised by the Phytochemical Society of Europe (PSE). He was also a member of the International advisory committee on the 18th International Congress of the International Society for Ethnopharmacology jointly with the Society for Ethnopharmacology India held at the University of Dhaka, Bangladesh. He also acted as Deputy Chair of Academy of Pharmaceutical Science (APSGB) focus group on 'Drugs from Natural Sources. In addition, we have many colleagues on journal Editorial boards. Cutler serves as an associate editor for Clinical Microbiology and Infectious Diseases, the journal of the European Society for Clinical Microbiology and Infectious Diseases. She also serves on the Institute for Biomedical Sciences virology advisory panel and as an executive committee member of the Society for Applied Microbiology. She also chairs the senior clinical fellowships grant awards panel for FWO in Brussels.