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| Institution: University of Derby |
| Unit of Assessment: 3- Allied Health Professions, Dentistry, Nursing and Pharmacy |
| <p>1. Unit context and structure, research and impact strategy</p> <p>1.1 Unit context and structure</p> <p>This UoA encompasses multidisciplinary research taking place within two significant academic areas; the Colleges of Health and Social Care (CHSC) and Life and Natural Sciences (LNS). The body of research can be identified across two broad themes: (i) enhancing clinical pedagogic and professional practice, and (ii) effective therapeutic interventions for the prevention and treatment of chronic conditions. UoA3 reflects the continued contribution and expertise at the University of Derby in influencing professional practice within Nursing and Allied Health professionals, and the impact of applied psychosocial and biomedical research in the areas of health, disease, and wellbeing. The UoA has strengthened the understanding of mental wellbeing through compassion, with a breadth of therapeutic interventions supporting holistic approaches to wellbeing. A fundamental aspect of UoA3 is addressing impact through rehabilitation models, art therapy, meditation, mindfulness and connecting with nature. The other fundamental focus of the UoA has been to advance national approaches to patient-centred care and improve knowledge and understanding in chronic disease mechanisms.</p> <p>Submission to UoA3 is being made for the first time representing significant growth and development in the academic disciplines of Health, Biomedical Sciences, and the applied Arts since REF2014. Submissions of research in those disciplines in the previous REF were made in: UoA36 Communication, Cultural and Media Studies, Library, and Information Management; UoA4 Psychology, Psychiatry and Neuroscience and UoA5 Biological Sciences. Within UoA3, 49 staff members (45.11 FTE) are contributors to the submission with a clear focus on professional practice and therapeutic interventions, embodied by a strong culture of collaboration with regional, national, and international partners aligned to healthcare improvement strategies across identified chronic diseases. Research management, leadership and delivery has been driven through two discrete research centres: the Health and Social Care Research Centre (HSCRC) and the Human Sciences Research Centre (HSRC). Senior researchers Whitehead and Elander lead the core research themes of clinical pedagogic and professional practice, and effective therapeutic interventions (respectively) with the University appointing two research leaders at Professorial level, Dyson (Head of HSCRC) and Tripathi (Head of HSRC), to advance the Research Strategy across the Centres.</p> <p>Research Centres</p> <p>HSCRC was established post REF2014 to enhance the work of Whitehead and colleagues with the aim to further influence the professionalism and clinical competencies of the NHS workforce. This Research Centre was established through National Health Service (NHS) funding comprising £350k (to support 2 x 0.6 Research Professors and 2 x 0.5 Research Assistants) and £200k of funding matched by University of Derby Strategic Investment Funds to support pay costs over 4 years (Yr1 £44k, Yr2 £67k, Yr3 £67k and Yr4 £22k). A key objective for HSCRC was to design and deliver projects in partnership with local and national stakeholders to improve patient outcomes through improved understanding of effective pedagogy and clinical guidelines: Mortimore, Hyde, and Anthony. Aligned to the University Strategic Framework (2018-30) and its support for research collaboration, HSRC, established in 2017 (which conducts 'theoretical and applied research into the prevention and treatment of diseases and into improvements to the quality of life for people of all ages) has led to the research activities of the two centres coalescing to establish focussed objectives for UoA3:</p> <ol style="list-style-type: none"> 1. Influence the delivery of a high quality and effective workforce for future health and social care. 2. Develop and evaluate therapeutic interventions through a patient centred approach to care. |

3. Create high-quality learning environments through research-engaged practice for staff and students.

The establishment of UoA3 objectives supported cross college working and enabled a collegiate research environment for collaboration, providing increased opportunities for coordinating multidisciplinary translational research and developing evidence-based practitioner applications. The impact of this approach is illustrated by eight Health Psychology researchers from HSRC being returned in UoA3 (**Elander, Mitchell, Baird, Cross, Garip, Holland, Montague, and Williams**). To support and build a strong collaborative environment, writing workshops and writing retreats resourced with internal REF investment funding enabled academics to advance their research knowledge within multidisciplinary teams, as well as hone writing skills for publication. A critical element of UoA3's environment are the strong links and strong working partnerships with clinical colleagues and public bodies providing a welcomed vibrancy to the research culture, although this collaborative working can challenge timely delivery of impactful research. Therefore, investment in simulation facilities and high-quality laboratory facilities has provided an appropriate environment for researchers and clinicians to marry and further their understanding of identified research issues and assures that valuable research with impact is undertaken.

Governance

1.2 Research and impact strategy

UoA3 supports a culture of interdisciplinary working, whereby researchers with common goals work side-by-side on topics related to improving clinical outcomes, research into education of the current and future health and allied professions' workforce, and into therapeutic interventions allied to health and wellbeing.

The Impact Strategy for UoA3 is driven by an ambition to develop and sustain an inclusive research culture and has led to a significant increase in the number of publications submitted by the Unit since REF2014. The publications aligned to the identified themes account for 113 outputs, and the UoA3 submission includes four impact case studies (REF3). The achievements of the UoA3 research teams are identified below:

1. Our world-renowned research team has developed Compassion therapies that are the preferred treatment in over 20 UK NHS Trusts and are favoured in 25 countries.
2. Our research into chronic pain has led to changes in care and pain management practices internationally that ensure sufferers can live with their pain more effectively.
3. Our research has benefitted the UK NHS, NQNs and clinical educators internationally through a toolkit for NQN organisational support.
4. Our pedagogic resources for health professionals have been incorporated in policy and practice around the World.
5. Our research has informed government policy in the support of ex-military personnel and physical activity thresholds.

In addition, the overarching strategy for UoA3 has led to the achievement of specific impacts in the REF census period, including: i) increasing the number of external research partnerships, ii) securing significant sums of external research funding and iii) increasing the number of academic staff appointed with publication profiles. Within this UoA 43 out of 49 staff members (88%) have a doctorate, which is indicative of the positive culture driving research-informed teaching that has developed since REF2014.

1.3 Theme One: Enhancing clinical pedagogic and professional practice

Empowerment through Education has influenced both nurse practice and health policy: **Whitehead** carries out research in clinical education and student-to-newly qualified nurse transition. He was co-founder and is national General Secretary of the UK Clinical Nurse Educator Network (CNEnet). In his role leading CNEnet he brings together over one thousand members

nationally and is regularly consulted by the Nursing and Midwifery Council (NMC) and Health Education England (HEE) regarding nurse education standard and policy: Whitehead et al (2015) 'Supporting newly qualified nurse transition: A case study in a UK hospital.' Nurse Education Today, 36 pp.58-63. DOI: 10.1016/j.nedt.2015.07.008. Output identifier **778930-1**.

With an NHS in crisis, with numbers of nurses leaving at an all-time high, with soaring costs and adverse impact on patient outcomes, attrition of newly qualified nurses (NQNs), is of particular risk, related to perceived lack of self-confidence of the NQN as an autonomous practitioner. **Whitehead, Owen, Henshaw and Beddingham** in collaboration with the NHS have significantly mitigated the attrition of NQNs through analysis and evaluation of formal methodological support or 'preceptorship', which has improved the recruitment and retention of NQNs (REF3, 3-3).

Critical thinking is key to evidence-based practice and a specific requirement within nursing standards. **Dyson**, researching aspects of volunteerism and volunteering in health and social care with local collaborative partners (Derbyshire Voluntary Action and Derbyshire County Council) and Middlesex University, London, informs the critical pedagogy in nurse education through assessing 'The extent, variability, and attitudes towards volunteering among undergraduate nursing students: implications for pedagogy in nurse education. Nurse Education in Practice, 23 pp.15-22. Similarly, **Elander** prioritises academic integrity and literacy as a critical component in the education of healthcare and the allied health professional. This research (**Sivasubramaniam and Elander**, UoA3, **Stupple, Hunt, Maratos**, UoA4) improved attitudes and skills related to academic integrity, authorial identity, and critical thinking of students in medicine, health studies, health sciences, health psychology, nursing, and allied health disciplines. Pedagogic resources and techniques resulting from the research, including a critical thinking toolkit, have been incorporated in policy and practice around the World, and the European Network of Academic Integrity applied the research to promote academic integrity and reduce plagiarism (REF3, 3-2).

The breadth of approaches employed by the research teams at the University of Derby to influence clinical pedagogy and professional practice are far-reaching. Examples of these interventions include: Arts-based Therapies and Women's health: **Bird** carries out research to measure the impact of educational initiatives to tackle risk of sexual exploitation of young people, and to measure the benefits of initiatives to tackle domestic abuse: Bird, J. (2017) 'Art therapy, arts-based research and transitional stories of domestic violence and abuse', International Journal of Art Therapy, 23 (1) pp.14-24 DOI: 10.1080/17454832.2017.1317004. Interventions in the Public Health domain undertaken by **Woodward** with local clinical commissioning groups and charities developed and carried out research and evaluation activities of local health services including research to support local alcohol strategy plans: Woodward et al (2017) 'Exploring the Long-term Influence of the Family Nurse Partnership on the Lives of Young Mothers', European Journal of Public Health, 27 (3) pp. cxx186.308.

1.4. Theme Two: Effective therapeutic interventions for the prevention and treatment of chronic conditions

1.4.1 Compassion

Under the leadership of **Gilbert** in UoA4, further advances in psychosocial interventions have been made during the REF2021 census period with models of compassion, mental health, and wellbeing (REF3, 3-4). New environments for compassion-based interventions (CBIs) have been explored with **McEwan** carrying out research in mental health and public health: **McEwan, K, Minou, Moore, Gilbert, P.** (2020). 'Engaging with distress: Training in the compassionate approach,' Journal of Psychiatric and Mental Health Nursing, 27 (6) pp.1-10. Doi.org/10.1111/jpm.12630 (the first qualitative assessment of CBIs for healthcare professionals, first longitudinal study assessing the success of CBI implementation). Output identifier **786208-1**.

1.4.2 Chronic Conditions

Pain: Elander and his team are focused on the behavioural and psychological aspects of pain management and analgesic use in painful chronic conditions such as haemophilia, sickle cell disease, and chronic headache. **Elander's** research includes developing and evaluating

interventions to improve people's self-management of pain, and studies of the interpersonal staff-patient dynamics that affect quality of pain management, especially in hospital (REF3, 3-1).

Respiratory: The increasing prevalence and debilitating effects of respiratory disease is harming quality of life. **Faghy's**, Sport and Exercise Science research applied within a clinical environment is being supported to pioneer innovative methods to prevent and treat conditions such as pneumonia and restore and enhance the lived experience of those suffering with respiratory disease. His research has been funded by European Regional Development Fund (ERDF, £120K) and a regional company specialising in making Singlet Oxygen Energy Machines (SOEMac). **Faghy's** research, supported by **Ashton**, an Early Career Researcher (ECR) with expertise in the role and impact of exercise in the rehabilitation of cancer and cardiovascular patients, has enabled strong research development and partnership with regional SMEs and NHS Trusts.

Human papillomavirus (HPV) is recognised as a causal factor in cancers of the genital tract, predominantly cervical cancer but more recently recognised to be associated with a subset of head and neck cancers. However, there are significant gaps in the knowledge and understanding of HPV and oropharyngeal cancer. Research by **Marsh** funded (£87k) by Oracle Cancer Trust is investigating biomarkers for early detection of oropharyngeal cancer and pathophysiology of the disease. **Marsh**, working with **Knight** has developed long term research collaboration with University Hospitals of Derby and Burton Foundation Trust and is actively working with clinicians in multi-site trials evaluating the pathology and epidemiology of HPV.

Other research aligned to chronic disease include **Parker's** work which is focussed upon easy to use, 'off-the-shelf' technologies to facilitate self-management in paediatric and adult neuro-disabilities including ADHD and child/adolescent mental health and stroke, respectively. This research has resulted in augmenting the NHS care of children/adolescents with ADHD and working within international collaborations to explore diagnostic assessment. Moreover, publications with high impact at regional, national, and international level has enabled **Parker** to develop strong collaborative partnership working with national and international industry partners as well as formal engagement with regional and national stroke research groups. In addition, **Elander's** research on developing acceptance and commitment therapy for patients receiving renal dialysis following kidney failure has been supported by BRS/Kidney Care UK (£34k).

Metabolic disorder research has been further developed during this REF census period. **Sivasubramaniam** and his team's pre- and post-natal research supported by University REF funding is providing vital insight into how air pollution and maternal nutrition can not only affect placental health and foetal development during pregnancy, but also impact the potential risk of future metabolic diseases. **Higgins'** research focussed on ergogenic supplements such as caffeine and deep-sea minerals on the psyche of individuals, and their physiological impact in sports and health. **Higgins'** research over the years 2015-19 was funded by Innovate UK with Surescreen and, Nutrivitality (KTP £157k) and Elderberry (£106k). The research of the biomedical science research team has provided further insight into our understanding of the growing epidemic of obesity and the link metabolic diseases such as Type 2 diabetes. This area of research has been strengthened with the appointments of **Tripathi** (April 2019, expertise in obesity-linked metabolic diseases), **Parthsarathy** (July 2017, expertise in incretins and drug development) and **Ademowo** (February 2020, expertise in translational medicine, metabolomics, and disease mechanisms). Working with NHS Trusts and several pharmaceutical companies towards the discovery of novel biomarkers and drug targets is driving the future focus of this research team, as well as investigating disease mechanisms.

1.4.3 Wellbeing and Health

A significant achievement during since REF2014 has been driving a local approach to health and wellbeing within a City identified with high levels of obesity and poor health. The 'Derby: a City on the Move' project, was funded by Sport England Get Healthy Get Active grant awarded to the University of Derby, as part of a consortium-partner project that included Derby City Council, Derby County Community Trust, Derby College and Team Derby (UoD) (2016-19). The Project, led by **Bussell** (PI) and **Faghy** (Co-I) from the Sports and Exercise Science team, received total funding

of £1.06M (£437k from Sport England and £626k in-kind contribution from the Consortium partnership). The Project engaged 4,979 physically inactive Derby City citizens (aged 14+), from across a range of age groups, and implemented a person-centred behaviour change model that led to 82% of participants increasing their physical activity levels at 3 months follow up. This project successfully supported two PhD students as part of the delivery model. Other significant research led by **Pringle** investigated the impact and implementation of physical activity interventions with adults and older adults, including physical activity promotion in healthcare, health improvement in sports community trusts, and physical activity guidelines. This research is complemented by **Roscoe** in the assessment of physical activity levels and fundamental movement skills in preschool children. **Roscoe's** current research in primary schools in Warwickshire is assessing and evaluating the children's fundamental movement skills (FMS), including anthropometric measures and a range of physical and psychosocial variables in relation to the FMS requirements of the national curriculum. In addition, **Lewis** has implemented the use of modelling and simulation to optimise human movement in both athlete and clinical populations. This work has been undertaken within interdisciplinary environments aligned to sport performance. Current research by **Lewis**, in collaboration with Kurio 3D, a specialist sports garment company, assesses the impact of specialist clothing on performance outcomes. The research into movement and performance led by **Pringle**, **Roscoe** and **Lewis** provides a clear strategic link to the biomedical, health sciences and sports sciences research across the identified themes.

1.4.4 Patient-centred care

A central focus of research within UoA3 has been established to address health care outcomes through a patient-centred care approach. Methodological approaches through systematic reviews, advances in manufacturing to aid patient mobility, or the development and implementation of national guidelines are all significant in enhancing our understanding of delivering a more personalised approach to care. **Anthony** works with a network of experts in wound care, specifically on systematic reviews of pressure ulcer prevalence, and of pressure ulcer knowledge, and **Safari** carries out research in prosthetics and orthotics with a special interest in advanced manufacturing of prosthesis and orthosis: Anthony, Alosoumi, and Safari (2019) 'Prevalence of pressure ulcers in long term care: A global review', *Journal of Wound Care*, 28 (11) pp.1-7. DOI: 10.12968/jowc.2019.28.11.702. **Mortimore** carries out research into Haemochromatosis and Hepatocellular carcinoma, and **Watson** carries out research in communication in palliative and end of life care: Watson and Mortimore (2018) 'Dying from liver disease: the importance of end-of-life discussions.' *Gastrointestinal Nursing*, 16 (10) pp. S37-S42. DOI: 10.12968/gasn.2018.16. Sup10.S37. Moreover, this research has led to new ways of working and impacted upon national guidelines.

Within the field of diagnostic imaging, **Hyde** has undertaken a large-scale research project funded by the UK College of Radiographers Industry Partnership scheme (CoRIPS) to define informed measures of patient-centred care in diagnostic radiography. The outputs from this research have been substantial and dissemination to date includes a chapter in a General Radiography textbook, two peer reviewed journal articles, as well several invitations to present the work at national and international conferences: Hyde & Hardy (2020) Patient-centred care and considerations: In Hayre and Cox (eds) *General Radiography: Principals and Practice*. London CRC Press.

It is important to acknowledge that our patient-centred approach to care requires effective collaborative working with NHS trusts, industry partners and national and international academic collaborators. This UoA3 focus has enacted change in how teaching, training and research is undertaken to improve patient outcomes and deliver a more personalised approach to care.

1.5 Future research strategy

Our future strategy is to further develop the research mapped to the identified themes identified in this submission to UoA3: (i) enhancing clinical pedagogic and professional practice and (ii) effective therapeutic interventions for the prevention and treatment of chronic conditions. The future strategy is based upon strengthening our multidisciplinary research to forge stronger partnership working with national and global industry partners, including NHS trusts but in particular to work with academic partners both regionally and internationally to assure that a place-

based approach to deliver high quality translational research is at the heart of our research centres. An additional focus for this UoA will be to further evaluate the research activity in terms of both societal and economic impact to strengthen our focus and provide a strong narrative for investment opportunities.

The UoA Strategy has aligned to the University's Research Strategy (2014- 2020) and the Innovation and Research Strategic Priorities (2020–2026) (REF5a, 2.3):

1. Invest in talent by recruiting staff and research students who can contribute to the research of the Unit.
2. Grow innovation by developing specialised interdisciplinary research groups to address major external challenges and work with external partners to apply our research and translate research into demonstrable impact.
3. Achieve greater regional, national, and international impact by strengthening and expanding key strategic external partnerships in research, including between the Unit and NHS hospital trusts.
4. Empower our graduates by supporting improved achievement and success by graduates of Masters and Doctoral research programmes in terms of publication and dissemination of research, and career progression and achievement of Masters and Doctoral graduates.

A core focus of the Strategic Priorities is encouraging effective collaboration across the Institution. Structural changes to Academic Colleges announced in September 2020 will further enable collaborative working relationships. UoA3 research teams will formally work with the Data Science Research Centre (DSRC) and the Institute for Innovation in Sustainable Engineering (IISE) to enhance the potential for delivering impactful research.

Enhancing clinical pedagogic and professional practice will remain a key strand of research but of particular focus, in partnership with Health Education England and regional NHS Trusts, will be the evaluation and understanding of the future health workforce for the UK and with Commonwealth Countries aligned to the UK model. **Hyde** and **Mortimore** have both secured new streams of funding to develop elements of their research which align to enhancing professional practice within patient-centred models of delivery.

Effective therapeutic interventions for the prevention and treatment of chronic conditions will continue to support and validate the international impact of compassion and wellbeing research. However, in relation to biomedical approaches to therapeutic interventions a greater focus on personalised and translational research across a range of disorders will be pursued and impact will be aligned to a patient centred approach to care.

An emerging strength of UoA3 is within the field of **metabolic disorders**, which has been a key focus for development and investment since 2018. A recent award from the Local Growth Fund investment via the D2N2 Local Enterprise Partnership (LEP) of £850K (equally matched by UoD) will see a Facility for OMICS Research in Metabolism (FORM) open in September 2021. Research capability in this area has been enhanced through collaborative working with Data Science Research Centre (UoA11) and the Institute for Innovation in Sustainable Engineering (UoA12) to exploit the application of knowledge generated from FORM into Artificial Intelligence (AI), to understand causes and prevention of diseases and in the development of medical technologies. UoD has already made significant appointments (**Tripathi**, **Ademowo**, **Meziane**, **Pringle**, **Parthasarathy** and **Sivasubramaniam**) with relevant expertise, and plans to recruit expertise in metabolomics and genomics are being pursued. FORM has developed important local and national collaborations with NHS trusts including industrial partners and stakeholder: Surescreen Diagnostics, Nutrivitality, RetroGenix, N4 Pharma, Socotec and NHS Trust (Derby and Burton, Kings College Hospital London, University Hospitals Coventry and Warwickshire).

Long COVID and respiratory rehabilitation: Post-acute COVID-19, or 'long-COVID', describes patients that experience persistent symptoms and illness for periods of time despite clinical resolution. The volume of patients requiring support for persistent symptoms is placing unprecedented demand on clinical services around the world. Due to the multi-system nature and

lack of understanding of COVID-19, and the determinants of a successful recovery, there is an urgent need to develop optimised rehabilitation pathways to support patients in the post-COVID period. To investigate this a team led by **Faghy** has successfully acquired funding from Gilead Sciences (£178k) as well as Innovate UK (£333k). This research is being carried out in collaboration with University of Illinois, USA, All Indian Institute of Medical Sciences, India, Kings College London, and University of Nottingham, and supported by **Ashton**, **Parthsarathy** and **Tripathi**. This research builds upon the expertise and knowledge gained from multiple trials with different patient groups recovering from Pneumonia and COPD. Future COVID-19 related research will focus on the impact of COVID-19 and lockdown, including the impact upon the mental health of children, adults and isolated individuals and communities.

The identified core themes will be pursued with a focus on driving research with impactful translation to deliver personalised care and medicine for the benefit of local, national, and international human health. Our aim is to make our research fully sustainable through regular research funding awards, and recruitment and retention of research expertise and investment in studentships and Early Career Researchers (ECRs).

2. People

2.1 Staffing strategy and staff development

The staff recruitment strategy for College of Life and Natural Sciences (LNS) and College of Health and Social Care (HSC) is aligned with the University commitment for academic staff appointments to strengthen and develop research capacity and capability. UoA3 prioritised research capability and the fit between applicants' research and the strategic aims of Unit and the two corresponding research centres in shortlisting and final selection for academic posts.

Significant responsibility for research (SRR) was determined by following the University Code of Practice. For each member of staff, recommendations were made to the appropriate College PVC Deans, **Bussell** (LNS) and **Holt** (HSC), regarding individual staff members, following formal discussions with line managers relating to planned workload, expected work roles and responsibilities, and objectives recorded in the University appraisal system.

2.2 Staff appointments

Developing depth across the core research areas has been key to all appointments made during the REF period and will continue to do so to further enhance research capacity and support future REF submissions for this UoA. To develop and support research, two research centres were created, HSCRC and HSRC to provide strategic guidance and vision (Section 1).

Between 2014 and 2020, consistent with the University staff development strategy, HSCRC committed to supporting and developing the research culture, and the complement of research staff increased to four professors (2 x 1FTE, 1 x 0.2 FTE, 1 x 0.4 FTE), seven lecturers and senior lecturers (6 x 1FTE, 1 x 0.8FTE) and one research assistant (0.6FTE). With the exception of the research assistant and the research support officer, all those staff have significant responsibility for research (SRR) which was determined by the University's REF2021 Code of Practice (CoP).

Similarly, HSRC made several significant new appointments within this period to support teaching and research in Biomedical Sciences (**Sivasubramaniam**, Head of Biomedical; **Parthsarathy**, Senior Lecturer Molecular Physiology; **Illingworth**, Lecturer Molecular Biology; **Marsh**, Senior Lecturer, Cancer Biology); Sports and Exercise Sciences (**Pringle**, Associate Professor of Physical Activity and Health; **Parker**, Senior Lecturer of Sports Therapy; **Ashton**, Lecturer of CVD, cancer and sports rehabilitation; **Zhou**, Lecturer of Sports psychology); and Forensic Science (**Zouganelis** and **Lazim** lecturers in forensic genomics and bioinformatics). These appointments strengthen the current and future strategy and provide support for the Facility for OMICS Research in Metabolism (FORM).

The total number of staff determined to have SRR and submitted within UoA3 equates to 49 (45.11 FTE, which represents a significant and sustained commitment to developing our research

ambition, infrastructure and culture aligned to the University strategy to sustain impactful research across focussed areas.

2.3 Staff promotions

Across UoA3 a comparable approach to promotion was adopted by both the Colleges. The effort for College of Health and Social Care was supporting and developing internal staff with more new recruits appointed to build research capacity. Each year, all research active staff can directly apply for internal promotion to Professor or Associate Professor based upon clear criteria and an award panel, which includes external members (REF5a, 3.4.1). Within this REF period, four staff members directly benefitted from this scheme and were promoted to Associate Professor. Promotion to Professor or Associate Professor rewards the member of staff with extra time for research (equivalent to 0.5 FTE for research or research related activity) in addition to salary.

2.4 Staff development and training opportunities

UoD follows an appraisal system, which not only rewards staff for their achievements but also considers their professional and personal developmental requirements. Workload is regularly discussed with the line manager and assessment of SRR to assure a balanced workload is achieved and kept under review across the academic year. The UoA aims to be flexible with research time management and is reviewed quarterly in line with EDI principles.

The College Research Committees (CRC) outlines College-specific staff development requirements which are presented to the University Research Committee (URC) and the University Professorial Council (UPC). URC and UPC work with the University Research and Knowledge Exchange Office (URKEO) to provide research-related staff development programmes (REF5a, 3.4). A range of education and training opportunities are promoted regularly to all staff, supported by an easy-to-use staff development website. Staff attendance on development programmes and their learning are monitored and supported as part of the formal appraisal system with line managers.

2.5 Supporting Early Career Researchers (ECR)

UPC and URKEO have worked closely with the CRCs to develop a robust and engaging mentorship programme. Across UoA3, each ECR is provided with a mentor to support the development and alignment of their personal research strategy to the identified research theme(s), provide insight into becoming a successful research supervisor and support in submitting successful research grants. Within both of the research centres (HSRC and HSCRC) individuals are encouraged to apply for Future Leaders Fellowships funded by UKRI. In 2019 **Faghy** applied for this fellowship, though unsuccessful, it gave him confidence to apply for other research funding, and maintain the collaboration developed. In 2021 he successfully acquired two externally funded projects; Gilead Sciences (£177K) and Innovate UK (£332K). This is a notable example of the impact of the ECR support across UoA3. In 2021, another ECR (**Ademowo**) has applied for the Future Leaders Fellowship. In addition, in 2019 HSRC appointed a Research Support Officer and Impact Officer to provide impact and research bid support.

2.6 Promoting collaborative research

Both HSRC and HSCRC organise seminar series open to all the academic staff and students within and outside University. These seminars are scheduled to accommodate staff and student schedules especially those from the two research centres to encourage attendance. The network of seminar series has been further extended to the Data Science Research Centre (DSRC) with a 3-way seminar series now established that regularly includes invited external speakers. These seminar series are further complemented by the annual University Research and KE Conference (REF5a, 3.4.4).

The Research Centres actively encourage presentations and attendance in national and international conferences, which are normally funded by the College research fund, although all staff are encouraged to seek external funding to support dissemination. A significant number of submissions from UoA3 demonstrate strong collaborative research, in particular with NHS Trusts

(McEwan, Hyde, Mortimore) and support for accessing collaborative research grants is proactively encouraged with support available within URKEO.

UoD is a patron of Medilink East Midlands and has organised two campus-based events since 2019. HSRC has been supported to showcase research to external stakeholders at most of the Medilink events, further developing UoA3's health network with a number of NHS Trusts and other local industry partners. The support of this network facilitated successful LEP funding (2020) for the new Facility for OMICS Research in Metabolism (FORM) and the Innovate UK project with UVAMED, both to commence beyond the current REF period.

2.7 Appointment of clinical and academic visiting scholars

The University has a Visiting Professorship and Fellowship Programme which provides opportunities to staff to develop collaborations in their area of expertise. The HSRC currently has a considerable number of clinical and academic visiting scholars including: Professor Randeva (Clinical Endocrinologist, University Hospitals Coventry and Warwickshire, University of Warwick), Dr Georgios Dimitriadis (Obesity consultant, Kings College Hospital London), Dr Piyush Upadhyay (Orthopaedic surgeon, South Warwickshire Hospital) and Dr Steve Attfield (Deputy General Manager for Specialist Rehabilitation, Derby and Burton NHS Trust). A core strategic aim during the last 5-year period is that all our clinical experts are supported to collaboratively develop research bids and applications with HSRC and UoD, and directly contribute to our research expertise.

2.8 Equality and Diversity

Since committing to the Athena SWAN (AS) Charter in 2014, the University has embedded the principles of AS a fundamental component within our culture. This process has allowed the University to align policies and guidance with the Charter and further strengthen practices. As a result, in 2018, the University refreshed its Strategic Framework and identified four key values as a measure of its aspiration and success: Being Bold, Future Focused, Brilliance and Valuing People.

In the UoA, the AS principles and culture are manifested in our consideration of all individuals who were deemed to have significant responsibility for research (SRR), in line with the University's Code of Practice. The AS principles are diligently followed in all promotions and appointments including in the selection of PGR students. In line with the University and College's AS principles the UoA has developed a recruitment strategy to increase the number of women in research roles; and to enhance the visibility of our senior researchers and female professors. We are committed to showcasing our female researchers, especially female professors, on our College and Research Centre websites, and to increasing the number of female and BAME Visiting Professors. In addition, we are ensuring our call for nominations for members of College research and leadership committees, considers the balance of women and BAME professors. Data is collected and collated to inform the work of our CRCs on the roles and progress of Associate Professors and Professors to track for diversity and parity of female progression. We are committed to ensuring women have parity with men in relation to research allocation within their workload.

Over the REF2021 cycle we have been able to evidence the success of our approach by an increased number of PhD completions and submissions from current female academics. The College of Health and Social Care is continuing working to recruit more academics with research capability to ensure, that the research culture driven during this REF period is further developed and sustained. However, we are aware of 'gender balance', being predominantly female in Health and Social Care, so some of the emphasis is on the recruitment of men in specific subject areas, such as nursing. For example, a recent appointment to the role of Head of the School of Nursing and Professional Practice is male. A female has led the Health and Social Care Research Centre since 2018, with the majority of those engaging with the research centre being female, although this represents the majority staff base. The Human Sciences Research Centre has been led by a BAME male Professor since 2019. We aim to ensure positive role models to encourage greater diversity in research. With respect to our postgraduate research student community, in

order to enhance female and BAME contribution to our research pipeline we monitor gender balance and BAME representation through our CRC standard reporting procedures.

Table 1 provides comparator data on SRR between institutional Category A Eligible and UoA3 submitted including indices for gender, ethnicity and disability.

Table 1: Percentage of full time equivalent (FTE) academic staff based on gender (note no staff identified as gender neutral), ethnicity (Black and Minority Ethnic) and declared disability

| | Gender | | Ethnicity | | | Disability | |
|---------------------------------|--------|------|-----------|----------|-----------------|---------------------|------------------------|
| | Female | Male | BAME | Non-BAME | Refused/Unknown | Declared disability | No declared Disability |
| Institution Category A Eligible | 50% | 50% | 24% | 75% | <1% | 3% | 97% |
| UoA3 Submitted | 57% | 43% | 15% | 85% | 0% | 4% | 96% |

2.9 Postgraduate research students

In the REF period (2014-2020) 10 students successfully completed their PhD in UoA3, and there are currently 79 PhD students across the two Colleges. Amongst these 79 students, 21 are studying for a professional doctorate, which is a part-time programme (6-years registration) and many of these students are in the early years of the programme. There are also two students (staff) undertaking PhD by publication and both have recently submitted (**Hyde, Mortimore**). Our research students continue with academic research, join clinical practice, or move to industries aligned to their research discipline.

Each student has two supervisors, and the supervisory team have experience of at least two successful PhD completions. All supervisors are provided annual training in PhD supervision by the URKEO. All students within UoA3 receive a local PhD induction. Progress of each student is monitored through the CRC and matters arising are further discussed at URC. A representative of the PGR student body is formally invited to attend CRC and URC and is a recognised member of these Committees. The Chair and Deputy Chair of CRC regularly monitor PhD progress using the PhD Manager system (REF5a 4.2). Overall research degree performance is overseen by the CRC, with College leadership required to monitor progress and address any identified issues.

A well-developed framework is employed to support our research students and monitor their progress (REF5a 3.4.5). PGR students are offered professional development opportunities in the form of workshops and seminars. To provide an interactive environment all research students share the same office area and are encouraged to attend the HSCRC and HSRC research seminar series. PGR students are also provided opportunities to present their work and interact with the wider University research community.

3. Income, infrastructure and facilities

3.1 Income

Overall income within this REF period the Unit has generated a total of £2.35M. This is the first time the University is submitting in this UoA and income has grown immeasurably throughout the REF2021 period, from £18k in 2013-14 to £421k in 2019/20. There has been an exponential increase in the number of grants being secured, leading to increased research activity and impact. In particular, significant success in winning community-based projects can be evidenced, for example, 'Derby: A City on the Move' (£437k; total funding £1.06M) funded by Sport England. KTP awards in collaboration with a local SME company with a national profile, Surescreen Diagnostics, have been secured totalling £157k over a period of 3 years. Similarly, there has been increased success in winning Innovate UK (£117K) and Industrial (£106K) grants, as well as ERDF grants.

The HSCRC was setup with support from NHS funding (£350K) and a further investment of £200K was made by four local Clinical Commissioning Groups.

3.1.1 Funding for applied research

Our strategic investment in applied research has successfully resulted in the awards of £550K for the development of HSCRC and as identified above £437K for the 'Derby: a City on the Move' project by Sport England. For both these awards the University was an equal contributor showing the commitment of our University in supporting and driving research success.

3.1.2 Funding for laboratory science

Our laboratory-based science has progressed significantly during this REF period and continues to grow. This has attracted important industrial funding in the form of KTPs (£156K), direct funding (£106K) and ERDF. A further £13,675 from the College of Radiographers Industry Partnership Scheme was awarded to **Hyde** to support a large-scale multi-method research project on informed measures of patient centred care in diagnostic radiography in 2017.

3.1.3 Sustained funding beyond REF2021

In the past academic year grants totalling >£2M for laboratory-based research have been submitted and Health Education England (HEE) has sustained the financial support for **Hyde** and the allied health research team awarding £10k grant (January 2021) to lead a project on the evaluation of Midlands Radiography Workforce; scoping possible ways to increase the radiography workforce. Further funding for specific laboratory facilities awarded late 2020 including: VR simulation software and headsets (£63k) and Radiography phantoms (£67k). A significant award has been from the Local Growth Fund investment via the D2N2 Local Enterprise Partnership (LEP) of £850K (equally matched by UoD, total £1.7M) to create a Facility for OMICS Research in Metabolism (FORM) which is on schedule to open in September 2021. These awards assure that University of Derby, and specifically this UoA, is on track to sustain high-quality research and further develop our identified research areas.

3.1.4 Industry partnership

Industrial network and partnership working has been successful, specifically with D2N2 LEP and East Midlands Chamber, working with the region with Small and Medium Sized Enterprises (SME). Robust and valuable partnerships have been developed with companies such as Surescreen Diagnostics and Nutrivitality, Retrogenix and N4 Pharma. Our partnership with industries has generated more than £250K of funding within this Unit. Also, the funding has supported two PhD studentships during this REF period. UoD's patronage of Medilink has enabled important contacts with pharma and medicine related industries. It is important to acknowledge that the partnership with University of Derby and Burton NHS Trust, has been significant in enabling access and support to the clinical environment and many of the research submissions from HSCRC are in partnership with clinical colleagues from the Trust.

3.2 Infrastructure and facilities

HSRC Facilities: In this REF period the College of Life and Natural Sciences through HSRC, has made significant investment towards facilities to bring it to the standard where International quality of biomedical research was possible. A bespoke molecular biology research laboratory with mammalian cell culture facility has been created. It boasts state of the art facilities such as Confocal Fluorescent Microscopy (£190k), Atomic Absorption Spectrophotometer (£9,600), GC-MS (£70k), several light microscopes and Scanning Electron Microscope (£160k) to name some in addition to usual bench top equipment. In addition, the HSRC also has fully equipped sports physiotherapy unit, gait and motion (£250k) and eye tracking (£27k) facility used for human physiology research. To support HSRC's ambition to be a world class research centre for personalised and translational medicine, equipment has been purchased in 2021 (Waters Xevo TQ-XS, £223k and Waters Xevo G2-XS, £248k) to support the opening of FORM in September 2021 (Section 1.5).

HSCRC Facilities: The Clinical Skills suite is built to a professional standard and provides a safe environment to develop competencies required to excel in nursing and allied health professional

careers. The Immersive Interactive Simulation suite creates immersion in a range of different scenarios that nurses, and other health professionals, may encounter in their practice, from the back of an ambulance to an operating theatre or anaesthetic room. The Clinical Skills Suite creates an excellent facility to evaluate clinical research and the impact of guidelines within a safe yet professional standard environment.

The College of Health and Social Care has also significantly invested in creating a modern Occupational Therapy unit equipped with rehabilitation kitchen, several hospital wards and a virtual immersion facility. These facilities are used for teaching as well as research. The College has invested in creating a radiography, ultrasonography, and radiographic reporting suites. In addition, Health Education England (HEE) have funded clinical skills facilities, which are available for teaching and research and supported research outputs across the allied health profession teams in particular diagnostic radiography:

- Ultrasound machine (£40k awarded spring 2020)
- Bodyworks EVE simulation torso (£50k awarded spring 2020)
- Ultrasound simulation suite with eight workstations (£300k awarded 2017)
- Image reporting practical space with fifteen workstations (£110k awarded 2018)

University support for research: The University provides a range of services to support research excellence through the URKEO (REF5a, 2.1) in addition to comprehensive library and ITS support. The URKEO delivers a Researcher Development Programme, PGR monitoring and support, the ECR Forum and research bid preparation and monitoring. Other University services include legal advice for industrial projects, data management support and providing links with industries. All the research governance is carried out through URC, with URKEO acting as a 'one stop shop' for all research related support services.

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

4.1 Collaborative research making difference to society

Our collaborative research programmes have made a significant difference to society and a significant proportion of research activity within UoA3 has proactively facilitated research discussion and communication in the wider context of the research base. Examples of these collaborations are outlined below:

Compassion Research: McEwan a Senior Researcher, methodologist and statistician with extensive experience leading and designing research in mental health and public health interventions, in particular Compassion Focused Therapy. She has led on research, managing Research Assistants and students in Academic, NHS and Clinical Trial Unit settings. She is a Trustee of the Compassionate Mind Foundation and has worked closely with the developer of Compassion Focused Therapy (**Gilbert**). **McEwan** has been co-applicant on four successful bids obtaining >£2.6M in funding. As a Consultant for the Research Design Service (NIHR) providing research design and grant-writing guidance to hundreds of NHS and Public Health England stakeholders, she obtained a high success rate in securing external funding. **Minou** also works on Compassion and Wellbeing research. She works on qualitatively analysing people's experience of receiving Compassion Focused Therapy and more broadly on the perception of the term "compassion" itself. Her work on the pathophysiology of emotion in the past has appeared in international and interdisciplinary conferences on emotion and the social history of medicine.

Faghy, Senior Lecturer in Exercise Physiology, has contributed to a chapter to the upcoming BASES Physiological Testing Guidelines book. The working title of the chapter is 'Asthma and COPD'. The British Association of Sport and Exercise Sciences (BASES) is the UK professional body for sport and exercise sciences, with a mission to drive excellence in sport and exercise sciences through the promotion of evidence-based practice and the development and enhancement of professional and ethical standards. In addition, **Faghy** has been acknowledged for his contribution to the latest POSTnote on 'Mental health impacts of COVID-19 on NHS staff'. This POSTnote gives an overview of the scale and quality of current evidence on the mental health and well-being of NHS staff before and during the pandemic. It also discusses how staff are

supported and the options for introducing other effective interventions as the pandemic continues: <https://post.parliament.uk/>.

Sing to Beat Aphasia: Irons with her colleagues from Griffith University, Brisbane, Australia; 'Sing to Beat Parkinson's' has been a significant collaborative project with partners from Griffith University (Australia), Ewha Woman's University (South Korea) and Canterbury Christ Church University Sidney De Haan Research Centre (UK). Outputs from these collaborations are the Cochrane Systematic Review with Griffith University (Australia), and UK (Canterbury Christ Church University, Sidney De Haan Research Centre); the Longitudinal Choir Study with Spain (Vic University), Germany (University of Oldenburg); and the Group singing leaders' perception and roles: a qualitative study with a colleague from Canterbury Christ Church University, Sidney De Haan Research Centre.

Pringle with Williams, Kay and Simpson (Centre of Social Justice, Leeds Beckett University) have undertaken an Evaluation of the Physical Activity Advisor Service provided by the Charity WheelPower. WheelPower provides a physical activity advice and promotion service to people with spinal cord injury (SCI) in Specialist Spinal Cord Injury Centres across the UK. Physical Activity Advisors work with healthcare professionals in SCI centres to provide an advisory service on sport and physical activity and they support the provision of these activities for patients. (<https://www.wheelpower.org.uk/>). This collaborative work builds upon **Pringle's** research investigating the impact and implementation of healthcare professionals in promoting physical activity.

Woodward has worked with local clinical commissioning groups and charities developing and carrying out research and evaluation activities of local health services, including working with Ripplez, a provider of intensive health visiting programmes for young and vulnerable parents. She is also a member of the Derbyshire Alcohol Prevention Group (Erewash), where her research feeds into the local alcohol strategy plans. Working closely with Derbyshire Healthcare NHS Foundation Trust, she has been using her research on 'alcohol use' to assist with a project focussing on Alcohol Related Brain Damage. **Woodward** is currently working with Derbyshire County Council and the Derbyshire Armed Forces Covenant group, researching the size and needs of the Derbyshire Armed Forces Community.

Safari is an associate editor of Prosthetics Orthotics International, a leading journal in the field. Aside from the role in reviewing and decision making on submitted manuscripts, he has been involved in drafting a section of the author guidance on prosthetics and orthotics terminology. He has also been invited by the same journal to author a paper on advanced and future directions in prosthetic interface design for the 50th anniversary of the International Society of Orthotics and Prosthetics.

4.1.1 Projects funded by Derbyshire local Clinical Commissioning Group (CCG)

Projects funded by CCG have been instrumental in addressing core issues within our local communities and have enhanced collaborative working and improved outcomes for the users of service across Derbyshire and beyond.

Care home provision and the NHS: Explaining variation in effective healthcare provision and integration; this study explored the issue of how to effectively harness the contribution of care/nursing homes to the health care system and to reduce the perceived demands made by care homes on primary care services. It focused on North Derbyshire's Care Home Alignment Scheme.

Accessing appropriate NHS services: Exploring why people choose to go to A&E rather than alternative services- a community audit. The aim of this study was to examine factors that influenced the decisions made by local people when choosing which service to access for their symptoms and to identify why people may choose A&E rather than other service options.

Women and Alcohol Project: The Study identified women's knowledge, beliefs and behaviours relating to alcohol consumption, what they thought could be done to prevent women reaching a point of experiencing serious harm and to identify the drivers and barriers to providing good quality prevention (pro-active) services for women over the age of 45 who drink to excess.

The Role and Value of Medicines Management: The Study made recommendations around the simplification of the recordings of interventions and all activities to improve the consistency of the data collected. The report describes the clear benefits to both practitioners and patients, whilst making additional recommendations, primarily focussing on how to maximise the benefit of the pharmacist, given their limited time and the wide range of tasks they can undertake successfully.

Oral Nutritional Supplements in Care Homes and the Community: Nutrition Review and Staff Education: An evaluation commissioned by Southern Derbyshire CCG and Derby Hospitals Community Dietetic Team, explored the effectiveness of a programme of nutritional review and staff education in care homes and the community. The Report demonstrated the significant cost savings made by the dietetic team, with no apparent impact on patient outcomes. Issues were identified with the uptake of dietetic advice by GPs and recommendations were made to improve future delivery.

4.1.2 Nursing and Allied Health Collaborations

Dyson works with colleagues the University of Middlesex, the University of Ghana, and Dublin City University to develop research around volunteering and volunteerism with a focus on student volunteering in the health and allied health professions. She is also working with colleagues at Derbyshire Voluntary Action and Derbyshire County Council on research around the impact of volunteering in local communities and with international colleagues (Australia, US, Latvia, Singapore, Ghana, Kenya, Guernsey, and New Zealand) on research to improve nurse education.

Anthony works within a network of experts in wound care. Specifically, he works on systematic reviews of pressure ulcer prevalence, and of pressure ulcer knowledge with colleagues in Ethiopia, Ghana, Spain, Jordan, Saudi Arabia, and the UK. He also has worked in public health collaborating in international studies with colleagues in Mexico, China, India, and the USA.

Mortimore combines roles as a nurse academic/lecturer for UoD and as the Education Programme Manager for Haemochromatosis UK (HUK), a UK charity. She is a member of the All-Party Parliamentary Group in Genetic Haemochromatosis (GH), visiting Parliament in February 2020, to address this group. She recently completed the final report gathered from data from Freedom of Information requests from NHS Trusts (after being awarded a successful grant from UoD, from the QR Strategic Priorities Fund). This Report has been issued to all MPs within the UK and is free to download from the HUK website to all members. Furthermore, a copy has been requested and sent to the Blood Transfusion Service (BTS) with the possibility of the BTS offering more frequent venesection for GH patients. **Mortimore** has been working as a Consultant for Eisai (pharmaceutical company) assisting with designing a research questionnaire for patients diagnosed with Hepatocellular carcinoma as well as assisting in designing teaching modules on behalf of Eisai for nurse education. The Guideline is available from all RCN libraries, the British Library, Ashmolean Library (Oxford), Cambridge University Library, and Trinity College (Dublin) Library.

Hyde's research activity is within the Diagnostic Imaging discipline area. Her clinical experience as a diagnostic radiographer coupled with her academic experience at the University has enabled her to build up an extensive network of clinical and academic colleagues whom she works with on research projects looking at student placements and patient centred care in diagnostic radiography. The outputs from her research have been substantial, dissemination to date includes a book chapter in a General Radiography textbook and peer reviewed journal articles, as well as a number of invitations to present her work at national and international conferences. In addition, Hyde is successful in attracting funding from Health Education England to support her work and her collaborations, in particular with colleagues at the University of Leeds.

Finally, **Parker**, Senior Lecturer in Sport Therapy, has been working with the colleagues from University of Sheffield, Sheffield Hallam University, Lab4Living and Sheffield Children Hospital on a project to develop a psychoeducational workbook for children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). It was co-designed with academics, graphic designers, clinicians, parents, and children with ADHD. The workbook has been implemented by Sheffield Children's Hospital NHS FT to use at the point of diagnosis, as until now there was no provision for children to understand their condition and how to manage it.

4.1.3 Projects funded by Derbyshire County Council (DCC) and Derbyshire Voluntary Action (DVA)

Woodward has worked with colleagues at Derbyshire County Council to successfully bid alongside Derbyshire Armed Forces Community Covenant Partnership (DAFCP) for a Covenant Fund grant under 'Strengthening of Local Government delivery of the Covenant'. This Project has identified and explored the needs of the Armed Forces Community in Derbyshire. The Report highlighted the need for more support for veterans leaving the armed forces to access skills, which can be translated into the workplace.

Dyson is working with colleagues at Derbyshire Voluntary Action to evaluate a Big Lottery Funded partnership between DVA and the University of Derby, focused on improving the life chances of people living in and around Chesterfield and how University students can benefit from volunteering in local communities.

4.2 NHS and industrial collaborations

NHS Collaborations: A significant proportion of collaborative research cited in the previous section has been facilitated by successful collaborations with NHS Trust partners, industries, and other national and international institutions. We have utilised our Visiting Scholarship programme to further strengthen our ties with clinical academics and NHS trust. The current existing collaborations with NHS Trusts are: University Hospitals of Derby and Burton NHS Foundation Trust, Nottingham University Hospitals NHS Foundation Trust, Royal Brompton and Harefield Hospitals Trust, Sheffield Teaching Hospitals NHS Foundation Trust, Papworth Hospital NHS Foundation Trust, University Hospitals Coventry and Warwickshire NHS Trust and Kings College Hospital London.

Industry Collaborations: Some of the current industry collaborations include the British Association of Sport and Exercise Sciences, English Institute of Sport, Footfalls and Heartbeats, Soe Health, Powerbreathe/HaB, Airofit (Int), Entry Japan (Int), Kurio 3D Compression Ltd, Surescreen Diagnostics, and Nutrivitality, Retrogenix and HistologiX.

4.3 Other significant contributions to research and collegiality

In June 2020, **Parker** and **Faghy** were invited to guest edit a Special Issue of the International Journal of Environmental Research and Public Health entitled 'Physical Activity and Rehabilitation', due to be submitted in December 2021. The WHO global action plan on physical activity 2018–2030 aims for a more active world to improve physical and environmental sustainability. Physical activity and rehabilitation are essential for physical and mental wellbeing and the prevention of chronic diseases, leading to premature mortality.

Pringle was invited in November 2020 to guest edit a Special Issue of the International Journal of Environmental Research and Public Health entitled Physical Activity Interventions to Promote Physical Activity and Healthy Ageing, due for submission in January 2022.

In addition to active engagement in research projects, academics (**Dyson, Anthony, Tripathi, Sivasubramaniam, Bird, Whitehead, Pringle**) are actively involved in external examining, reviewing of papers and bids, and editorial board membership. Academics have undertaken external examinerships, including at Russell Group Universities (Leeds, Sheffield, Durham, Liverpool). Several academics have externally examined PhDs, including Russell Group

(Nottingham, Southampton, Bath) and internationally (University of Ghana, Flinders Australia, La Universität de Vic Spain, Edith Cowan Australia, University of Sydney, and India).

Academics (**Tripathi, Osler, Dyson, Pringle, Sivasubramaniam, Anthony, Roscoe, Parker, Elander, Parthsarathy, Faghy, Whitehead, Irons, Woodward, Bird, Mortimore, Hyde**) also regularly act as referees for academic journals, including Nature, PLoS One, Cochrane reviews and Q1 journals (Journal of Advanced Nursing, Nurse Education Today), funding bodies including NIHR (**Mortimore, Dyson, Anthony**), and are/have been members of Editorial Boards (**Dyson, Anthony**), for example, PLoS One and Q1 journals (e.g., Journal of Clinical Nursing, BMC Health Services Research). **Anthony** and **Dyson** are also involved in the peer-review process of Research Grants from UKRI, Industry, as well as Charities, and invited to join All Party Parliamentary Groups working on national guidelines for key areas of professional practice (**Mortimore**; Genetic Haemochromatosis, Venesection Best Practice Guidance).