

Institution: Oxford Brookes University
Unit of Assessment: UoA3
1 Unit context and structure, research and impact strategy 1.1 CONTEXT & UNIT STRUCTURE <p>Our unit of assessment (UoA) includes researchers from three departments within the Faculty of Health and Life Sciences. Since REF2014, our research environment has been enhanced with the creation of the Oxford Institute of Nursing, Midwifery and Allied Health Research (OxINMAHR), which brings together all UoA3 researchers within a single institute.</p> <p>Our main achievements over the census period are: (a) an increase in UoA3 FTE from 10.2 (in 2014) to 22.4 (in 2021); (b) a 53% increase in total grant income from £3,321,234 to £5,106,567; (c) an investment of c.£3,700,000 in state of the art research facilities; (d) an increase in the number of doctoral completions from 22 to 39, and (e) the successful 2019 renewal of the NIHR-designated Oxford Academic Health Science Centre (Oxford Academic Health Partners; OAHP) in which Oxford Brookes partners the University of Oxford (UOXF) and both local NHS Trusts (SECTION 4).</p> <p>OxINMAHR has created a vibrant, multi-disciplinary research environment with the core aim of producing world-class health-related translational research that will impact upon health and social care delivery and clinical practice. Our research is delivered through four key groups: Movement and Rehabilitation, Supportive Cancer Care, Children and Families and Prevention Science. All researchers returned to REF2021 belong to one of these groups and this structure provides senior leadership for scientific and personal development.</p> <p>OxINMAHR has a full-time Director (Carding), a Management Board (which includes all research group leads) and an External Advisory Board (which includes senior researchers from other institutions including OAHP to advise on strategy and maximise collaborations). The OxINMAHR Director is a member of Faculty Executive reporting to the Dean.</p>
1.2 RESEARCH STRATEGY AND IMPLEMENTATION <p>During the assessment period we have focused on four main aims.</p> <p>AIM 1: Increase and further strengthen our areas of research excellence</p> <p>This has been achieved through senior leadership, appointment of staff, PhD studentship alignment, infrastructure investment, and focussing on world-class collaborations to maximise grant awards and output quality.</p> <p>The Movement and Rehabilitation research group (MORes) (Dawes (Lead), Coe, Collett, Delextrat, Esser, Izadi, Nagy, Tammam, Wade, Walsh, Williams, Zhidao) is internationally renowned and, over the REF period, has successfully collaborated on competitive grants totalling over £31,000,000; OBU £2,735,387. The group's research has had national and international influence on how exercise and physical activity is delivered for people with long-term neurological conditions. A series of Action Medical Research (AMR) funded studies (total funding £248,627) have tested interventions to improve outcomes for children with developmental coordination disorder and cerebral palsy. Three studies (total funding £1,286,902; OBU £911,473) have significantly contributed to the understanding of dose response and safe effective delivery of exercise for people with Parkinson's disease, Multiple Sclerosis and young people with</p>

neurodevelopmental conditions (see ICS#2). This research has revealed disease-specific altered exercise response and recovery profiles and the development of evidenced individualised exercise prescription. A further recently completed randomised controlled trial “*Fit to Study*” (funded by the Education Endowment Foundation) assessed the impact of a PE teacher training intervention designed to optimise brain and cognitive function in 104 schools -total funding £641,043). Many of the recent projects involve external university collaborations including Oxford (UK), Harvard (US), Shanghai Jiao Tong (China), McGill (Canada) and Sao Paulo (Brazil). Over the REF period the group has supported 18 PhD students (including an NIH-funded student), and currently supports two post-doctoral research assistants (PDRA), and has hosted several government scholars from China, Taiwan and a Fulbright scholar.

The **Supportive Cancer Care** Research Group (**Watson (Lead), Alexis, Boulton, Brett, Carding, Davey, Henshall, Lavender, Matheson**) is internationally recognised as a leading group in cancer survivorship research (REF period total grant awards £18,859,055; OBU £1,912,774). The group has produced robust and novel evidence of the physical, psychological and social consequences of cancer diagnosis and treatment for patients and their families. The research has had a significant impact on improving the experiences and outcomes of people living with and beyond a cancer diagnosis by influencing cancer policy, providing key evidence to help cancer charities develop strategy, and informing the development and delivery of supportive care services at both local and national level (see ICS#3). Key achievements include the Life After Prostate Cancer Diagnosis study (Prostate Cancer UK, total award £2,199,993; OBU £156,691), conducted in collaboration with the Universities of Leeds and Queen's University Belfast (Co-PIs), University of Southampton and Public Health England. This was the largest patient reported outcomes study in the cancer field conducted to date, involving over 35,000 men with prostate cancer from across the UK and yielding novel and important data on men's quality of life following diagnosis and treatment. **Watson** is also co-PI (**Brett (CI)**) on a multi-centre NIHR Programme Grant to develop and test a supportive care intervention for women with breast cancer to adhere to adjuvant endocrine therapy (total grant award £2,487,452; OBU £600,000). The group has also been building research capacity with nine linked PhD studentships, two PDRAs and three RFs (**Brett, Matheson, Davey**) over the REF period.

The **Children and Families** research group (**Appleton (Lead), Burns, Kozłowska, Malone, Smith**) focuses on child and family health, with particular expertise in child and young people safeguarding, and maternal health. Key research portfolios relate to reducing violence towards children, adoption support practices, and provision of services for disadvantaged children. For example, **Appleton** is co-PI on the international “*ERICA study*” (Total EU funding: €360,000; OBU €47,097) on reducing violence towards children. **Appleton's** work on children's missed healthcare appointments has led to multidisciplinary impacts in policy, training and clinical practice and has been adopted by a variety of medical, dental and healthcare professional and regulatory bodies (see ICS#1). Maternal health research includes **Burns'** work on labouring in water and waterbirth. **Burns** is a recognised international expert on the topic and has co-authored a Cochrane review which has been widely cited in the literature and in clinical guidelines. The group currently supports 12 PhD students.

The **Prevention Science** group (jointly led by **Foxcroft** and **Davies (UoA4)**) carry out high quality national and international research studies into the causes, consequences, and prevention of poor physical and mental health. The focus of the group is to promote healthy behaviours with a view to preventing or mitigating lifestyle risks to health and wellbeing. The work spans the harms associated with substance misuse (e.g. alcohol, tobacco, illicit drugs), lifestyle behaviours (e.g. poor diet, lack of exercise), and poor mental health. The research has been supported by grants from the MRC, NIHR and the EU with total collaborative funding of over £2,300,000; OBU £342,381), with over 11,000 young people randomised in trials of prevention interventions. One notable project to build prevention research capacity was funded by the EU and led by the Prevention Science Group at Oxford Brookes: the Science for Prevention Academic Network (SPAN: total grant award €790,000; OBU £137,000)

We have also further strengthened our areas of research excellence by supporting **interdisciplinary working**. The establishment of sustainable university-wide cross-faculty research, innovation and knowledge exchange (RIKE) networks include The Healthy Ageing & Care Network (Chair: **Carding**) and The Children and Young People Network (co-Lead: **Appleton**). Our relationship with the UoA4 Psychology Research Centre has been particularly productive, for example **Brett** (PI), **Watson** and **Foxcroft** (CIs) and **Davies** (UOA4 CI) - "Knowledge, attitudes and current practice of health professionals regarding the use of e-cigarettes and other smoking cessation interventions in cancer survivors" (Cancer Research UK 2019 total award £113,839; OBU £49,633).

AIM 2: Recruit, support and develop excellent researchers.

We have achieved this through a proactive recruitment, development and promotion strategy. High level examples include securing OxINMAHR senior leadership (1.0 FTE), joint funding for two senior clinical academic posts (part-time FTE) (**Malone, Henshall**), Faculty investment totalling £240,294 to directly fund three full-time RfFs and, eight senior promotions within the REF period. These initiatives are described in detail in SECTION 2: PEOPLE

AIM 3: Further develop our collaborations with world leading research leaders and continue to build our strategic partnerships.

We have achieved this through engagement in and leading on national and international bids in collaboration with centres of research excellence. Examples include: our partnership with Newcastle University which has resulted in major NIHR grants including "SWEET"- total funding £2,487,452 (**Watson** Co-PI); our partnership with OAHP (OU), which has resulted in a number of nationally funded collaborative projects including Wellcome Trust (Total award £501,908) (**Dawes/Esser**); and Cancer Research UK £49,633 (**Brett**); **Watson's** collaboration as CI with Southampton University on the Cancer: Life Affirming Support in Primary Care (CLASP) NIHR Programme Grant (total award £2,355,518); and **Appleton** (CI) on the EU funded ERICA - 'Stopping Child Maltreatment through a Pan-European Multi-professional Training Programme' led by University of Tampere (Finland) (total grant award €360,000).

We have also continued to build our formal collaborations with the world-class health research infrastructure in Oxford. In addition to the OAHP, we have representation on strategic steering groups of the Oxford Clinical Research Network (**Carding**), Oxford University Hospitals NHS Trust (OUHT) NIHR Biomedical Research Centre (BRC; **Malone**) and Oxford Health NHS Trust BRC (**Carding**). These strategic partnerships have been the vehicle for multiple joint research grants, for example AMR (**Dawes**) – total award £144,436.

AIM 4: Further strengthen our Patient advocacy and Public engagement

We continue to prioritise patient and public involvement in our research and have succeeded in further strengthening this during the REF period (detailed in SECTION 4).

1.3 FACILITATING IMPACT

We seek to ensure maximal impact of our research on health service delivery and clinical practice in a number of ways: by collaborating with end users of research in industry, charities and the NHS, by developing educational tools, and by developing self-management health platforms.

Researchers have attended university and faculty impact training and awareness raising sessions and some have received specific university Central Research Fund (CRF) Impact Awards (e.g. **Burns**, for development of EstiMATE, a tool for estimating blood loss during childbirth (£5,000), as well as proof-of-concept funding from HEIF (£18,650) to undertake a national evaluation of the tool, to further refine it and create a website for dissemination as a national resource; **Appleton**, to support development of the Missed Healthcare Appointments ICS#1 (£10,000) and **Collett**

(£10,000) for development of the Condition-informed framework for Exercise and Physical Activity (ICS #2). Impact evidence is organised through the university's online Impact Tracker.

We have increased **collaborations with industry**. A key example is the **Esser/Dawes** "DataGait" Measurement Tool - a set of valid and reliable objective gait measures for disease diagnosis and monitoring (Wellcome Trust total award £501,908; OBU £32,000 and EPSRC total award £1,862,864; OBU £150,900). This research has led to the filing and maintenance of two patent applications (GB2467514A and GB1108952.1). Collaboration for commercial exploitation has occurred in both the UK (500More Ltd and GoodBoost) and internationally (WalkWell Initiative in Canada and Suzhou Weixi Biotech Ltd in China). A second example is our Nutrition and Health consultancy studies looking at glycaemic index and insulin response on behalf of commercial partners (including Roquette, Phynova, Evoxx and Beneo), currently totalling over £200,000.

We have a strong record of **working with Charities** to address their identified areas of research priority, thereby maximising the impact of our research. Commissioned charity research includes projects funded by Prostate Cancer UK/Movember and Pancreatic Cancer UK (**Watson/Matheson/Brett**), which has had a significant impact on improving the experiences and outcomes of people living with and beyond a cancer diagnosis. This work has influenced national cancer policy and informed the development and delivery of supportive cancer care services at a local and national level. Action for Children funded **Appleton** and colleagues to undertake an Evidence Review of Mental Health in the Early Years in the UK, which is currently being taken forward in a Knowledge Transfer Partnership.

We have also developed a number of **educational tools for healthcare professionals**, which has further strengthened our impact and knowledge exchange (KE). For example, "Think Baby" (**Appleton**) is a research-based e-learning tool, which is used by over 60% of UK Health Visitor post-qualifying programmes to develop student health visitors' skills in observing and assessing mother-infant interaction. Similarly, **Dawes/Collett** have used their rehabilitation and movement research findings to train over 50 Allied Health Professionals (AHPs) in Brazil (2018-2020 – funded by The British Council) and 30 AHPs in Jordan (funded by Erasmus)

Our research impact can also be evidenced by the development of a number of **self-management health platforms**. For example, Movember have used the data from the Life After Prostate Cancer Diagnosis study (**Watson/Matheson/Brett**) to develop an online toolkit called "*Men Like Me*" to help newly diagnosed men with treatment decision making and preparation for potential side effects (see ICS#3). Another example is **Collett's** "First Steps" self-management programme, conceived, co-designed and delivered by people with Parkinson's disease, funded by Parkinson's UK who rate 'First Steps' as one of its eight stand out achievements since 2015.

1.4 RESEARCH STRATEGY FOR NEXT REF PERIOD

Over the next REF period, we intend to focus on three core areas of activity to further support our aim of producing world-class health-related translational research that impacts upon health and social care delivery and clinical practice.

Our **People and Portfolio Development strategy** is focussed on securing a number of Post-doctoral NIHR Fellowships (at least 5), appointing (at least 5) more joint clinical/academic positions and graduating at least 70 PhD/ Professional Doctorate students. We also plan to support several emerging research themes including developing: (a) nutrition and health research alongside established contractual industry activities, (b) developing a new theme around NHS Workforce research.

Our **Partnership Building strategy** is focussed on the further development of our collaborations with world leading research leaders and strategic partners. We will continue to build sustainable research programmes with key international and national academic partners. Our target is to achieve 50% of our grant awards with external (UK and international) partners. We also consider this to be a key strategy in ensuring maximal impact of our research activities. We also plan to

maximise the opportunities for cross-faculty research afforded by our now established University RIKE Networks. Our target is to lead at least 5 major cross-faculty research awards within the next REF period.

Our **Funding, Publication and Impact Strategy** is focussed on increasing our interdisciplinary (across UoAs) grant success, doubling the number of researchers with 4* outputs and implementing the Declaration of Research Assessment indicators into our individual and research group activities (including principles of “Open Research”). We also aim to increase the proportion of our grant income to fEC funded sources (target is 35%).

2. People

Our UoA submission includes 25 academics with significant responsibility for research (SRR; 22.4 FTE). This represents a 100% increase over the REF period. We have invested in UoA3 researchers in five main ways: staffing and recruitment; training and development; promotions; promotion of equality and diversity; and doctoral programmes.

2.1 STAFFING and RECRUITMENT POLICY

External Appointments

We have invested in **senior leadership** (OxINMAHR Director - 1.0 FTE) to develop strategy and governance (*Jackson* 2015-2018, **Carding** 2019-present). **Carding** is a highly experienced health researcher with a strong research profile in multidisciplinary and complex interventions (previously Deputy Head of School and Research Lead at the Australian National Catholic University).

Our strategy has been to make appointments that sustain and expand our research themes and has therefore involved recruiting from several disciplines: e.g. children's nursing; psychology; physiotherapy, health research, nutrition. Recruitment has focussed on appointments from highly ranked external institutions, including Senior RF **Brett** (previously RCN Unit, University of Warwick) and OxINMAHR RF **Davey** (previously at King's College London; KCL).

Internal Appointments and Promotions

Our strategy has also been to recognise and invest in researchers who have demonstrated excellence, or the potential for excellence. We have ‘grown our own’ staff and alumni by recruiting early career researchers (ECR) who were originally appointed as contract researchers. One example is **Matheson** who, having completed her PhD and first PDRA at Brookes, was subsequently appointed as a CRF RF (2018). **Collett** and **Esser**, initially RFs, have subsequently been appointed to permanent Senior Lecturer (SL) posts. We have also been strategic in appointing teaching/research staff who can substantially contribute to our research portfolio. For example, **Walsh** (2016), **Williams** (2016) and **Nagy** (2017) were appointed and have significantly contributed to our motor performance, biomechanics and occupational science research.

Promotions take place via an annual promotions round. In the census period, eight staff have been promoted including five promotions to Senior Lecturer: (**Coe**, **Esser**, **Collett**, **Nagy** and **Walsh**); two promotions to Reader (**Alexis** and **Henshall** – awarded post census date) and one promotion to Professor (**Appleton**). *Smith* was also promoted to Professor, in a move to the University of Hull.

Joint NHS/University Appointments

Joint NHS/Academic appointments are critical to the effective integration of clinical academics and NHS-employed active researchers into our work, and to ensure that we retain strong connections with healthcare providers. Senior examples include: **Malone** (Director of the Oxford School of Nursing and Midwifery, 2018) who is jointly funded with OUHT (0.4FTE); **Henshall** (Senior Nursing RF, 2016), jointly funded with Oxford Health NHS Trust (0.4FTE), and **Dawes**

(Professor of Movement Sciences), jointly funded by Oxford Health BRC (0.2FTE). These appointments have resulted in a number of joint research grant awards as listed in SECTION 1 and SECTION 3.

Visiting Professor and Visiting Fellow scheme

Over the assessment period we have hosted 19 Visiting Professors and 25 Visiting Fellows. These individuals, who have received funding from sources which include National Institutes Health, Fulbright Commission, British Council, and the Winston Churchill Fellowship scheme, have enriched our research environment in a range of ways. These include giving guest lectures and seminars, being active in joint research programmes, supporting applications for funding, contributing to publications, mentoring staff and research students and in providing access to specialist facilities and resources.

2.2 STAFF TRAINING AND DEVELOPMENT

Staff training and development within UoA3 continues to be guided by the Concordat for Career Development of Researchers and overseen by the University and Faculty Research and Knowledge Exchange Committee and Research Degrees Committee (RDC).

All Research Staff

All staff have three year rolling research plans with an annual 'Appraisal, Review and Development' meeting designed to provide support and guidance and to ensure staff achieve their full potential. It is also used as a tool to obtain feedback, review job descriptions and content, examine workload, discuss forthcoming objectives and support development in current and future roles and promotion possibilities. WLP allocations for research are informed by the outcome of the annual review and those receiving one of three university tariffs are considered as having SRR.

There is a comprehensive Faculty research induction for all new research staff and every new fixed-term contract researcher under the university 'Your First Three Years' scheme. This includes: research student supervisor training, the Postgraduate Certificate in Teaching in Higher Education and access to the University Research Mentoring Scheme (pairing staff with experienced researchers).

A vibrant and varied programme of lectures and seminars is offered across the OxINMAHR and the broader faculty, ranging from guest lectures by distinguished external speakers to presentation of in-progress research by OxINMAHR researchers; more specialist seminars are held regularly in Departments.

OxINMAHR also has a UoA3 representative (**Foxcroft**) on the Oxford Node of the UKRN for Open Science practice. **Foxcroft** is also the University Lead for Research Improvement & Integrity. This role involves the promotion of good practice and training in Research integrity and Open Data. Recommendations that have been accepted by the Faculty RKEC and are being adopted within research groups and centres include: establishment of Standard Operating Procedures (SOPs) for improving the quality of studies (including: pre-registration of study analysis plans, sharing analysis code and preparing data outputs in accordance with FAIR principles for data stewardship); encouragement of the use of pre-prints and responsible data sharing; publication plans prepared early in a research project; training for all staff and research students on principles and practice of reproducible and open research, including preparing data analysis plans, developing and sharing code for data analysis, and improved statistical planning and analysis skills; and institutional support for OA publication for high quality research outputs.

Integration and Development of Contract and Early Career Researchers

Research active new staff are provided with an induction based on the Vitae Researcher

Development Framework. This includes supervisor training, research team leadership and management, project and finance management, writing grants, and career destinations of researchers within and beyond academia.

We operate a transparent workload planning model with research allocation linked to defined activity. New appointments are given sufficient research time allowances to build their research profile. Each ECR has a senior member of staff as a mentor. All ECRs have full access to Euraxess (access to career development resources and a bank of research jobs across Europe).

Contract and academic staff without a doctorate who are interested in research are encouraged to consider applying for faculty funding to undertake a PhD part-time. Over this REF period we have supported 11 academics to undertake a PhD, thus strengthening the links between teaching and research.

Seed-funding to Support Researcher Development

The university CRF scheme invests in Research Excellence and Impact awards to support researcher development as well as bridging funding and travel/collaborate awards. UoA3 researchers have been very successful in the annual competitive rounds and have received over £300,000 in CRF funds over the REF period.

A number of these seed-funding awards have led to significant further research activities and grant applications/awards. For example, **Brett's** award ("Exploring the potential for a smart phone app to improve adherence to AET in women after treatment of breast cancer" £12,499) fed directly into a successful NIHR programme grant, SWEET (Total grant award £2,487,452). **Esser's** award ("Using smartphones with motion sensors as an effective gait analysis tool"; £15,348) has been developed into a stand-alone gait measurement application which is currently being commercialised in China (Weixi, Suzhou, China) and has been adopted by three UK commercial entities.

UoA3 researchers are also supported in applying for external career development awards. For example, **Collett** received an international collaborative research travel award (2016) to visit the European Parkinson's therapy centre in Italy which has, to date, resulted in three collaborative research projects. Another example is **Appleton** who was awarded a Florence Nightingale Travel Award (2017) to Scandinavia. This resulted in her subsequent appointment as a Visiting Professor at Kristianstad University, Sweden (2020) and researcher within (CYPHiSCO) Children's and Young People's Health in Social Context at the University

2.3. EQUALITY AND DIVERSITY

Our university (Athena Swan (AS) Bronze award) is a diverse and multicultural organisation which recognises and addresses different needs of staff. Equality and diversity is embedded into our university systems and structures as detailed in our Code of Practice, and the University Environment Statement. UoA 3 is part of the faculty AS Silver award, successfully renewed in 2018.

Our UoA submission comprises 57% women (14/25 by headcount). Four of our seven professors are female (**Watson, Boulton, Appleton, Dawes**) and three of our four research groups are led by women (**Watson, Dawes, Appleton**). These female leaders provide role models for PGRs, contract and ECR staff. Women comprise 75% of our Doctoral Training Programme (DTP) leads (**Appleton, Watson, Coe**). **Alexis**, who is from a BAME background, has recently been promoted to a Readership.

We provide support systems for staff returning from parental leave or other leave of absence. Flexible working arrangements are utilised to enable part-time/ home working to support family commitments where appropriate.

Our REF2021 preparations reflect the importance we attach to equality and diversity. In deciding which outputs to submit, we have undertaken a review to ensure a fair spread of work by gender (14 women, 11 men) and across earlier career and more established researchers, by full-time, part-time and semi-retired staff, which showed no bias in our EIA. Our EIA did, however, show a difference between average outputs submitted by BAME vs White researchers. The unit will work to explore any issues and redress them over the next REF period including BAME role models such as **Alexis**.

2.4 POSTGRADUATE RESEARCH (PGR) STUDENTS

PGR Student Recruitment and Funding

Conferment of doctoral degrees has increased by 39% over the assessment period from 28 in REF2014 to 39 in REF2021. We currently have 51 PhD and 27 Professional Doctorate (Nursing) students studying in OxINMAHR research groups. This has enabled us to build a vibrant and stimulating PGR environment with multiple opportunities for cross-disciplinary learning.

Our PGR students span a range of disciplines including: Nursing, Midwifery, Occupational Therapy, Therapeutic radiography, Social work, Exercise Science, Psychology, Biomedical Science, Physiotherapy, and Medicine. Supervisory teams are also commonly interdisciplinary as appropriate to the specific PhD topic. They are funded from a variety of sources including: university IP income ('Groome') and QR funded scholarships; faculty staff development fund; NHS; external grants; HEE; and self-funded.

Recruitment of PhD students is through advertisement in specialist websites. The formal admissions and assessment procedures and allocation of PGR studentships is through fair and transparent competition administered through OxINMAHR. All PhD proposals are reviewed by PGR tutors to ensure alignment with strategic priorities, feasibility, affordability, academic rigour, training requirements, and potential impact.

PGR Training

Our PGR training programme is based on the Vitae Researcher Development Framework. All PGR students are linked to a research group which ensures full integration with research activities, fosters close and supportive relationships between staff members and students, and encourages skill development within a wider context. PGR students are housed together in a lively research environment with large open plan research-specific areas. Full-time students are provided with their own desk and computer, Part-time students have access to hot-desking facilities. The PGR tutors are responsible for registration, fostering student development, annual progress monitoring, transfer from MPhil to PhD, and ensuring viva arrangements are in place. They also provide important pastoral support.

In addition to Faculty and University training, all PhD students attend a bespoke DTP training programme organised by the PGR tutors, complemented by any individual training requirements, planned and recorded through Personal Development Portfolios.

All PGR students are encouraged to engage in journal clubs and staff/student presentations, and departmental/faculty seminars at which we host a diversity of external speakers. All PGR students actively participate in the annual Faculty Postgraduate Symposium, the aim being to develop presentation skills and practice, dealing with (and asking) questions in a supportive, but realistic research environment. Students are also expected to give at least one seminar and are encouraged and supported to attend selected external training events and conferences. PGRs are also supported in the publication of both literature reviews and data chapters and most will have published one or more papers by the time of submission.

PGR Supervision and Support

Supervision is provided by a team of experienced researchers comprising a Director of Studies and (usually) two additional supervisors with relevant topic and/or methodological expertise. Less experienced supervisors are paired with more experienced supervisors and undertake a training programme. Students complete an online log that outlines the contract between the student and the supervisors and their mutual responsibilities and provides a framework for recording details related to student's research. The log also acts as a record of project planning, personal development and progress monitoring.

PGR Tutors monitor student progress and supervision and operate a formal Annual Programme Review of all research degree candidates. This includes a review of an annual report (which refer to both progress and training and development plans submitted by both the student and supervisor(s)). The formal annual reviews are also monitored by RDC Sub-Committees. University Student (Wellbeing) Support Services are available to all students.

PGR Awards and Employability

An indicator of the quality of our PGR students is their **winning of prestigious awards**. For example: Churchill Fellowships (x 2) and Travel Scholarships e.g. Florence Nightingale (x 7). Also **Matheson's** PhD research paper, was voted Paper of the Year in Oncology Nursing Forum (2017); *Perman-Howe* (2019) was awarded the European Union Society Prevention Research Early Career prize for a researcher showing outstanding promise and *Saltauras* was appointed an Academy Fellow of the World Cancer Research Fund (2018). *Lowenhoff*, *Diaz-Gil* and *Blakey* were awarded places on the prestigious European Academy of Nursing Science (EANS) PhD student summer schools which run over three years.

A further indication of our PGR success is their **post-doctoral employability**. For example, recent graduates have progressed to PDRA roles within the UoO, the University of Southampton and KCL. Previous PGR graduates have progressed to substantive research posts including: Clinical Trial Manager (OU), Associate Professor of Physiotherapy (Bucks New University), Matron, Cancer and Support Services (York Teaching Hospitals NHS Foundation Trust), Student Wellbeing Advisor (Ministry of Education Abu Dhabi).

3. Income, infrastructure and facilities

During the REF period we have continued to support a vibrant research culture and focussed on increasing research income, further improving research support infrastructures, maximising our research impact, and providing state-of-the-art research facilities.

3.1 RESEARCH INCOME

External Research Grant Income

We have grown our grant income from £3,321,234 in REF 2014 to **£5,106,567** for the current period. The average annual grant award rate over this period is £729,509/year. Our success profile in the last 18 months of the REF period (OBU awards c. £1,400,000) demonstrates the sustainability of our strategy. Our level of external funding enables us to compete effectively across all our areas of research strength and allows funds to be used to strengthen research activities and infrastructure.

Our external grant income strategy aims at a mixed economy of funding that is centred around four main sources:

- **UK-based Charities** represents 59% of OBU income. Major funders include Prostate Cancer UK and Pancreatic Cancer UK (total awards £2,478,497; OBU £402,675), Education Endowment Foundation (total awards £962,062; OBU £641,043), Stroke Association (total awards £543,268; OBU £133,500), and three AMR grants (total award £541,708; OBU £393,063).

- **Health Research Funding bodies** represents 18% of OBU income including eleven NIHR grants (total award £17, 517,036; OBU £1,519,574)
- **EU government bodies** represents 11% of income Examples include : EU Rights, Equality and Citizenship Programme (Total award €360,00; OBU €47,097), and European Commission (Total award £23,999,122; OBU £146,100)
- **Other UK Government department, Health and NHS Trusts** represents 8% of income. Examples include and Health Education England (OBU £123,750) and Sport England (OBU £131,790)

Quality Related (QR) and Royalty/IP Funds

The dedicated UoA-specific QR awarded to us during this REF period was c.£550,000, which has been used for many purposes including seed-funding projects (see 3.1.3), research event sponsorship, equipment, RFs and staff development. Examples include RF **Kozłowska** who is now co-PI on two funded projects (value £127,000) and RF **Davey** (CI on recently funded UKRI COVID- 19 grant value £388,411) (these awards are post- census date).

In addition, Oxford Brookes is ranked in the top 10 UK universities for IP-related income and UoA3 received over £550,000 from the faculty share of royalty income during the REF period. These funds have funded c.20 PhD studentships (including bench fees, stipends and travel). Many of these doctoral projects have provided preliminary data for more substantial research submissions and awards. A number of our PhD students have been supported in a post-doctoral research career as described in PEOPLE section 2.

Central Research Funds (CRF) and Research Excellence and Impact Awards

UoA3 researchers have been awarded £217,789 CRF general funds and 10 Research Excellence or Impact Awards of £110,100 over the REF period. General CRF funds are distributed to strategically invest in building capacity and capability for research and in our UoA have been used for a variety of purposes including: research and travel awards; bridging and pump-prime funding; support for pre and post-award grant bids (e.g. additional data collection and providing short-term RAs).

3.1 FACILITIES and INFRASTRUCTURE

Major infrastructure developments in the period include: (a) appointment of an OxINMAHR 1.0 FTE Director (c.£650,000); (b) expansion and up-grades of research facilities/buildings (c.£3,690,000); (c) dedicated UoA3 Research and Business Development (RBDO) led HEIF investment over the assessment period (c.£360,000) ,and; (d) dedicated staff time for leadership roles in cross-university RIKE Networks since 2019, £24,000).

(a) UoA3 Leadership: Appointment of OxINMAHR Director (2015 onwards)

The university has fully funded this post from 2015.

- Professor Debra Jackson (2015-2018) - an internationally recognised and high profile leader in Nursing Research (previously Professor of Nursing at the University of Technology Sydney, Australia).
- Professor Paul **Carding** (2019-present) - a highly experienced health researcher with a strong research profile in multidisciplinary and complex interventions (previously Deputy Head of School and Research Lead at the Australian National Catholic University)

(b) Buildings

Over the REF period, we have invested an estimated c.£3,700,000 in UoA3 research facilities. All research staff and post-graduate students are housed in modern, fully equipped work spaces designed to optimise clinical and applied research. There is also dedicated space and access to offices for collaborative researchers on temporary or part-time contracts as well as for visiting / honorary researchers and joint clinical academic posts.

A major investment has been the build of a **state-of-the-art Clinical Research Facility** to support our exercise and rehabilitation research portfolio. This includes testing facilities for high-end cardiopulmonary exercise testing, muscle and motor performance assessments, clinical gait analysis (optical motion capture or inertial sensors) with nationally exclusive free-walking harness system allowing both treadmill and free over-ground (bodyweight) supported walking. Furthermore, specialised physiological measurement equipment (e.g. near-infrared spectroscopy, blood laboratory) is available, as well as bespoke equipment used in Ketone supplementation in Parkinson's (with the UoO). These dedicated and state of the art research laboratories have enabled staff to undertake significant projects both on-site and online.

(c) Research Infrastructure and Dedicated Support

The Faculty Research Office and a UoA3 dedicated member of Office (RBDO) support the submission of grant applications, and negotiate the specific requirements of the various funding bodies and/or specific funding call. We also have a Faculty Ethics Officer and expert support services covering areas such as data management, open access, contract negotiation, Patents, licensing and financial reporting.

All staff have access to extensive IT facilities and a library with substantial academic holdings and electronic subscriptions. Research staff, including PhD students and academic visitors, further benefit from access to the UoO Bodleian Libraries, which provide world-class library resources as well as substantial unique holdings.

(d) Cross UoA/institutional Collaborative Infrastructure

The University has also invested in the development of **six areas of cross-university interdisciplinary strength in the form of RIKE Networks**. Investment has been through the funding of staff time to develop research networks, as well as to fund support staff as project managers for the resulting interdisciplinary projects. These include **Carding** (Chair of Healthy Ageing & Care Network); **Appleton** (Co-Lead for Children and Young People Network); **Brett** (Co-Lead for Healthy Ageing & Care Network).

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

4.1 COLLABORATION

Academic Collaborations

Our strong academic partnerships have been key to our grant income, publication and impact success over the assessment period. For example, analysis of data from 2019 and 2020 show over 20 key UK university collaborations and 12 key international university collaborations. Examples of significant UK collaborative grants include: NIHR programme grants with the Universities of Birmingham (PETNECK2), Southampton (CLASP), Newcastle (SWEET); NIHR HTA grants with University of Warwick (MAMMO-50); NIHR RfPB grant with UoO (Exercise and Parkinsons Disease); NIHR PHR grants with the University of Liverpool (STAMPP) and the University of Manchester (Good Behaviour Game); Movember/Prostate Cancer UK Research Programme Grant with Leeds, Southampton, and Queen's University Belfast, and; Public Health England (LAPCD). Our UCL collaboration has also resulted in an NIHR grant award to form a national research incubator for Robotic and Minimally Invasive Surgery based at the Royal College of Surgeons of UK.

Our international profile includes large EU funded studies, for example **Foxcroft** leads an EC funded project led by the Prevention Science Group to build prevention research capacity. The Science for Prevention Academic Network (SPAN; total award £750,000) was established across 35 research centres in 26 European countries. **Appleton** collaborates with Universities from Sweden, Germany, France, Poland, Scotland and Denmark on the EU funded "*ERICA study*" (€ 360,000, total award). **Dawes** is CI on an EU Collaborative European Neuro Trauma

Effectiveness Research in Traumatic Brain Injury (led by Universitair Ziekenhuis, Antwerpen with 37 collaborators across the EU) (Total Award, £23,999,122).

A majority of our UoA3 researchers are active members of the University RIKE networks (see section 3.2). One recent example of the network potential was a £2,000,000 bid to UKRI Industrial Strategy Challenge Fund (PI- **Carding**) in June 2020. This bid included a collaboration between four different UoAs at Brookes and an external partner (International Longevity Centre UK). A recent (December 2020) EPSRC award, which was submitted prior to the REF census date, is a collaboration between UoA3 (**Carding** CI) and UoA4 (**Connelly** PI) - total award £380,437 - "Rapidly formed COVID-19 teams in the NHS: implications for leadership, team-working, career intentions and individual mental health". This collaboration also includes two external partners (KCL and Robert Gordon University) and eight NHS multi-disciplinary COVID-19 response teams.

4.1.2 NHS, Social Care and Industry Collaborations

Our NHS and social care stakeholder partnerships are essential to our success in delivering translational research that impacts upon health service delivery and clinical practice. OxINMAHR has been pivotal in building strong research partnerships with key local stakeholders. We are one of four partners in the OAHF - a formal partnership between Oxford Brookes, Oxford University Hospitals NHS Foundation Trust, Oxford Health NHS Foundation Trust and OU, which also includes two NIHR Biomedical Research Centres (BRCs). **Carding** is a member of the OAHF steering committee and **Carding** and **Malone** represent OxINMAHR on the two BRC steering committees. A number of UoA3 staff (**Appleton**, **Dawes**, **Collett**) hold honorary research contracts with local NHS trusts.

In addition to our local health/NHS partnerships, we enjoy significant and sustained collaborations with other NHS Trusts and Social care organisations including major NHS Trusts in Newcastle, Birmingham, KCL and Cardiff. Our NHS partnerships enable us to respond actively and productively to NHS (and international health) priorities and initiatives and therefore contribute substantially to the vitality and sustainability of the research base and to the disciplines that support our research. Staff are currently, or within the reporting period, active in a wide range of influential areas focussing on providing research led expertise. Evidence of the value of these NHS research partnerships include:

- (a) Joint research grants- e.g. Wellcome Trust (**Dawes**, **Collett**, **Foxcroft**), NIHR (**Watson**, **Brett**, **Dawes**, **Boulton**, **Henshall**, **Carding**, **Malone**), Association of Medical Research (**Dawes**), Oxfordshire Local Industrial Strategy (**Esser**).
- (b) Joint initiatives (e.g. Developing Research Opportunities in Patient Self-Management and Digital Health - February 2020; Oxford Clinical Academic Research Pathway Initiative (chaired by **Carding**), annual writing workshops (**Henshall**), BRC Theme Lead workshops (**Malone**))
- (c) Joint appointments (see SECTION 1.3.2 and SECTION 2: People) and joint PhD funding (see SECTION 1.3.3)

4.2 CONTRIBUTION TO THE RESEARCH BASE

UoA3 staff play a range of important roles within the wider research base and the disciplines that support our research through membership of funding panels, journal editorial positions and acting as research reviewers and examiners. Staff also play important roles within their professions, and by serving on committees which advise government agencies, the NHS and charities, both nationally and internationally. Selected examples presented below highlight the range of our contributions.

Membership of grant awarding bodies includes: **Appleton** (National Institute for Health Research (NIHR) – HS&DR Grant Prioritisation Committee 2019-ongoing, Health Education England/NIHR/NHS – Review panel member, Clinical Doctorate Research Fellowship Scheme 2018-ongoing); **Watson** Yorkshire Cancer Research Advisory Committee, 2017-ongoing, NIHR RfPB Advisory Committee, 2014-16, TENOVUS Psychosocial Advisory Committee, 2014-18;

Dawes ("Brain Canada" grant panel 2018, Stroke Association Fellowship panel 2018, Chair of The Chartered Society of Physiotherapy Science Panel 2017-2020; EPSRC review college and Programme Grant Panel, 2020-ongoing); **Foxcroft** (French National Cancer Institute – International Advisory Board for Prevention Research, 2014 – 19).

Journal editorship. In addition to regular peer-reviewing for a wide range of journals, during the census period staff have served as Editors, Associate Editors and on Editorial Boards of high impact journals. Key examples include: **Wade**, Editor-in-Chief, Clinical Rehabilitation (1994-present); **Appleton**, Senior Co-Editor, Child Abuse Review (2008- present), Professional Editor, Community Practitioner journal 2001-16); **Watson**, Editorial board, Psycho-oncology Journal (2015-19); **Carding**, Editorial board, Int.J Language and Communication Disorders (2014-2019); **Henshall**, Editorial board, BMC Health Services Research, Journal of Clinical Nursing (2017-present); **Foxcroft**, Editor, International Cochrane Collaboration Drugs and Alcohol Misuse Review Group (2014 –present), Editorial board, Drugs: Education, Prevention and Policy, (2014 – present).

(Inter)national research committee membership includes: **Appleton**, Healthy Start, Happy Start Trial Steering Committee (HTA,2016-2020); **Watson**, National Cancer Research Institute (NCRI) Living With and Beyond Cancer Group (2019-ongoing), and Primary Care Clinical Studies Group (Chair Survivorship sub-group 2015-2019), Psychosocial Oncology and Survivorship Clinical Studies Group(2015-2019); **Foxcroft**, MRC Study Steering Committee, RCT of SFP10-14 in Panama – Chair (2017-2019); European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Advisor to OECD Health Committee special session on alcohol policy in member states 2014-15,

Professional and learned societies: The majority of staff are members or fellows of at least one professional body. In addition: **Foxcroft** was President of the European Society for Prevention research (2014-2018) and Founding Director of the International Society for Substance Use Professionals (ISSUP) –funding from US State Department and Colombo Foundation (2016 - present); **Watson** was President of the British Psychosocial Oncology Society -2015-2019; **Dawes** is a member of the steering group for British Association of Sport and Exercise Sciences for COVID-19 ,and **Appleton** is a core member of the Global School Nurse Research Consortium established in 2019 with Georgetown University, Washington.

Contribution to PhD student training: In addition to training over 70 PhD students, members of the UoA3 have acted as external examiner for over 40 PhD students from a range of major national and international universities including from the EU, South Africa and Australia.

Conferences: During the REF period, members of the UoA played key roles in the organisation of national and international conferences. For example: **Foxcroft** co-organised and presided over the EUSPR annual conference 2014-18; **Watson** organised and hosted the British Psychosocial Oncology Society Annual Conference in Oxford in 2018, and has been a member of the NCRI International Conference Scientific Committee since 2018; **Appleton** was a Member of the Royal College of Nursing's International Scientific Advisory Panel for the 2015-2017 and 2021 International Nursing Research Conferences and a Scientific Committee Member for the BASPCAN International Congress 2015 and 2018.

Regulatory and clinical guidelines: Members of the UoA have made a significant contribution to the development of regulatory and clinical guidelines. Exemplars include: **Appleton**: panel member of the Expert Advisers for the NICE Centre for Guidelines (2017-2020), Invited Subject Matter Expert for a Commissioning Committee for the NIHR Policy Research Programme (2020), Vice-chair alternate and Expert Nurse member of Coventry and Warwickshire NRES Research Ethics Committee (2016- ongoing); **Wade** published guidelines in *Clinical Medicine* journal for rehabilitation after COVID-19, and **Burns** led the publication of a statement on the use of water immersion during COVID, which was used by the Royal College of Midwives and by the International Integrative Maternity Health Care Organisation in Australia and New Zealand in clinical guidelines.

Other individual esteem indicators include **Carding** (Hon Professor Newcastle University (2013-present), UCL Hon Senior Research Associate (2013-2016), Australian National University Hon Professor (2018-2020)), **Foxcroft** (winner of the EUSPR Sloboda Medal - 2019), **Henshall** appointed Acting NIHR Associate Director of Nursing Research (2019-present) and **Dawes** ("The Nation's Lifesavers" by 'Made at Uni' (a campaign to show how Universities improve everyday lives-2019), **Dawes**, National Jiaxing Redboat Innovation Award for Rehabilitation Technology in China (2020), named as "one of the Nation's Lifesavers" by 'Made at Uni' (a campaign to show how Universities improve everyday lives).

4.3 CONTRIBUTION TO ECONOMY AND SOCIETY

OxINMAHR's activities are strategically aligned to government and international health and social care priorities and our translational research portfolio is aimed at changing clinical practice and influencing service delivery policy. Our work aligns with national (i.e. Department of Health and NHS) and international (i.e. World Health Organisation) research priorities. These include an emphasis on: improving quality of life for people with long-term conditions and chronic disability (see SECTION 1.3.1 led by **Dawes** and **Watson's** research groups), improving outcomes for Children and young families and social care (see SECTION 1.2 led by **Appleton's** and **Foxcroft's** research groups), and building research capacity and capability across a wide range of health professionals. Our successful bidding record with grant awarding bodies (e.g. NIHR, UKRI, National Charities) which prioritise areas of economic and societal importance is evidence of our alignment to these priorities.

Societal Impact

We are focussed on ensuring that our research is maximally impactful to society. Our public and patient focus (see sections 4.3.3 and 4.3.4) is also critical in addressing the research needs of our target populations. Clear examples of implementation of research findings to change clinical practice, improve patient experience or change public policy are described in our three submitted impact case studies. However, there are many more examples including: **Henshall**, following the completion of a Mesothelioma UK funded research study, is completing national recommendations to ensure that mesothelioma patients are provided with high quality care pathways following their diagnosis; **Esser's** gait measurement system has contributed widely to the academic community, public policy, and health management through, for example, its use by UCL and the UoO in the analysis of large national aging cohorts (e.g. SABRE and 1946); b) its implementation with subsequent publications on clinical assessment of >3000 Diabetes patients in the prestigious 6th People's Hospital in Shanghai (China) with recent adoption in four further clinics (Suzhou Hospital of Nanjing Medical University); **Burns** has developed a research-based e-learning tool called "EstiMate" to improve midwives' accuracy in visual blood loss estimations during waterbirth. The tool is currently being evaluated in a large scale trial across 10 NHS trusts, which collectively embrace all birth settings. **Burns'** earlier published studies on waterbirths (2012, 2014) have been widely cited during this REF period, including in clinical guidelines.

Engagement with Patients and the Public

PPI is a strong theme running through all of our research activities. OxINMAHR members are an integral part of a pan-Oxford 'working together' PPI group. Membership includes the Oxford Cambridge ARC, AHSN, OUHT, UoO, Oxford Health and NHS England (Oxford site). This group has developed joint PPI training for service users and academics and produces a newsletter entitled 'Involvement Matters'. Also, **Brett** and colleagues from the Royal College of Nursing, developed and published in the BMJ the GRIPP2 reporting checklists, designed to improve the quality, transparency, and consistency of the international patient and public involvement (PPI) evidence base, and to ensure that PPI practice is based on the best evidence. **Brett** also chairs the Oxford Public Engagement Group for our Healthy Ageing & Care RIKE Network.

Additional key examples of public/patient engagement in our work include: The Life After Prostate Cancer Diagnosis Study (**Watson, Brett, Matheson**) included User Involvement as one of six work streams. Users were integral to each stage of the research programme and a formal evaluation of this involvement has been undertaken and submitted for publication using the GRIPP2 framework; The First Steps Project (**Dawes, Collett**) supported users with the development of a user-led initiative to support people with Parkinson's Disease at the time of diagnosis; The SWEET Study (**Watson, Brett**) has established a User Advisory Group of ten women who have been diagnosed with breast cancer and who have undergone adjuvant endocrine therapy. This group is co-designing the development and evaluation of an intervention to improve adherence to treatment. Finally, OxINMAHR has established a PPI database and developed a PPI group to facilitate the recruitment of hard to reach service users (led by **Brett** and **Henshall**).

Engagement with Diverse Communities

We have also made significant investments in engaging with diverse communities. OxINMAHR has established a PPI database and has successfully developed a PPI group to facilitate the recruitment of hard to reach service users including regular presence at a number of key community events (**Brett, Henshall, Dawes, Esser**). Some exemplars of our work include: A Bowel Cancer UK funded study (ongoing) aiming to develop a community based intervention to increase bowel cancer screening uptake in South Asian populations. **Brett, Henshall, Watson and Smith** have successfully established excellent relationships with local community leaders (via mosques, temples, community groups, meetings and activities), who are now keen to have ongoing involvement in our health-related research activities. The Epic school program (**Dawes and Esser**) - a comparative trial of exercise and motor control intervention for children with Developmental Coordination Disorder- was developed with successful engagement of young people, their families and teachers and this has formed part of the clinical exercise impact case study. **Matheson, Watson** and **Alexis** have undertaken research exploring Black African and Black Caribbean men and gay men's experiences following diagnosis and treatment for prostate cancer. **Alexis** has produced two YouTube videos for Black African and Caribbean men raising awareness of prostate cancer (these have also been disseminated through multiple community groups).

Public Engagement Activities

We are placing an increasing emphasis on public engagement activities and have adopted a range of innovative approaches. We are supported by a Faculty Engagement Officer who advises, facilitates and coordinates different routes for researchers and research students to best engage the public with their research. This includes public lectures, social media campaigns, keeping researchers abreast with opportunities to gain public engagement experience internally and externally and working closely with the University PR Team to support the production of key stories and press releases about impactful research.

Alongside the research centre and research group seminar series, OxINMAHR runs a series of seminars and discussion fora for the broad research community. These seminars are open to all researchers including PhD students and our research partners. OxINMAHR researchers contribute to the annual Oxford Brookes Science Bazaar (2014-2019) which is aimed at children and families. Similarly, OxINMAHR researchers regularly contribute to the annual Oxford Science Festival (2014-2019), VentureFest (2017, 2018, 2019) and Business Research Innovation and Technology (BRITE) with Innovate UK (2019).

Specific examples of public engagement activities include: **Brett's** presentation at the National Cancer Research Institute (NCRI) conference in Glasgow 2018 on the use of e-cigarettes as a smoking cessation aid for cancer patients attracted considerable media interest. 22 media items were released in Scotland, UK, Europe and USA. Articles were included in The Telegraph, The Scotsman, Dentistry, Nursing Times, Medscape, Medical Xpress, Oncology, The Herald, Herald

Scotsman, The Pharmaceutical Journal, The National, The Vaping Post, Centre Daily Times, ScienMag, ECancer, Daily Herald, Bioengineer.org. TV coverage included NewsLiveTV, MSN News UK, STV. BBC Oxford held a discussion on e-cigarettes as a result. The study was also reported on from outside of UK: NAAJU (USA), Archy Nety (Germany); **Burns and Smith** established Club Bump which comprises Zumba 4BUMP; a community-based dance exercise, education and support group for women who are pregnant or who have recently had their baby, followed by a relax session where women discuss health and pregnancy-related topics, facilitated by a midwife. Midwifery students at Oxford Brookes also attend and contribute to sessions; **Watson** led a dissemination event (Oxford, 2019) and participated in similar events in Leeds and Belfast to share the findings from the Life After Prostate Cancer Diagnosis study which recruited over 36,000 men. Each event was attended by over 70 individuals including health care professionals, patients, carers, and other stakeholders.