

Institution: Sheffield Hallam University
Unit of Assessment: UOA3 - Allied Health Professions, Dentistry, Nursing and Pharmacy
<p>1. Unit context and structure, research and impact strategy</p> <p>Context and Structure</p> <p>UoA3 has a critical mass of 35 staff (31.6fte). It is located within the Health Research Institute (HRI), one of four strategic research institutes with a mission to drive interdisciplinary working across disciplinary borders. Researchers are primarily based in the Department of Allied Health Professions (AHP), the Department of Nursing and Midwifery (N&M) and the Department of Service Sector Management (SSM); nutrition, dietician and health psychology researchers are based in multiple other departments but contribute to the UoA3 intellectual priorities. This structure replaces the Centre for Health and Social Care operating in 2014; researchers have been integrated into academic departments in a transition to a more sustainable model that expands research activity and excellence into academic departments. The strength of this context, and sustained growth of the UoA, is exemplified by a 40% increase in staff returned compared with REF 2014.</p> <p>Our research portfolio is concerned with prevention, treatment and rehabilitation amongst groups of people with episodic and long-term health conditions or disabilities, and the efficacy of the services that care for them. It addresses complex challenges, drawing on long-standing strategic partnerships with multiple care providers, such as Sheffield Teaching Hospitals NHS Foundation Trust (STH NHSFT), Sheffield Children's Hospital NHS Foundation Trust (SCH NHSFT), and multidisciplinary collaborations across the university and with external national and international academic collaborators.</p> <p>Research Strategy</p> <p>Progress Against Objectives</p> <p>Plans outlined in REF 2014 provided a solid basis for developing activity in the current REF period; we have made good progress against targets set.</p> <p><i>Doctoral completions:</i> we exceeded our target, with 49 completions in the REF period compared with 18 in REF2014. Scores in PRES are consistently high, in line with or above sector norms both for overall satisfaction and across the different indicators – reflecting the value placed on our students as an integral part of the UoA's research community.</p> <p><i>Growing external research income</i> has been achieved with a steady annual increase in funding since 2014. Total income over the period is similar to REF 2014, but significantly our portfolio is focused on funding from sources such as NIHR, charities and commissioned research, in line with our applied research and impact focus.</p> <p><i>Extending interdisciplinary research horizons</i> is evidenced by our collaborations within the university, including the Sport and Physical Activity Research Centre (SPARC) and the new Advanced Wellbeing Research Centre (AWRC; opened 2019). Supported by £14m funding from the Department of Health and Social Care and European Regional Development Fund, the AWRC focuses on physical activity to improve health outcomes for long term conditions (see interdisciplinary research section). Probst's NIHR funded SuPPoRT 4 All (S4A) project embeds designers in the research process, while Child's clinical and imaging biomarkers of health and disease programme (CIBoHD) has developed collaborations with engineers and neuropsychologists, embedding computing and AI.</p>

Testing different approaches to partnership working with research users has focused on the health and social care workforce as our primary research users; 55% of publications in this REF were co-authored with research users. A specific initiative supporting development and offering sustained benefits in this area is the long-term secondment of **Fowler-Davis** to STH NHSFT, working with the AHP and nursing workforce, building research capacity and developing the organisational infrastructure for research.

Staff support to develop high quality publication profiles and impact: peer support and mentoring, alongside the introduction of annual Research and Innovation Plans (RIP), has provided a framework to support staff to develop a high-quality research profile and to identify research impact, including the allocation of funding to develop targeted programmes of activity (see impact and people).

Research Groups

Our research has expanded over the period; established researchers have grown individual programmes (**Soltani, Khatab, Childs, Probst**) and we have made strategic senior appointments (**Metcalfe, Swallow, Nightingale**). Research groups presented in 2014 were reviewed and developed into four groupings to capture our strengths and areas of strategic intent. Within each grouping thematic programmes are delivered by senior researchers working alongside mid and early career researchers and clinical practitioners. Boundaries within and between groupings are permeable, to nurture exchanges and fresh insights from the integration of different paradigms and methodologies, and to provide flexibility of response to external funding and joint working opportunities. Our organisational research structure, the strong interdisciplinary underpinning to our research, and our extensive networks with policy makers and research user groups, place us in a strong position to respond proactively to national and international priorities and initiatives. Our groupings are:

1) Maternal, child and family health and social care: encompasses two thematic areas of Maternal and infant health, and Child and family health.

Maternal and infant health research (Soltani-lead) enhances care standards to reduce health inequalities for mothers and babies with an emphasis on women who are vulnerable and at-risk, especially migrant and BME groups. A corpus of research aiming to improve the nutritional status of mothers and infants benefits from strong interdisciplinary collaborations between midwifery and nutrition. This portfolio addresses societal issues including nutrient intakes in pregnant adolescents (20, 293), dietary habits of young women during pregnancy (400), the impact of obesity in pregnancy (246) and breastfeeding practices (153, 510). A programme of activity interrogating and informing improvements in maternity care delivery has benefitted from Public Health England, Burdett Trust for Nursing, MRC and European Commission funding. Service transformation and national and international policy initiatives have resulted from our work to establish the effectiveness of midwife-led care (**Soltani**), and in assessing the benefits of maternity peer supporters for migrant and BME populations (**ICS2**).

Child and family health research (Swallow-lead) focuses on improving health and wellbeing in children and young people, including work on safe-guarding and protection (109) and childhood nutrition (266). An expanding portfolio of projects directed towards supporting children, young people and families to self-manage long-term conditions - including chronic kidney disease, diabetes type 1 and juvenile arthritis (1933, 1935) - with a specific focus on co-producing and evaluating digital self-management apps. Through collaboration with SCH NHSFT (**Swallow**) an i4i grant of £799k (£288k SHU) has been awarded to explore the use of Chatbot technology for the management of diabetes in young adults. A further European collaboration including Great Ormond Street Hospital (Kawasaki Disease Coronary Artery Aneurysm Prevention trial) is valued at €3m (**Swallow**).

2) Ageing and long-term conditions: is comprised of two clusters, cancer care and management, and improving outcomes for long-term health conditions (**Probst-lead**).

Cancer care and management research includes two NIHR-funded programmes of activity directed towards ways in which breast cancer care is managed and delivered to improve quality of life and health outcomes. S4A (**Probst**) is a programme of interdisciplinary research to refine, produce and undertake preliminary testing on a support bra for immobilising breast tissue during breast irradiation (3693). **Burton** collaborated on the NIHR Bridging the Age Gap study of £1.7 million (£136k SHU), addressing the poorer outcomes in older women with breast cancer (70, 3674, 3827). Outcomes, including a decision support intervention (DESI) to guide optimal, personalised treatment, has impacted globally in terms of changes in treatment received, improved patient knowledge, greater shared decision-making, enhanced quality of life and a sense of empowerment (**ICS3**).

Improving outcomes for long-term health conditions encompasses both disease prevention and interventions to improve management of long-term conditions. The group focuses on lifestyle factors including diet and exercise, and interventional studies on the benefits of physical activity in relation to mental wellbeing (149), polycystic ovary syndrome (499) and leg ulcers (53, 517). It addresses questions about treatment and management across a diverse range of chronic health conditions including fibromyalgia (12) and obesity (81, 82, 101).

3) Technology, data and digital innovations: encompasses research programmes in the areas of clinical and imaging biomarkers of health and disease, epidemiological health research, and technology-enhanced rehabilitation. Our **Clinical and imaging biomarkers of health and disease** (CIBoHD) programme (**Childs-lead**) - which spans acute traumatic brain injury, obstetrics and aged care - is transforming the application of non-invasive imaging biomarkers (optical coherence tomography and infrared thermography) for early onset health deterioration, as well as disease diagnosis and radiotherapy treatment for breast cancer (89, 534). Our **epidemiological health research** programme (**Khatab-lead**) focuses on broad global aspects of health, enabling the identification of high-mortality clusters and geographical inequalities, to inform appropriate investments that will help to improve the health of populations. This portfolio of research, supported by international funders including the Melinda and Bill Gates Foundation, includes work on risk factors for cardiovascular disease (451), cancer incidence, mortality and years of life lost (516), and national incidence, prevalence and mortality of HIV for 195 countries and territories (511). A rapidly emerging body of work centres on **technology-enhanced rehabilitation** (**Smith**) and is utilising GrowMedTech funding (a consortia of six universities supporting medical technologies across the Leeds and Sheffield region) to design and test innovations to support neuro rehabilitation.

4) Health and social care organisation and workforce: investigates ways of optimising health service delivery through systematic evaluation and service reconfiguration (**Kelly-lead**). Research examines how services and clinical pathways meet current and future health and care requirements, with examples including the organisation of youth sexual health services (506) and out of hours primary care provision, as part of the Prime Minister's Challenge funded enhanced primary care provision (181). Research on workforce development focuses particularly on transforming the practice of allied health professions and nurses, for example evaluating the role of post-registration internship programmes to develop research capability and capacity (3818). Research in HIV services (190) has had substantial impact, driving extensive development of the HIV nursing workforce across the country, leading to multiple quality improvement initiatives and system-wide changes in HIV services (**ICS1**).

Enabling Impact

We have implemented our impact strategy, set out in REF 2014, in response to positive panel feedback. Overarching aims were to **engage and co-produce** outputs with research users, **support staff** to undertake impact, explore vehicles to engage "**hard-to-reach groups**", and to create a **virtuous circle** linking research, dialogue with users and impact with reference to user groups. Our approach is supported through an interrelated funding strategy that includes research commissioned by healthcare organisations (section 3) and securing HEIF to support activities (section 3).

Our research responds to challenges identified by health and social care providers for the benefit of the populations they serve; research is applied and aligns with SHU's mission to *Transform Lives* (see Institutional Statement). Healthcare organisations and research users are integral to research design and delivery; because of these partnerships, outcomes often have immediate impact locally. A long-term secondment at STH NHSFT provides additional impetus to the process (section 3). Embedding impact into national and international health care practice and policy is achieved through the professional organisations and special interest groups with which our researchers work, acting as a conduit for far-reaching and sustained impact through the development and implementation of national best practice guidance, and through the educational and training initiatives they instigate. **Piercy's** research exemplifies this approach; the primary research was conducted in partnership with clinical colleagues at STH NHSFT to undertake the first comprehensive analysis of the HIV nursing workforce in England. Locally, this led to a radical restructuring of the Sheffield HIV workforce. Through initiatives led by the National HIV Nursing Association, it has impacted on nursing HIV services across England and Wales through new guidance and educational programmes (see **ICS1**).

The UoA supports impact through internal investment for targeted activities. **Burton** received funding to develop a website to provide open access to a decision support intervention (DESI) that could inform treatment decisions for older women with breast cancer. The tool was developed as part of the NIHR 'Bridging the age gap study' and this internal funding ensured that it reached the relevant clinical audience, enabling incorporation into clinical consultations. The DESI has changed clinical practice globally and empowered patients (see **ICS3**). Institutional development and support for impact is provided via Research and Innovation Services (see Institutional Statement). The UoA has also invested in an impact co-ordinator to provide additional embedded support to increase understanding of impact within the health sector. Our impact case studies all benefitted from this support in terms of maximising reach and evidence capture. Additionally, individual research and innovation plans - which researchers are expected to complete annually - include a clear expectation that impact is considered from the outset and factored into decision making at all stages of the research process.

Impact through effectively engaging with hard-to-reach groups is exemplified in **Soltani's** work to develop a model of perinatal care for migrants, asylum-seekers and refugees that includes introducing maternity peer supporters (see **ICS2**).

Future Research and Impact Strategy

The disciplines contributing to UoA3 are committed to developing and sustaining world-leading applied research and impact across health and social care and related platforms. Within the current REF period we have succeeded in delivering high quality research and impact, supported by a new and innovative research infrastructure via the HRI. In the forthcoming REF period the HRI, a vanguard for health transformation, will serve as an important catalyst for establishing formal partnerships and collaborations, and increasing the number of large-scale cross-disciplinary research programmes. The AWRC, now well-established, will continue to have strategic influence in the region, bringing together researchers under the wider auspices of health prevention, promotion and wellbeing through physical activity. Our four research groupings will continue to evolve and through their close working relationships with local, regional, national and international partners, will remain responsive to the changing health and social care landscape. A new cross departmental research hub will provide a vehicle for co-ordinating research activities and interfacing with the HRI.

The HRI, working through the departments of AHP, N&M and SSM, will operationalise and monitor this strategy through several work streams. Key elements of our strategy include:

1. Capitalise on the university infrastructure and research investment to achieve an overall 50% increase in our research income over the REF period. This will be achieved through growth across all funding streams, with a specific focus on increasing the proportion of

- larger programmes of funded research, supported by processes including internal peer review to improve the quality of funding applications.
2. Increase our research active staff base in line with university plans to achieve 50% of staff with SRR and improve our reputation as an internationally recognised centre of applied research excellence. Early in the new cycle we will recruit three outstanding professorial candidates within current thematic areas, providing further momentum to our research groups. We will grow our future research leaders, providing targeted support for talented mid and early career researchers with clear potential, and accessing external opportunities such as the NIHR advanced fellowship scheme to support their growth and development.
 3. Expedite the impact of our research, transforming health through innovation. We will capitalise on well-established and mutually beneficial relationships, working collaboratively with our visiting fellows and professors, with industry and third sector organisations - working in areas related to our research (e.g. breast cancer) to facilitate rapid uptake of research, and by harnessing greater collaborations through the Yorkshire Humber Academic Health Science networks (YH AHSN). Targeted internal investment will support those activities and maximise impact in identified areas.
 4. Grow our international partnerships and collaborations, with La Trobe University as our international partner institution, and by building new partnerships, particularly around our technology-based research.
 5. Continue our trend of yearly increases in the number of research degrees with a target increase of 50% in doctoral completions over the REF period. We will capitalise on the interdisciplinary infrastructure of the research institutes to offer more interdisciplinary research and innovation PhDs, and achieve an overall shift in the balance of our doctoral provision towards a greater proportion of full-time doctoral scholarships by creating opportunities in collaboration with industry and health partners. We will maintain our high standard of doctoral experience and achieve measurable improvements in PRES scores across all indicators, with investment in training and development of supervisors to include supporting them to achieve UKCGE supervisor recognition status.

Interdisciplinary Research

Interdisciplinarity is embedded within the University's culture and driven at a strategic level by the research institutes (see Institutional Statement). The HRI (**Probst**-Director) houses UoA3 and UoA24, and spans the academic departments of health and sport, the Sport and Physical Activity Research Centre (SPARC), and the AWRC as one of the University's Centres of Excellence. Set up with £14m funding from the Department of Health and Social Care and European Regional Development Funding, the AWRC convenes researchers from across the university, and externally, to address health challenges through physical activity-related interventions and innovations, in partnership with multiple stakeholders - including the public, industry, and statutory and third sector health and care organisations. This infrastructure fosters natural interdisciplinary collaborations between health and sport disciplines producing outputs (149, 517) and funding successes including Machaczek (section 3). Four UoA staff (**Smith, Fowler-Davis, Nield, Homer**) hold leadership positions in the AWRC and are producing step-changes in the way we collaborate, creating opportunities for disciplines to enter new contexts internally and externally. The CIBoHD research programme (**Childs**) involves collaborations with a cadre of clinicians, engineers, statisticians and neuropsychologists, working alongside experts in novel materials, embedded computing systems and artificial intelligence, from both SHU and other leading research universities. The S4A programme (**Probst**) is an interdisciplinary collaboration with design (Reed UoA32) being an integral element throughout the whole project; contributing to the stakeholder co-design workshops, having a central role in the design process, specifically the functionality of the product, and in the collaborative development of a patient self-monitoring tool.

This UoA includes nurses, midwives, occupational therapists, radiographers, physiotherapists, psychologists and nutritionists, epidemiologists, statisticians, health economists, clinical scientists and information scientists. Our research groupings provide a natural context for creating and sustaining synergies amongst staff with different methodological and philosophical perspectives, from diverse clinical /disciplinary backgrounds. They also provide the primary conduit for engaging

with health and social care providers and commissioners in the region and national bodies, including Health Education England and Public Health England.

Open Research

The UoA promotes a culture of open research in line with university data management and open access policies (see Institutional Statement). **Harrop** is a member of the university's Open Research Operations Group, responsible for policy and governance of open research, ensuring representation of health, championing open research across the UoA and providing discipline-specific advice.

University and UoA initiatives raised strong awareness among researchers of the importance of open research. All staff and students are introduced to the principles of open access publications and data management, including the Sheffield Hallam University's Research Archive (SHURA) and Research Data Archive (SHURDA) as the principal means through which publications and data sets are stored and shared. In line with policy, the UoA aims to make outputs of research available as widely as possible through unrestricted online access, preferably via our institutional repository; we have excellent compliance with institutional and funder policies. Doctoral theses are available electronically via SHURA and made available to the public under a Creative Commons licence (CC BY-NC-ND).

UoA3 has gone above and beyond the minimum open access requirements for REF. 33% of our entire submission, including out of scope items, was published via gold open access. We have access to the university Career Kickstart Fund, where APC funds are targeted specifically at early-career researchers and parental leave returners. Staff are encouraged to share pre-print publications through ResearchGate, Academia.edu and other academic networking sites, as well as via our professional networks, collaborators and social media. We encourage staff to obtain an ORCID registration. Data management planning, including consideration of data sharing, is embedded in our ethics review processes.

Research Integrity

All research undergoes ethical scrutiny to ensure that it is conducted to the highest ethical standards and to protect the integrity of our research, complying with the university's research ethics policy <https://www.shu.ac.uk/research/quality/ethics-and-integrity> (see Institutional Statement). The majority of staff in the UoA serve as ethics reviewers; university training is provided and new reviewers are supervised by more experienced staff. Much of our research falls within the remit of external organisations, primarily the Health Research Authority (HRA). We have Home Office level security for managing our data storage and flow. **Kelly** is Caldicott guardian and has responsibility for our health and social care management systems, working with IT services and the central research management team to produce bespoke solutions to individual data constraints, and overseeing a robust system of monitoring and audit. We also hold NHS digital toolkit accreditation.

2. People

Staffing Strategy

Succession planning has proved crucial in sustaining a cadre of senior researchers, providing leadership and maintaining a buoyant culture. Senior staff retirements since 2014 (n=5) and targeted recruitment of senior staff to Russell Group Universities (n=3) has required a strategic approach to sustaining leadership. This has been achieved through a combination of external professorial appointments and promotion of existing staff to professorial positions. **Metcalfe** was appointed as Pro Vice Chancellor with responsibility for education and research. The professorial appointment of **Nightingale** and **Swallow** within the departments of AHP and N&M respectively, and that of **Smith** as head of AHP department, have strengthened three of our research groupings

and provided strong leadership around research capacity building. Three additional professorial appointments, aligned with our research themes, are planned for early in the next REF period and will further strengthen leadership and stimulate growth and expansion of early/mid-career researchers.

Career Development

Our staff development strategy recognises the importance of lifelong learning and is premised on principles of the Concordat to Support the Career Development of Researchers. The university has held the HR in Research Excellence Award throughout the REF period and the action plan underpins the people and culture strand of the research strategy. The Concordat provides incentive and impetus to make sustained change; the UoA has representation on the Concordat Operations Group at ECR and senior level, ensuring input to all strategic development within the HRI and University level structures.

The Academic Career Framework (ACF), introduced in 2018, provides a framework for career progression for all staff (see Institutional Statement). **Probst, Kelly** and **Khatab** were promoted to professorial posts in recognition of sustained research excellence, with **Probst** also being appointed as founding director of the HRI. **Piercy** secured a readership position in recognition of research contribution to her field of inquiry. **Nield, Shearn, Bhanbhro**, all previously ECRs, have been regraded to mid-career positions.

The institutional researcher development programme supports all researchers (see Institutional Statement). Staff are encouraged to take responsibility for personal and career development. Annual Individual Research Plans (IRPs) are reviewed by a panel of departmental research leads with oversight from the Associate Dean for Research and Innovation (Health). Research objectives identified in the IRPs feed into annual appraisal processes, to support individual development and achievement of strategic research objectives. Impact is a core component of both the IRP and the ACF, main-streaming impact as a career development pathway.

Early Career Researcher Development

Funding opportunities targeted at early and mid-career researchers have benefitted staff in the UoA. A local fellowship scheme provided release from teaching commitments; fellowships were awarded to **Lewis** and **Skilbeck**. As a result, **Lewis** developed his research profile and produced academic outputs; and **Skilbeck** developed her post-doctoral research around palliative and end of life care, leading to funding successes with charitable organisations (Macmillan and Marie Curie). In 2018-19, early/mid-career staff benefited from University Creating Knowledge Implementation Plan (CKIP) funding schemes. **Shearn** was awarded the Chancellor's Fellowship to advance methodological research arising from her PhD, leading to funding successes and establishing collaborations with Northumbria University, University of Bangor and La Trobe University, Australia. **Piercy** secured a CKIP award for a programme of research activity involving four early/mid-career researchers, including **Shearn** and **Bhanbhro** from this UoA. **Paxman** secured funding to establish a research cluster providing publication support for mid-career colleagues to increase the quantity and quality of outputs.

Informal mentoring operates at all levels both within and between research groupings to support individual development and foster collaborations. Notable successes include a mentorship arrangement between **Piercy** and **Shearn** and between **Nightingale** and **Appleyard**, which have seen both **Shearn** and **Appleyard** progress rapidly as post-doctoral researchers. When an ECR, **Bhanbhro** was mentored by **Kelly** and **Soltani**, resulting in him securing British Council Newton funds (£40,000), which supported a five-day interdisciplinary workshop in Padang, West Sumatra on Maternal and Infant Health and Nutrition in 2016. The workshops were attended by 20 ECRs from UK institutions, including four from SHU. It led to several funding applications with partner institutions from Indonesia, two of them successful, and ongoing collaborations.

Departmental-Wide Research Development

Researchers have access to generous funding schemes for conferences, internal fellowships, seed corn research projects and open access APCs. Staff are encouraged to engage with the activities organised through the HRI, including writing workshops, cross university research dialogue events and research seminars.

A large proportion of departmental staff are recruited primarily for their clinical rather than research expertise. The UoA has established research initiatives to provide a continuous spectrum of support, to increase the proportion of staff with significant responsibility for research (SRfR) in line with our REF Code of Practice. Academic staff have research and scholarly activity time (RSA); to build research capacity through RSA, an internationally recognised expert was appointed to develop an integrated Research Self-Assessment Tool into the annual appraisal process. This supported discussions for those with research career aspirations to use their RSA to develop a profile and track record, working towards SRfR. This includes the potential to undertake departmentally supported part-time PhDs. Current arrangements support two members of staff from each department, providing funding and study time over five-years, subject to satisfactory progress, and discretionary additional study time to support timely completion.

Sabbaticals

Sabbaticals are locally negotiated and agreed. **Furness and Barker** were awarded sabbaticals during the REF period to concentrate on research, preparing funding applications and producing outputs. A university policy on sabbaticals is approved and will be introduced imminently, providing greater opportunity.

External Exchanges

Dr Suranga Dolamulla from the Ministry of Health Sri Lanka (Sep 2016-Aug 2017) worked with **Gumber** on a research agenda, primarily around Parkinson's disease. The collaboration continues with shared outputs and research proposals submitted to MRC. Dr Samsu Nurudin, a researcher from Lampung University, Indonesia, visited in June-Sept 2017 with funding from the Newton Fund Researchers Link Programme (British Council) to work with **Bhanbhro**.

Research Students***Overview of Our Doctoral Community***

Our doctoral provision has significantly increased over the REF period, achieving 49 completions (cf 18 in REF 2014). Currently, doctoral students are distributed across all research groupings. Provision caters for full-time, part-time and split PhDs (for overseas students wishing to study part-time or full-time from their home country). Overseas students have been recruited from SE Asia, Africa and North America. Full-time students have been funded through scholarships from the NIHR-funded Collaborations for Leadership in Applied Health Research and Care (CLAHRC Y&H), the White Rose Consortium collaboration, and through internal scholarship schemes. A large proportion of our students are senior health professionals who choose to study part-time alongside their clinical role; funding commonly comes from their healthcare providers and organisations. Recent examples include the National Forum for Lung Cancer Nurses and Sheffield Children's Hospital. Doctoral projects are closely aligned to health care challenges and directly influence policy and practice at local and national levels, in areas including occupational therapy, radiography and workforce management. These clinical academic pathways have led to significant career advancement opportunities, including secondments to the HEE leadership scheme and to a professional leadership role across the regional Integrated Care System. One of our students (Ramaswamy, completed 2018) was awarded an OBE for her services to Parkinson's disease.

Doctoral Support

The Doctoral School, established 2015, provides a unified approach to leadership, administration, support and training (see Institutional Statement). Provision within the HRI is overseen by the Head of Research Degrees (HoRD), with a dedicated student-facing administrative team. A Postgraduate Research Tutor (PgRT) provides pastoral support to complement the academic supervisory team. In addition to face-to-face support, teaching provision and student support are available through electronic resources via Blackboard (VLE); this meets the needs of our part-time students, including those geographically widely distributed. These structures enabled us to transition smoothly to fully online support, providing the same or enhanced level of support during Covid-19.

Results from the Postgraduate Research Experience Survey (PRES) have remained consistent over the REF period. We achieve above sector average for overall scores, and for the majority of indicators. Annual monitoring under the auspices of the HoRD ensure continuous improvement in the quality of student experience. An annual celebratory booklet recognises students' achievements and contributes to a vibrant doctoral learning environment.

Recruitment, Supervision, Training and Progress Monitoring

Equality, diversity and inclusion (EDI) principles are embedded in recruitment and selection policies and procedures. All applicants are interviewed by a panel including the prospective supervisor(s), the PgRT and a senior academic. Each student is supervised by a team of at least two academic staff with collective subject expertise and track record in PhD completions, with additional expertise (e.g. clinicians) as required. Those new to either supervision or the institution have access to a doctoral supervisor programme provided by the Doctoral School. Additionally, all supervisors are expected to attend an annual refresher supervisory training, organised and delivered by the doctoral team in the HRI. An annual scheme for students to nominate supervisors for the 'inspirational supervisor award' recognises and encourages best supervisory practice. In 2019, overwhelming positive nominations from research students resulted in creation of a new award for Outstanding Student Support (Research), to recognise our UoA administrator and student support officer (Rea Smith).

Student- and project-specific training needs are assessed at the start of the programme when all doctoral students complete the Vitae Researcher Development Planner. Training operates at three levels:

1. Research good practice, including record keeping, data management, data analysis and statistics, literature retrieval, research integrity and impact. Training is provided through mandatory sessions delivered via the Doctoral School, with input from e-literature experts from the Library and supplemented by online training (Epigeum).
2. Research methods, as required by individual programmes, provided by academic staff with appropriate expert knowledge or by accessing external training programmes.
3. Transferable skills, personal development planning, career choices, employability, time management, teamwork and leadership training are delivered at University wide and HRI level. External training opportunities include Translate MedTech courses for translation of research into medical technology products and clinical solutions. Multiple interdisciplinary networking opportunities are provided at university and HRI level.

Robust monitoring and review supports timely completions. Two assessment points in the first part of the PhD programme include approval of research programme (RF1) at 3 months (6 months for part-time) and confirmation of registration at 12 months (24 months for part-time); this is supplemented by submission of a thesis plan at the beginning of the final year. On-going progress is monitored through supervision records, approved by the Director of Studies (DoS), annual progress reports submitted by the DoS and regular formalised progression review meetings conducted by the PgRT.

All students have an allocated research budget which is managed by the student, with expenditure agreed with the supervisory team and approval by the budget holder, to ensure optimal appropriate use. The maximum value was increased threefold in 2019 to £1500 per annum.

Students are encouraged to participate in regular interdisciplinary research dialogue events organised through the HRI and research seminar series operating across the UoA; this provides opportunities for students to present their work in a supportive environment. Students routinely contribute to the annual university research conference and compete in the national 3-minute thesis scheme. One student achieved success as university runner-up in 2019. Additionally, opportunities are available for our full-time students to contribute on a casual researcher basis to ongoing staff projects and expand their research skills and experience.

Equality and Diversity

The university is committed to advancing equality of opportunity, experience and outcome for staff and students. It holds a Bronze Athena Swan award which helps guide the UoA's commitment to equality, diversity and inclusion (EDI), and the deployment of institutional policies and procedures such as the Race Equality Charter and the Hallam Deal (which sets out working expectations, environment and opportunities). The Department of Nursing and Midwifery also holds a Bronze Athena Swan award.

9% of researchers in the submission are BAME. Staff must complete a mandatory online unconscious bias training; those involved in the recruitment and selection of staff are required to complete an additional module. EDI related roles, including BAME champions, operate at departmental level. EDI is embedded in all aspects of our environment, from the recruitment of staff and students, to supporting career progression and deploying resources to support research and researcher development. The university developed a responsible use of research metrics policy in 2018 and is a signatory of the Declaration on Research Assessment (DORA, 2019). The policy is applied to all research recruitment, promotion and output assessment activities within the UoA, ensuring indicators are used appropriately and responsibly.

Students have access to University-wide processes for suspension of studies for long-term illness. Those with disabilities or additional learning needs can have a 'learning contract' established, which takes account of reasonable adjustments for supervision and examination, for example briefings for external examiners around what additional factors need to be considered in the *viva voce* examination. Over the REF period, two students supported with learning contracts have successfully completed and another two are currently registered. Scholarships can be taken on a fractional basis to support students with caring responsibilities.

Internal funding opportunities are widely advertised and, in accordance with institutional policies, allocation of funding is achieved through open, transparent application and review processes with consideration to principles of EDI. This includes ensuring that review panels are diverse, and that the diversity of the profile of supported colleagues for a particular scheme is considered. Where schemes have targeted criteria, e.g. ECRs, all staff meeting those criteria are equally eligible to apply, regardless of employment and contract status.

We have a commitment to the long-term support of staff and the avoidance of uncertainties associated with regular renewal of temporary positions. For staff initially recruited on a temporary contract associated with a research project, they are maintained on a temporary contract for a maximum of four years. They have equal access to development opportunities with the result that they are usually in a position where we can strongly support their progression to a permanent contract during the four-year period. For example, **Shearn** was supported to secure a VC scholarship in the first year of a one year fixed-term contract, enabling her to secure external funding and a permanent contract.

As per the national picture in our professional groups, our academic workforce is largely comprised of women. Twenty-eight of the 35 staff within this UoA are women and 11 are on part-time

contracts. Three (**Probst, Kelly, Piercy**) have accessed the Aspire mentorship scheme; developed by our Women Professors' Group to help address the gender imbalance in senior roles, leading to professorial/reader appointments. There is recognition of responsibility to staff and research students who are carers or returning from parental leave, and we effectively deploy University policies covering flexible working and parental leave. A flexible approach to adjusting contracts enables staff to address health issues, work-life balance, caring responsibilities or new disabilities, without implication for their role or research time allocation. The success of our approach is exemplified in **Probst**, who secured a professorial appointment and was recently appointed Director of the HRI whilst continuing to work part-time (0.7fte).

3. Income, infrastructure and facilities

Research income has grown incrementally during the period; with £3.7m secured across a range of funding sources. Income is secured in competition with other HEIs and is typically captured through two routes: 1) commissioned research by external bodies; projects are typically short-term and require a coordinated 'rapid response' from staff; and 2) grant funding from national/international bodies aligned to the UoA's long-term priorities; activities typically involve cross-disciplinary collaborations with clinical and academic partners. Most research income (£2.7m) has been awarded by Government (NIHR, local authorities, trusts and Health Education England), with charity funding (£635K) and EU funding streams (£225K) of increasing importance.

Our strategy is to maintain both funding routes, with an ambition to increase large-scale funding to better support sustainability. The strategy recognises that impactful health research is based on collaboration between academics, clinical practitioners, patients and, where appropriate, industry partners. We support a developmental pathway; pump-priming new research areas to develop pilot data or proof of concept required for larger funding programmes. Internal and external funding sources have been used to pump-prime and develop research programmes across all four groupings. University Creating Knowledge grants have supported pilot research for **Piercy and Shearn** (£66K), **Probst and Burton** (£22K), and **Barker** (£25k). Outcomes included high-quality outputs and research collaborations with local NHS Trusts, leading to new external larger-scale grant applications. **Soltani** secured QR Global Challenges Research Funding (£69k) to progress maternal research in Indonesia. **Fowler-Davis** (£78K) and **Childs** (£96.5K) were awarded internal HEIF grants to support translational research and knowledge exchange; with internal funding from the Innovation Advisory Board being used to support research to inform a 'translational gap' between proving product technology benefits from the S4A experimental work (**Probst**) to establishing how the design will convert to industrial production (£40K). **Machaczek** was awarded UKRI Closing the Gap Network Collaboration funding for her research on physical activity for aiding mental health recovery, leading to an NIHR programme grant application (£235k). The Grow Medtech programme (a consortia of six universities supporting medical technologies across the Leeds and Sheffield region) provided funding to refine the product fitting process for roll out within the existing breast cancer radiotherapy patient pathway (**Probst** £6K) for the S4A project. Grow Medtech has also funded a programme of work led by **Smith**, in partnership with Shapemaster Global Ltd, to co-design graphical user interfaces associated with power assisted exercise equipment that are accessible for people with complex impairments (£24.7K). **Childs** secured funding (£25K) from the Medical Research Council Confidence in Concept (CiC) scheme to pilot test infra-red thermal imaging to identify women at risk of surgical infection following caesarean section; preparing important proof of concept data for the development of a larger programme of research activity in the field of thermal imaging.

Larger funding programmes secured include **Khatab** NIHR i4i (total grant £445K, £286K to SHU) and Dunhill Trust grants (£85K); **Nightingale** Health Education England, Office for Student Funding, Public Health England, and the College of Radiographers (£300K); **Probst** NIHR i4i (£576k) and the College of Radiographers (£18k); **Soltani** MRC, European Commission and the Burdett Trust (total grant £587k, £142k to SHU); and **Swallow** NIHR i4i (£142k) and Horizon 2020. Funding has led to significant outputs and developments including UK and European patents (**Probst** for the S4A bra), healthcare workforce developments and insights including better

understanding of retention issues within the radiography workforce nationally (**Nightingale and Appleyard**), international developments in maternity care and infant feeding (**Soltani**), and the use of technology for the management of diabetes in young adults (**Swallow**).

Organisational Infrastructure

Our Unit plays a key role in the new Health Research Institute (HRI), which is facilitating enhanced disciplinary collaboration. HRI provides two key mechanisms that are supporting the UoAs ambitions to scale up interdisciplinary and international research: first, enhanced support for horizon scanning, pump-priming, collaboration and developing large scale funding; second, a focus on enhancing research quality through staff development and mentoring. A member of the UoAs professoriate (**Probst**) plays a leadership role as Director of HRI.

Researchers collaborate with clinical partners locally, nationally and globally to deliver impactful research; investment has been targeted towards supporting posts which bridge the divide between research and practice. To expand clinical research partnerships, a well-established long-term secondment of **Fowler-Davis** to STH NHSFT, which has facilitated growth in collaborative funding applications between the two organisations, has recently been extended to Portfolio Lead within the AWRC. This role spans the different AWRC themes and showcases opportunities for further collaboration and impact across the different organisations. The Lead Research Nurse for the Yorkshire and Humber Clinical Research Network (CRN) attends the grants meeting for the UoA to provide CRN support and input to collaborative grant developments. The Unit has also continued to invest in staff with particular methodological expertise; **Harrop's** work as an information scientist has benefited mixed method and review-based projects across the UoA, providing expertise in literature searching, realist synthesis, systematic reviews, reference management and bibliometrics. Researchers also have access to dedicated survey research and data governance expertise; **Kelly** is health and social care data guardian with oversight for research data storage for UoA3, advising staff on data storage requirements and related data gathering decisions.

Operational and Scholarly Infrastructure

The HRI provides operational infrastructure for UoAs 3 and 24; operational plans are overseen by the leadership group, chaired by **Probst**, including research students, early- and mid-career researchers and senior research leads. This constitution ensures the diverse research community needs are met and includes a mandate to ensure an inclusive approach to research and innovation.

The UoA is supported by the University's Research and Innovation Services via a hub and spoke model (see Institutional Statement). The central team provides governance, policy, funding and commercialisation support with a dedicated operations team within the HRI (12.1fte), including new investment posts (2020) to drive research income and operations (Institute Manager) and knowledge exchange and innovation (Innovation Manager). The team also provides oversight of the HRI ethics review process.

The Learning Centre integrates high quality academic library information resources with excellent IT facilities, enabling staff and student access to a wide range of journals and other scholarly materials. Library staff liaise with the UoA to optimise spending of the journals budget. Staff and students can also obtain copies of articles in journals to which the University does not subscribe through the Document Supply Service, which is funded centrally.

The HRI coordinates scholarly activities such that researchers have access to regular interdisciplinary dialogue events, with members drawn from across the research community to bring fresh perspectives to research challenges - including for example, ageing, human rights and sustainability - and to provide new connections. Panels are inclusive of gender, race and research career stage. Follow-on events provide funding intelligence and guidance and further focused discussion.

Seminar series operate at departmental level and within research groupings. A notable example is the cancer management seminar series within the *ageing and long-term conditions* theme (**Probst-lead**). Now in its 7th year, seminars are also open to external clinical (NHS and private healthcare) practitioners with an interest in cancer treatments. The monthly programme involves internal and external speakers, with seminars live-streamed (and recorded) to provide greater accessibility. The series stimulates and enriches UG and PG research activity, leading to six student grants being awarded by the College of Radiographers Industrial Partnership Scheme (student CoRIPS) over this period. Two awardees have gone on to develop early career post-graduate clinical experience; one through the NIHR internship programme, and one is in a clinical research post.

Research Facilities

State-of-the-art facilities are located on three sites: Sheffield Olympic Legacy Park (OLP), City Campus and the Collegiate Campus. The OLP site is the home to the AWRC and a second new strategic centre, the National Centre of Excellence for Food Engineering (NCEFE), creating a third campus setting. The AWRC (£14m investment - see earlier sections) convenes researchers from across the university to address health challenges through physical activity-related interventions and innovations. UoA3 colleagues have access to these facilities, including a 500 m² movement analysis lab, human morphology and body composition scanning facilities, design engineering and manufacturing workshops (for prototyping health-related technological innovations), a physical activity suite (configurable for different patient groups), and six on-site clinical rooms with associated NHS data security and protection toolkit compliant room. These shared facilities are supported by a team of 1.8fte technical staff.

Nutrition and dietician researchers in UoA3 have access to the suite of facilities at the NCEFE, established with the support of over 40 private sector companies and £6.9m funding from HEFCE. Facilities complement those on our City Campus and will enable further expansion of nutrition-related workstreams. After a major refurbishment in 2013, the city campus facilities underwent two further minor refurbishments in 2019 (£100k), to upgrade the sensory suite and the Food Safety lab. They provide state-of-the-art food manufacturing with pilot-scale production facilities, laboratories, workshops and teaching spaces. Facilities include nutrition labs with exercise equipment, Douglas bags and blood analysis equipment, specialist sensory booths for product evaluation, and a range of equipment that enables extraction and quantification of compounds of interest in food and biological samples alike; mass spectrometer, fat extractor (to quantify lipids in food), ELISA, automatic protein titration unit (and digestion system), muffle furnace and flame photometer (for minerals such as sodium, calcium and potassium), breath by breath analyser (to measure H₂ in breath) etc. These facilities will be further enhanced within a new purpose-built facility due for completion in 2023.

The Collegiate Campus provides teaching spaces for all our health professional programmes and houses specialist health research facilities, particularly relevant to the *ageing and long-term conditions* research grouping. In 2018, an annex extension to the Robert Winston Building expanded and improved these facilities. Equipment housed here includes Toshiba Viamo ultrasound, electromyography, balance performance, Gaitrite and Primus BTE rehabilitation equipment - which are used by physiotherapists (**McLean, Smith**). Additionally, new static and mobile X-ray units, Eclipse radiotherapy planning software, and a range of simulation dummies, including anthropomorphic phantoms for experimental imaging studies, are available for UoA3 researchers. To support the S4A programme of research (**Probst**), the team were gifted two radiotherapy breast immobilisation boards (worth £20K) to support phantom and healthy volunteer studies, supplied by Leeds Teaching Hospitals NHS Trust as part of their equipment replacement programme. Researchers on this programme also made use of the Salford University Imaging suite (spiral CT scanner) as part of the experimental phantom studies for the S4A project. A recent EU European Regional Development Fund award (a grant of over £2.5m) for a new Testing, Imaging and Characterisation Centre for Innovation (TICCI) will see researchers in the *cancer management* research cluster gain state-of-the-art Radiotherapy 3D surface scanning equipment

and a fully functioning linear accelerator couch (worth over £300K) to progress research in the field of patient alignment and positioning in radiation treatment, and quantitative assessment of treatment side effects.

The *technology, data and digital innovations* theme (**Childs**) has benefitted from internal investment including a hand-held vascular Doppler, as well as a thermal imaging camera (Fluke Ti300 320x240 pixels). Equipment to support whole body physiological measurement includes an open-circuit indirect calorimeter supplied by GEMTM nutrition, opening up new research collaboration and studentships in human nutrition. For the neurological activities of this programme, investment also includes an NPI-200 pupillometer (Neuroptics) and intraocular pressure tonometer (iCare, IC 100: Mainline Instruments). Investment between Health and Psychology provided a TopconTM swept source optical coherence tomography (OCT) system. Equipment procured through external funding includes a FLIRTM thermal imaging detector and tripod.

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

Research Collaborations, Partnerships and Networks

Researchers have extensive collaborative networks within the Sheffield region, capitalising on geographical proximity and the long-standing relationship between Sheffield Hallam University, the University of Sheffield, STH NHSFT and SCH NHSFT. This regional strength benefits all partners and creates critical mass to address research questions from a regional to a global scale. It is supported by regional funding consortia such as Grow Medtech, which helps sustain research and innovation projects. Our researchers engage with local health and social care consortia, including the Yorkshire and Humber Applied Research Collaboration (YHARC). Around the *early years and prevention* agenda (**Soltani, Swallow, Homer**) collaborative opportunities are developing with clinical colleagues in the region and with Bradford, Sheffield, Huddersfield, Leeds and York Universities. Local Authority Research Links (LARK) with Sheffield and Wakefield are also well established (**Homer**). Appointment of senior NHS clinicians as visiting fellows or honorary positions strengthens alliances and provides a rapid pathway to local implementation. Current appointments include 25 honorary/visiting professors and 20 visiting fellows from organisations across the Sheffield region. For example, the honorary professorial appointment of Dr Paul Dimitri, Director of Research and Innovation at SCH NHSFT, recognises the strength of their collaboration with our *child and family health* theme.

The AWRC has already developed an extensive stakeholder network including partnerships with Canon Medical, Parkrun and Westfield Health. Alongside its research programmes, the centre provides consultancy, training and design services to global businesses, SMEs and the public sector, to advance population health. Successful partnerships with industry at the early stages of research, product design and testing have included Panache (**Probst**) and Shapemaster (**Smith**). Situated in one of the most economically disadvantaged areas of the City, the AWRC has a key role to play in improving the health and wellbeing of the local community. This is achieved through alignment with the University's civic engagement plans; providing the community with access to academic staff to design and evaluate programmes, provide training and apprenticeships for the local community, and hosting and supporting community engagement events.

An institutional level partnership with La Trobe University in Australia (commenced 2019) aims to promote research and innovation projects with global impact. Health and wellbeing is one of three strategic priority areas, alongside sport and physical activity, and food and nutrition. Catalysed by funded exchanges (**Fowler-Davis**), a joint PhD programme has been established together with seed corn funding; researchers in this UoA are collaborating in areas of mutual interest related to care of older adults and are driving research capability and capacity building in the health professions.

Researchers contribute significantly to the sustainability of their professional disciplines and our research assists in national agenda setting. **Probst**, **Nightingale** and **Appleyard** have served terms on priority setting committees in their professions (College of Radiographers Research Committee); and leading national projects setting the profession's research agenda and transforming the education and career framework, including a recent Health Education England project informing the NIHR research capability and capacity agenda (**Nightingale**). Collaborations with professional organisations, special interest groups and 'arms-length bodies' enables them to respond to national priorities set by those organisations, resulting in successful tenders and contracts. **Probst** is the founder and chair of the Breast Radiotherapy Interest Group (BRIG), with over 150 global clinical practitioner members that specialise in breast cancer radiotherapy; BRIG has a patient and public arm and together these stakeholders support co-design research in breast cancer radiotherapy. This expert group enables rapid dissemination of research and a community in which to support implementation into the clinical settings.

The problem-focused nature of our research has led to development of evidence-based materials through which impact is generated. For example, within the CIBoHD programme (**Childs**), studies in caesarean section wound infection using infrared thermography, funded by the MRC, led to the commissioning of the European Wound Management Association practice document on the wider topic of birth-related wounds; their assessment, complications and management across care pathways for communities of midwives, obstetricians and women's health specialists. Within the health and social care organisation and workforce grouping, **Nightingale's work** exemplifies how our research is impacting on diagnostic radiotherapy practice. Her engagement with UK-wide special interest groups identified startling variations in UK practice related to two complex imaging procedures (CT Colonography and Videofluoroscopy). Nightingale responded to the knowledge gap by publishing two imaging textbooks and developing educational courses for delivery across the UK and Ireland. Subsequent surveys identified unwarranted variation in practice and systematic reviews showed a lack of suitable guidelines to support radiographer best practice. Funded by Public Health England, a guideline development group, established and co-chaired by Nightingale, employed an expert consensus approach to produce a suite of evidence-based practice templates. Collaboration with stakeholders (Bowel Cancer Screening Programme Radiology Committee, PHE and the College of Radiographers) ensured guidelines were endorsed, hosted via open access on the professional body website and adopted into practice. The materials were launched across England via 'CTC roadshows' and the group was subsequently commissioned to create a suite of E-Learning for Healthcare resources available to all NHS staff. Work is ongoing with a multi-professional collaboration involving SHU and the University of Central Lancashire.

Service users contribute to the design and conduct of our research. Patient Public Involvement commonly arises from groups established with the institution, including the AWRC Public Involvement in Research Group (PIRG); those in our partner organisations including maternity user groups (**Soltani**); and a permanent co-ordinated 'elders' panel who provide reflection and feedback on programmes relating to older people's services in Sheffield (**Fowler-Davis**). Service users work with us to co-produce research in some areas, notably within *maternal, child and family health and social care* research group, the I4i funded project exploring the use of Chatbot technology for the management of diabetes in young adults (**Swallow**). In the *ageing and long-term conditions* grouping, service users contribute to mental health and physical health research (**Machaczek**), as co-authors of publications, co-researchers on projects examining approaches to physical activity for aiding mental health recovery (UKRI Closing the Gap Network Collaboration Fund) and as a co-applicant on the subsequent NIHR programme grant application.

Researchers regularly contribute to public engagement activities, disseminating project outcomes and contributing to wider research conversations. For example, **Probst** has generated wide interest in her breast cancer S4A All project through Sheffield Radio, BBC Look North and the Daily Mail. **Bhanbhro**, **Gumber**, **Probst**, **Lewis** and **Nield** write for The Conversation, which engages the public globally. More locally, researchers have been involved in high profile public events such as the ESRC Festival of Social Sciences (**Smith**; **Bhanbhro Shearn**), Festival of Science (**Childs**) and Sheffield Science week (**Probst**).

Contributions to, and Recognition of, the Research Base

Editorial Activity

Nightingale is Editor-in-Chief (2014-present) of *Radiography*, the leading international journal in her field. **Schofield** is joint Editor-in-Chief of the *Journal of Pain Management*. **Soltani**, **Khatab**, **Swallow** and **Smith** have all been guest editor for special issues for journals in their area of expertise. All researchers peer review for a range of journals with several (**Appleyard**, **Barker**, **Homer**, **Khatab**, **Piercy**, **Probst**, **Skilbeck**, **Swallow**) holding Editorial Board/panel positions.

Grant Review Panels

Researchers contribute as panel members to international and national grant committees:

- Horizon 2020 (**Kelly**)
- MRC, ESRC, NIHR (**Schofield**, **Probst**)
- French National Research Agency Grant Review Board, British Council Newton Fund (**Barker**)
- National Forum for Enhancement of Teaching and Learning (Ireland) SATLE and DELTA awards - international health education advisor (**Nightingale**)
- College of Radiographer doctoral fellowship award panel (Chair) (**Probst**)
- Royal Society for Tropical Medicine & Hygiene and the Newton Fund/British Council (**Bhanbhro**)
- Versus Arthritis (**O'Brien**)
- NIHR Clinical Academic Training Fellowships Committee Member; Co-chair of Clinical Doctoral Research Fellowships Committee for HEE / NIHR (**Metcalfe**)
- Great Ormond Street Hospital London Children's Hospital Charity, Research Assessment Panel (**Swallow**)

Board Membership

Researchers hold board membership on national and international committees and play leading roles in promoting research development within their professions. **Metcalfe** was Chair of the family communication research EU Society for Huntington's Disease (2014-16) and co-chaired the UK Chapter of the International Family Nursing Association (IFNA) (2017-20). **Swallow** is President Elect of the International Family Nursing Association and Co-Chair of the UK and Ireland IFNA. **Piercy** chaired the research committee of the National HIV Nursing association (2016-18) and sits on the education and research sub-committee of the British HIV association. **Nightingale** was a College of Radiographers Research Committee member (2014-17). **Nield** sat on the Education Board of the British Dietetic Association (BDA) and represented the BDA on the Principles of CPD and Lifelong Learning group for Health and Social Care Professionals. **Probst** chairs the College of Radiographer doctoral fellowship award panel. **Appleyard** was a steering group member for a formalised research mentoring scheme in the radiography profession.

Invited Talks and Conference Contributions

Several researchers were invited to present keynote addresses globally. **Khatab** has given keynote lectures on geospatial bayesian modelling in England, Ireland, Qatar and Malaysia. **Schofield** was invited to contribute to international pain conferences including the World Pain Congress, Buenos Aires (2014) and the European Pain Summit (2020). **Soltani** has given plenary lectures on maternal and infant research in Turkey, Italy, Greece and USA. **Gumber** has been an invited speaker on health economics at conferences across India (Delhi, Kolkata, Jaipur) and in England. **Nightingale** has given plenary addresses at radiology conferences in England, Norway and Sweden.

Consultancy Roles

Metcalf has a long-standing advisory role with national charities on patient communication including MacMillan, SWAN (Syndromes Without A Name), Breast Cancer UK, Genetic Alliance UK, Eurordis and a variety of smaller charities whose client base are affected by very specific genetic conditions e.g. PKD Charity and Dementia UK. She was also Adviser on Genomics Education for Nurses, Midwives and Health Visitors to the Health Education England (2015). **Soltani** was an invited expert advisor for "WHO Technical Consultation on strategies to improve the implementation of WHO recommendations of maternal health care in the WHO European Region". **Childs** is a panel member of the International Surgical Wound Complications advisory panel and the Institute of Skin Integrity and Infection Prevention advisory board. **Khatab** is a long-standing member of the Scientific Consultation Board of the Royal Statistical Society.

Prizes, Awards and Other Honours

Childs received awards for her work in wound care (Best Clinical Research Award 2016, Innovation Award 2016). **Piercy** was awarded the Krattinger Rennison Nursing Research Award (2019). **Gumber** was honoured for his contribution to the Indian Health Sector Development. **Smith** received the Emerald Literari Award (2019) and is Visiting Professor at Maastricht University, Netherlands. **Khatab** is Visiting Professor at Ohio University, and also the University of Washington, USA. **Morris** is a Fellow of the Institute of Food Science and Technology.