

Institution: University of Stirling

UoA: A3 Allied Health Professions, Dentistry, Nursing and Pharmacy

Section 1. Unit context and structure, research and impact strategy

1.1 Overview of the UoA Context, Structure and Research Strategy

Our research strategy supports cutting-edge interdisciplinary research across the life course that addresses health challenges for people, patients, carers and practitioners. We deliver research that supports people to maintain, attain or regain good health, through a focus on Health and Behaviour. To achieve this, our organisational structure promotes close interdisciplinary working on health challenges, focussing on engagement and collaboration with public sector organisations and external collaborators.

We are a community of allied health and social care researchers and practitioners. We have strengthened our research capacity and capability since 2014 through a 254% increase in our external research funding. In our collaborative environment, methodological innovation thrives alongside opportunities for impactful interdisciplinary research. We work across four staff sections: The Institute of Social Marketing and Health (ISMH); the Nursing, Midwifery and Allied Health Professions Research Unit (NMAHP-RU); Health Sciences; and Health Psychology. We have 58.61 FTE, comprising of nine Professors, eight Associate Professors, five Senior Lecturers, three Senior Research Fellows, 23 Lecturers and 14 Research Fellows. Collaborative working across sections ensures agility to respond to societal needs, as evidenced by our responses to COVID. We have secured funding from UKRI, the Chief Scientist's Office and Scottish Government of over £1.1Million for COVID related research, completing six fast-track projects and working on six further projects that provide evidence for practice developments, understanding long and short-term COVID health implications and vaccination. Our outputs demonstrate our emphasis on collaboration with 90% of our papers co-authored with external collaborators and 31% with international collaborators.

We are the applied health and social care experts at the heart of the University of Stirling's three overarching research themes: *Cultures, Communities and Society*; *Global Security and Resilience* and *Living Well*. We work predominately within the *Living Well* theme, although also across the other themes, to lead three inter-related areas of expertise:

1. Determinants of Living Well (*Determinants*)
2. Interventions to Support Living Well (*Interventions*)
3. Health, Social Care and Professional Practice to Support Living Well (*Practice*).

Figure One demonstrates the relationship between our research topics and organisational structure.

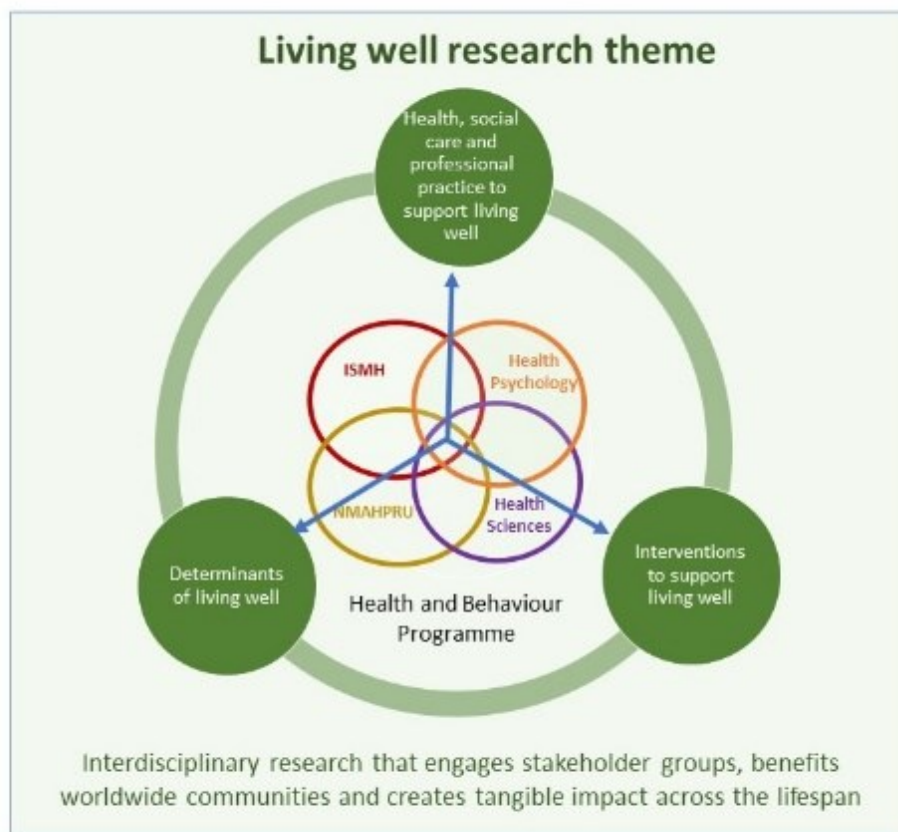
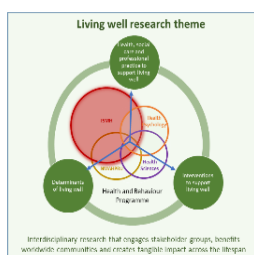


Figure One: Overview of Organisational Structure and Research Focus

1.2 Research Organisational Structure

Institute of Social Marketing and Health (ISMH)

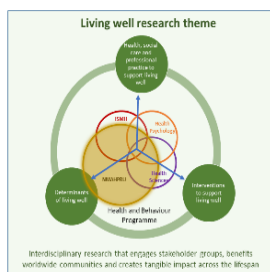


Founded in 1980, ISMH is the UK's leading academic social marketing research centre. ISMH's work on the health effects of tobacco, alcohol and food marketing has informed policy and legislation worldwide. For more than a decade ISMH has undertaken research into the impact of product marketing on health, receiving the Queen's Anniversary Prize in 2013. ISMH embraces a wide international focus on commercial determinants of health that provides vital evidence to underpin policy and legislation to improve the health of current and future generations.

ISMH has an extensive funded research portfolio and leads our *Determinants of Living Well* research topic. For example, ISMH leads a programme of international research focussed on how tobacco products and other pollutants affect indoor air quality as a preventable risk factor for Non-Communicable Diseases and has pioneered novel methods to assess air quality in the UK, Europe, Africa and Asia. Our work-package within a Horizon 2020 grant about Tackling Second-Hand Smoke, using these novel methods, has involved 12 partners across six EU countries and has produced key recommendations around measures to control exposure to second-hand smoke presented at the EU parliament in Brussels in October 2019. We have translated this work into practice through our contribution to the Pan African Thoracic Society

training course on measuring air quality for African respiratory clinicians in Kenya, Malawi and South Africa.

The Nursing, Midwifery and Allied Health Professionals Research Unit (NMAHP-RU)

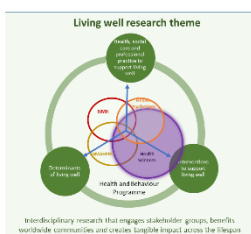


Founded in 1993, NMAHP-RU is a co-funded collaboration between the Chief Scientist Office of the Scottish Government's Health and Social Care Directorate, the University of Stirling and Glasgow Caledonian University. It maintains two sites of equal size in Stirling and Glasgow. The most recent quinquennial NMAHP-RU external review, undertaken by the Chief Scientist for Scotland with an independent international scientific panel, was held in November 2017 and commended NMAHP-RU as a recognised centre for excellence in nursing, midwifery and allied

health professions research.

NMAHP-RU leads the *Interventions to Support Living Well* research topic. Multiple large-scale interdisciplinary projects have been funded and completed since 2014. For example, three linked projects funded by EU Framework 7 and Horizon 2020 focussed on clinical impact of mental health interventions: Optimising Suicide Prevention in Europe; Prevention of Depression through Networking in Europe; and an international trial of workplace mental wellbeing intervention. Clinical impact is evidenced throughout, for example, NMAHP-RU developed and evaluated the Patient Centred Assessment Method (PCAM) to improve nurse-led biopsychosocial assessment of patients with long-term conditions and co-morbid mental health needs which is now being used in NHS Lanarkshire's Keep Well service. PCAM is now being tested in other contexts, including intensive care to ward and ward to home transfer.

Health Sciences

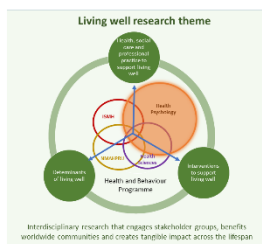


Health Sciences researchers form an active group with practice at its core. Practitioner-led research is central to building capacity and capability; for example, our successful Clinical Doctorate equips senior clinical practitioners with the research skills to develop and undertake their own research within practice arenas. Our practice focus spans health and social care and is award winning. For example, we have received the Self-Management Resource of the Year Award from the Health and Social Care Alliance Scotland for

Jenny's Diary (2017) which aims to support conversations about dementia in health and social care with people who have a learning (intellectual) disability.

Health Sciences leads our *Health, Social Care and Professional Practice to Support Living Well* research topic. Health Sciences have funding success and keep impact central to research activity. For example, Health Sciences led a five-year evaluation of the impact of Scotland's ban on the marketing of tobacco products at point-of-sale (NIHR funded). Although only published in 2020 (<https://doi.org/10.3310/phr08010>), this work is already feeding into the development of Scottish Government policy on tobacco control and European policy in relation to point of sale advertising and the regulation of e-cigarettes.

Health Psychology



The Health Psychology research group develop and apply psychological theory and methods to understand and improve health behaviours and outcomes. The group focuses on three main areas (a) understanding determinants of behaviour change, (b) factors that lead to initiation of behaviour change and (c) factors that help to maintain behaviour change.

Funding from a variety of national and international sources has led to demonstrable impact. For example, our work on the development and evaluation of strategies to reduce the social gradient in uptake of the national colorectal screening programme in 2016. Thereafter, two of the four interventions became part of the standard English Bowel Cancer Screening Programme materials and continue to be used with materials for the programme's new test (Faecal Immunochemical Test), introduced in 2019.

1.3 Research Strategy

Since 2014 we have made clear progress in delivering our research strategy. One key target, to increase research income, has been achieved by submitting large interdisciplinary grant applications and taking a developmental approach towards those grants. Another key target was to support the development of researchers in order that the quality of research and related outputs could be increased. This was achieved by investing in the recruitment of, and capacity building for, staff at all levels to support specialisation in topic and methodological expertise. We aimed to improve the quality of our outputs and have published over 1400 outputs since 2014. We have also invested in an impact strategy that achieves health gains for society and individuals by making stronger strategic links to practice and having clear Patient and Public Involvement in research. We have broadened our national and international collaborations, and have attracted more PGR students.

Since 2014, we have strengthened our expertise by consolidating our work into three inter-related research areas which have clear relevance for public health and wellbeing: *Determinants*; *Interventions* and *Practice*.

Determinants of Living Well [Fitzgerald – lead, Angus, Bauld, Best, Brown, Caes, Critchlow, Crockett, Eadie, Eades, Evans, Farkas, Ford, Gallacher, Hackett, Haw, Hoddinott, Hunt, MacKintosh, McKell, Moodie, O'Carroll, O'Donnell, Purves, Robertson, Semple, Stead, Swanson, Uny, Ussher, Whittaker]



Led by ISMH, *Determinants* research aims to understand the behavioural and environmental risk factors for well-being and disease and the determinants, including social and commercial determinants, of these factors. We take a leadership role in national and international interdisciplinary initiatives that aim to promote better understanding of the determinants of non-communicable diseases (NCDs) which have a direct impact on policy and practice.

One key example focuses on society's relationship with alcohol. ISMH's long standing work on brief alcohol interventions led to the commissioning of two training manuals for primary and trauma care by the World Health Organisation (WHO). This included the delivery of training to professionals from low and middle-income countries in the Eastern European region. Further studies investigate alcohol marketing, pricing and availability (funded by the WHO; Institute of Public Health in Ireland) which feed into consortia and governmental positions held by researchers.

A second key example focusses on tobacco control research. Work on the impact of smoking point of sale legislation among young people was cited in the WHO report on Tobacco Product legislation (2019). The Centre for Tobacco Control Research at ISMH was the first research centre dedicated to tobacco control in the UK. It provided the research needed by policy makers and public health to respond quickly and flexibly to developments in the dynamic field of tobacco control. One of the most important studies is the Youth Tobacco Policy Survey, started in 1999 and continuing to date, which tracks trends in young people's awareness of tobacco marketing and tobacco brands, and attitudes towards smoking and smoking behaviour. The Youth Tobacco Policy Survey evidence has been influential in informing legislation requiring all tobacco products to be covered at point of sale. Haw, Stead, Semple and Hunt, in conjunction with Scottish Government and the NHS, organised an international symposium (January 2020) to translate the significant body of evidence about tobacco control and how these lessons could be applied to other determinants of NCDs.

Determinants work is supported by two areas of methodological specialisation. We use existing and linked large-scale datasets to explore determinants of health and their associated care pathways. For example, using data-linkage to determine outcomes of babies born to mothers on methadone, health and care of people with Diabetes, impact of the change to drink drive limits, and outcomes of the prison smoking ban. We are developing work using laboratory-based methods: for example; understanding of the impact of allostatic load; Ribonucleic acid (RNA) diagnostic work related to cognitive function; and use of low-cost monitors to measure air pollutants in home settings.

Interventions to Support Living Well [Maxwell – Lead, Berry, Bugge, Cameron E, Cheyne, Currie, Dombrowski, Duncan, Farquharson, Fitzgerald, France, Harris, Hoddinott, Hunt, McGregor, O'Carroll, Shepherd, Semple, Stead, Swanson, Ussher, Watchman, Whittaker]



Led by NMAHP-RU, our *Interventions* work develops, evaluates, and implements interventions that support people or populations to live well. For example, we have been involved in developing, evaluating and implementing interventions for women with pelvic floor dysfunction including: feasibility testing of a preventative intervention for pelvic floor dysfunction; evaluation of a self-management intervention for women who use a vaginal pessary as treatment for pelvic organ prolapse; and an implementation study for pelvic floor

muscle training for women with prolapse (funded by The Chief Scientist's Office [CSO] and National Institute for Health Research [NIHR]).

Another prominent example of our interventions research is the innovative Football Fans in Training Programme which, using behaviour change techniques, has been shown to be a highly effective and cost-effective intervention for engaging men and supporting long-term weight loss (paper cited 188 times). The Football Fans in Training intervention has been successfully scaled up and out to three additional sports (ice hockey, Aussie Rules football and rugby) and over 10,000 men in 11 countries with an average weight loss ≥ 3 kg.

We have developed innovation and expertise in intervention development, large scale multi-centre randomised controlled trials and process evaluations as well as other intervention evaluation methods (e.g. using an action research design to evaluate health and social care interventions with people who have dementia and a learning disability). Several staff have published key papers on methodological uncertainties in complex interventions and trial design. Our expertise is evidenced by invitations to participate in the development of methodological guidelines. Driven by the Health and Behaviour Programme many of our interventions have

behaviour change as their foundation (e.g. evaluation of strategies to increase uptake of colorectal cancer screening).

Health, social care and professional practice to support living well [Donaldson – Lead, Abhyankar, Andreis, Armstrong, Bugge, CameronD, Clark, Cunningham, Dembinsky, Dombrowski, Duncan, Eades, Evans, Farquharson, Fitzpatrick, France, Haw, Hibberd, Hill, Hoyle, Maxwell, McGregor, O'Carroll, Rattrie, Rackow, Shepherd, Stoddart, Taylor, Ward, Watchman, Wilkinson]



Led by Health Sciences, *Practice* research contributes robust evidence on the evaluation of new models of service or practice delivery and the impact of those models on public/ patient experiences and outcomes. This includes understanding what works (for whom), the context of change, the outcomes achieved through change, the translation of research evidence into practice and understanding implementation through research.

A key example is the Scottish Person-Centred Interventions Collaboration ([ScoPIC](#)). Funded by Scottish Government, ScoPIC evaluated two national schemes using different ward-based team approaches to improving patient experiences of care which enabled Scottish Government's Chief Nursing Directorate to make an evidence-based decision on which approach to pursue.

One example of NIHR funded implementation research is the testing of new models and skill mix for delivering evidence based pelvic floor muscle training for prolapse. This work culminated in a series of stakeholder workshops across the UK attended by 120 women, practitioners and policy makers to support the translation of the evidence into practice. That implementation study and our Realist Evaluation of Improvement methodology in Neonatal Units is evidence of developing methodological specialisation in theory-driven realist evaluation.

We have developed methodological specialisation in systematic literature reviews to support work across our topics but particularly to support practice-focussed research and evidence use within practice. We led funded work to develop meta ethnographic review methods. Review examples relevant to practice include: wound care; diabetes prevalence; urinary catheter washouts; nutritional labelling; efficacy of motivational interviewing and vaginal pessary use for prolapse. Our evaluation of the role of advanced nurse practitioners in transforming primary care, funded by Scottish Government, has been influential in developing national standards for advanced nurse practitioners in Scotland.

Practice focussed impact is facilitated by many of our researchers also being practitioners (Nurses, Midwives, Allied Health Professionals, Clinical and Health Psychologists) who continue to practice and/or educate others for a career within health and social care. Many colleagues retain a practice role including: Whittaker is seconded from NHS Lothian; Stoddart is a Clinical Academic Consultant (Honorary) with NHS Forth Valley, Duncan is an Honorary Senior Research Fellow with The Scottish Ambulance Service, O'Carroll is a Consultant (Honorary) Clinical Psychologist with Lothian Health Board. The clinical focus of our environment is enhanced by honorary appointments for health and social care practitioners and by maintaining key collaborations with practice partners.

Interdisciplinary research

Staff collaborate across a variety of different disciplinary areas including social work, computer science, art and design, geography, health economics and law to further the nature, scale and impact of the research. Our enhanced engagement and dissemination processes, involving, for example, patient and public involvement, third sector, the NHS, the prison service, ensure that

our research has impact, This has enabled us to implement improvements in NHS and social care settings (including prisons) and do so at scale.

Interdisciplinary collaboration is also key to our international research. For example, our GCRF AHRC (£181k) funded partnership to address the role of solid fuel use in food preparation in households in Kenya and Malawi started as an idea developed within the interdisciplinary Stirling Crucible and was supported with institutional Connect+ funding subsequently to enable grant capture. The project involves ISMH, Health Psychology, Social Work and Environmental Sciences in Stirling alongside partners in Malawi and Kenya.

Our work in enhancing intervention methodology through interdisciplinarity, specifically through the inclusion of co-production of interventions, theory of change, realist evaluation, and qualitative research within trials has enhanced the potential for successful intervention implementation. This interdisciplinary approach to the conduct of trials and our methodological expertise has been successfully utilised in our own work, adopted by others worldwide and reflected in our involvement in the MRC Hubs for Trials Methodology. For example, since 2014, our process for decision-making after pilot and feasibility trials has been cited in China, USA, Canada, Australia, South Africa and across Europe.

1.4 Approach to enabling impact

We are committed to research that is relevant beyond academia and leads to significant improvements in *Living Well* across all three of our research areas: *Determinants*, *Interventions* and *Practice*. Impact lies at the heart of our approach and we have further intensified impact within our research culture through a range of actions.

Our strategic approach to enabling impact aims to improve health and wellbeing through engagement with stakeholders and high-quality applied research. Our impact strategy is based on a fundamental commitment to a mission-oriented and co-produced approach.

Investment and leadership, provided by a Faculty-funded Impact Champion and two Impact Research Assistants, means that delivery of our impact strategy is maintained and enhanced. This targeted funding, peer mentoring and a programme of researcher development within the University, has enhanced our focus on research impact. Our strategy to maintain and develop impact has 4 key elements:

- 1. Relationships:** Nurture existing relationships with key stakeholders (public, employers, practitioners, policymakers) whilst seeking opportunities to develop new relationships.
- 2. Education and culture:** Embed understanding and opportunity for impact within ongoing research processes, including annual appraisal and development reviews, training and sharing best practice.
- 3. Planning for impact:** Impact planning is part of our annual review process, ensuring impact is an embedded part of research planning.
- 4. Dissemination:** Continue to work closely with the University's Public Affairs Manager and Communications Team to maximise opportunities to produce targeted promotion of research with impact potential.

Our impact case study authors act as 'impact ambassadors', sharing knowledge, skills, connections and insights gained during their journeys to successful impact creation. We share our best practice and learn from others across the institution through engagement with Impact Champions in other faculties and divisions and the institutional Impact Working Group. The importance of impactful research is recognised and rewarded within our appraisal and development process, Achieving Success, and as a criterion for research leave.

At the University level, dedicated impact co-ordination, support, and tracking is provided by a Research Impact Officer within Research and Innovation Services, which also oversees internal and external impact training for staff and research students via the Researcher Development Programme and Institute for Advanced Studies.

Our approach to impact is exemplified by our case studies, which were chosen to represent the range of our work and the particular focus on health and behaviour.

Two of our case studies exemplify our approach of working directly with Government. Through direct and continuous engagement with Government, ISMH were involved in multiple studies that led directly to a recommendation to introduce standardised tobacco packaging which The Department of Health estimates will provide a net benefit of £25B ten years post-implementation (Standardised Tobacco Packaging case study). Through O'Carroll's close working with Scottish Government, his scoping review fed directly into the Scottish Parliament Briefing paper on the Human Tissue (Authorisation) (Scotland) Bill, leading to a decision to change legislation to opt-out organ donation (Organ Donation case study).

The Transition of Prisons to Smoke Free case study is an exemplar of partnership working on policy implementation and its impact on the health of staff, and also demonstrates rapid dissemination of findings to partners in almost real-time communication. The close partnership between Hunt and the prison service was central to the achieved impact of immediate improvements in prison air quality ending the exceptional circumstance of 4000 staff exposed to second-hand smoke – illegal since 2006/7 in most UK workplaces.

Our partnership approach with practice is demonstrated in the Tackling Depression and Suicidal Thoughts case study. The direct links with practice, including the police, NHS and Ambulance Service worked to increase capacity of healthcare staff, and other professionals who come into direct contact with those in need. Our strategy of employing clinical academics, such as Fitzpatrick a practicing paramedic, and holding honorary positions with provider organisations, such as Duncan with the Scottish Ambulance Service, has led to detailed understanding of the frontline needs of the Service with resultant improvements in practice.

1.5 Open access research

All staff upload research outputs into the University's open access institutional repository through Worktribe, the research management system. Publications then appear on staff web profiles, and can also be located through the University's Research Hub searchable web interface. Outputs are made available automatically or, if under publisher embargo, via an automated request function which is directed to the author, thereby allowing staff to give access to the requested output. The University provides funding for Article Processing Charges which is available to all research-active staff. This has funded open access publishing of 162 of our papers. The University also supports open research data management through training, guidance and support and an online repository, DataSTORRE.

1.6 Research integrity

We are committed to the highest possible ethical standards. We promote a culture of best practice and integrity in all our research through the core values of honesty, rigour, open communication, care and respect. To safeguard the interests of researchers, participants and funding bodies, research only proceeds after ethical scrutiny and approval.

Routinely PPI and independent steering committees are involved in our research from the inception to the delivery to ensure University requirements for independent governance are met.

We develop new approaches to integrity as required by our research. For example, in our research involving people in custody (prisoners), our procedures for obtaining informed consent from participants were designed to take account of the literacy and learning needs of people in custody and to recognise that those in prison may feel undue pressure to participate. For practical

reasons, potential participants were first approached by a designated staff contact in each prison who had been briefed by the researchers on the nature of the research and the ideal sample composition for their prison. Researchers then met one-to-one with people in custody in a private room in the prison (to ensure that the person in custody could speak freely without being overheard), to provide accessible written and verbal information about the study, to answer questions, to check whether he/she felt informed and to establish whether the person in custody was still interested in taking part. Those who agreed to take part, were given the option to provide consent either verbally or in writing so that people in custody did not have to disclose any difficulties with literacy to the researchers. These procedures appear to have struck a balance between enabling people in custody to have a say on issues that directly affect their day-to-day lives whilst in prison, on the one hand, and protecting people in custody from undue pressure to participate, on the other. Whilst most people who met with the researchers chose to proceed with the interview, there were some who changed their mind or declined the interview. Those who agreed to participate were generally engaged in the interview and appeared comfortable to express their views openly and candidly.

1.7 Future research strategy

Our strategic vision beyond 2020 is to build on our strengths in mission orientated, relevant research, continuing to offer solutions to the socioeconomic and health challenges of the future. These will include reducing the difference in health outcomes between communities and individuals, particularly in left-behind places, as well as furthering our work on *Determinants, Interventions, and Practice* within health and social care.

Living Well will continue as the focus of our research as a long-term global societal challenge. Going forward, our strengths in *Determinants, Interventions* and *Practice*, will be core, and we aim to further strengthen our inter-related work in those areas. For example, we will continue to develop *Determinants* research to underpin health promotion *interventions* (at public, service and individual level) that alleviate NHS need, critical in the current pandemic and beyond. Those interventions will support *practice* while we also focus on innovative practice-changing interventions. Interdisciplinary collaborations will ensure a strong theoretical basis for the evidence, often in behaviour change theory, while also supporting innovation.

Digital health and social care have accelerated during COVID and workforce issues are an identified research priority. Our strategy will include widening our digital innovation projects, investing in equipping staff with the necessary skills to contribute to the collaborative development, testing and implementation of user-led innovation for living well. This will require increased interdisciplinary working and engagement with businesses including small to medium enterprises. This will engage staff with the landscape of industry collaborations, intellectual property, and commercialisation of ideas or products. We will build on our current digital innovation projects including where we use behaviour change techniques within tailored text messaging to encourage smoking cessation in pregnant women; and where, during the COVID pandemic, we have focused on remote consultations for blood pressure monitoring in pregnancy.

We have consistently prioritised, and led, capacity building in health and social care professions, through the delivery of our clinical doctorate and PhD programmes and capacity and capability funded schemes. We will expand this work through increasing the number of doctorates, upskilling our staffing pool, further enhancing our engagement with practice, and securing a greater number of funded Fellowships.

The University-led innovation workstream of the Stirling and Clackmannanshire City Region Deal provides a key platform and unique opportunity for transformational research. Direct investment of £46m by the UK and Scottish governments is delivering economic and social transformation through major research and innovation infrastructure developments. An

Intergenerational Living Innovation Hub (£7.2m investment) will provide a community based test-bed for new approaches to changing demographics, while Scotland's International Environment Centre (£22m) will focus on resilience in the natural and social environments. With these developments creating a regional scale 'living laboratory', we are planning a large scale community health and social care research programme in collaboration with colleagues in other research centres and groups including Ageing, Community Resilience and Data Science.

Our ambition is also to further strengthen our leadership of large national and internationally funded interdisciplinary projects and programmatic work particularly in social and commercial determinants of health and mental health. Our future strategy aims to increase our funding trajectory through targeting a broader range of funders, greater mission-oriented and interdisciplinary work to secure large grants and Programme/Centre funding that reflects our strengths. We will capitalise on our existing GCRF grants and develop these towards larger grants that impact Living Well in ODA countries. For example, Semple's work measuring air pollution and lung health in Kenya and his Newton Fund Impact Scheme project in partnership with three universities in Malaysia will support large grant development. We will maintain our research agility to respond to global health needs by ensuring we continue to invest in developing our research skills, for example, methodological expertise to develop and undertake clinical trials. We will target development funding for Early Career Researchers and Fellowships to ensure development, sustainability and support within our research environment.

Section 2. People

2.1 Staffing strategy and staff development

Recruiting, retaining and supporting researchers with the highest potential to achieve excellence in our research topics is the main aim of our staffing strategy.

Staffing and recruitment policy

Since 2014 we have had considerable success in recruiting new staff and in staff achieving promotion. We have invested in professorial staff (Donaldson, Hunt, Semple, Ussher, Whittaker) and in staff with specific research skills, such as statisticians (Andreis, Best). We have a strong record of nurturing staff, and through the Academic Advancement and Promotions process, several staff have been promoted in the assessment period (Bugge, Duncan, France, Harris, Shepherd, Swanson to Associate Professor and Fitzgerald and Whittaker to Professor). This investment means we have professorial specialism in Nursing, Midwifery, Allied Health Professions, Public Health, Behavioural Medicine, Health Psychology, Social Marketing, General Practice and Social Science.

Researchers are highly valued within our research community, and we have improved the stability of employment for researchers. Research staff move automatically to permanent contracts after four years: at census 61% of our staff on research only contracts and who have a significant responsibility for research have open-ended contracts. Internal funding is available for spend on 'bridge funding' to support the ongoing employment of staff between contracts which has ensured we are able to retain high quality staff. During the COVID pandemic our agility has enabled us to continue to support researchers in a virtual environment, for example by sharing insights into interviewing participants using virtual systems.

Our staff strategy supports links with industry and healthcare providers through secondment and honorary appointments, for example to allow those who are clinically active to remain so, such as our three seconded clinical paramedic practitioners.

We mainstream our equality and diversity practices within all our staff recruitment and selection policies, promotion procedure and research leave policy.

Career development

Our review and appraisal framework (Achieving Success) was redesigned in 2015 to give greater priority to research targets, outputs and impact. A comprehensive induction programme sets objectives and support needs for each individual at the outset of their employment. All staff are reviewed annually to reflect on their achievements and consider objectives for the next year. There is an informal mid-year review of progress to encourage discussion and check in with progress. In this way staff are encouraged to identify the support they need to achieve their research targets. Staff on fixed-term appointments also undertake Achieving Success reviews, and are encouraged to build a portfolio of research skills, expertise and experience.

Staff on Teaching and Research contracts are provided with 40% of their time for research through a workload allocation model. In addition, staff are encouraged to apply for research leave, focussing on writing grant applications, papers, achieving impact and undertaking pilot work to support the submission of larger grants. Eleven staff members have had research leave (lasting between 6-12 months) between 2014 and 2020.

Various supportive measures exist for staff development. These include annual staff assemblies; monthly research meetings; methods discussion groups; implementation science group; grant writing schemes; mentoring partnerships, both informal and formal; writing 'away' days; and collaboration in research projects. Prior to being submitted, all grant applications are supported by rigorous internal peer review. Staff are also supported to develop a wide range of international links, for example visiting or honorary researchers, and we have those established in the UK, United States, Canada, New Zealand and Australia.

Financial support is provided for training and development, including networking. There are also a range of courses offered in the University coupled with the Staff Development Fund to support attendance at external training and conferences. Research staff are also supported through the Researcher Development Fund to help support grant-writing activities. Our Researcher Development Fund of £500/application was launched in 2017 to support research activities deemed to make a meaningful contribution to the university research strategy (e.g. travel to meet collaborators on a grant application).

NMHAP-RU leads a nationally funded programme for clinical re-engagement research fellowships which has provided funded post-doctoral fellowships for five nurses working in areas such as cardiac rehabilitation. In partnership with the Chief Nurse's Office, NMAHP-RU initiated and continue to host a national award scheme for excellence in nursing, midwifery and allied health professional research. Health Psychology hosts the leading and largest MSc Programme and Doctoral professional training course in Scotland, and Health Sciences the most influential clinical doctorate programme where many of our graduates hold senior positions in health (e.g. NHS Board Chief Executive, Nurse Directors). We have employed several of the former Chief Nursing Office Clinical Academic Career and Re-Engagement Fellows, most of whom are now clinically focussed researchers within the Health Sciences section.

Early Career Research Development

Since 2014 we have appointed 5 early career researchers (ECRs). ECRs are on probation for 1-3 years, meaning that they receive support from a dedicated Senior Colleague, as well as annually review their research and teaching goals and achievements. To support research development and capacity building, teaching time is limited while ECRs are on probation; specifically, teaching (normally 40% of total workload) is limited to ~20% of total workload in year one, ~30% in year two and ~35% in year three.

ECRs are offered a range of training opportunities as part of the University Researcher Development Programme. This includes the Stirling Crucible programme to help foster the next generation of Stirling research leaders. For example, the Crucible funded a small study by Currie

which has led to publication about preconception physical activity guidance. ECRs are encouraged to be involved with high profile projects under the mentorship of experienced staff. For example, our work on smoke free prisons, funded by CRUK and NIHR, has enabled ECRs Brown to lead aspects of the study while being supported by experienced Principal Investigator Hunt.

ECRs and PGRs are represented on Faculty Research Committees. ECRs have their own committee with the Associate Dean of Research and Director of Research Development to raise important issues and promote career development actions such as the ECR network, mentoring, and Stirling Crucible. One successful example is Eades who completed a PhD at Stirling as a Clinical Academic Fellow, was appointed as a lecturer, has published several outputs and has since led a successful Carnegie grant application.

2.2 Postgraduate Research (PGR) students

We promote an inclusive research culture where PGR students are integral and valued contributors to the research environment. There is a choice of four PGR pathways (PhD by publication, PhD by thesis, clinical doctorate and health psychology doctorate). We have a mix of full-time and part-time, on campus and distance learners, home and overseas students who have varied interdisciplinary backgrounds from nursing, midwifery, allied health professions, social science, health psychology, and public health. This has generated a diverse and vibrant culture, with strong peer support. The student-led instigation of monthly international food evenings with ECRs is an excellent example of peer support in action.

Since August 2014, there have been 60.66 doctoral completions, a 248% increase on REF2014. We have had a year-on-year increase in the number of doctoral students registered from 82 in 2013/2014 to 118 in 2020. Students are from across the UK and overseas (including USA, Cyprus, Nigeria, Saudi Arabia, India and Vietnam). A total of 80% of our PGR students are female, 18% are from BAME groups and 9% have a known disability.

Protected time for forging and maintaining strong links with Nursing, Midwifery and Allied Health Professional Directors underlies our approach to recruitment of health care professionals for doctoral studies. International students: apply for supervisor-led projects through 'FindAPhD'; develop their own ideas and approach supervisors via the University's Find a Supervisor facility; or come via funded Doctoral Training Programmes such as a PhD studentship on pre-eclampsia on a Cotutelle Programme with colleagues in South Africa. We work closely with prospective students to tailor their proposals so that they link to one of our three topic areas.

PGR students have their own designated office space and staff-level access to all facilities and dedicated professional administrative support.

We have attracted fully funded PhD studentships from a range of external funders, including ESRC, the NHS, Chief Scientist Office and the voluntary sector. The University supports growth in PGRs with funding available on a competitive basis. A match-funded scheme has leveraged funding from, among others, Prostate Scotland, Lifescan, Salvation Army. For clinical doctorate students, in recognition of their clinical-academic focus, a substantial number receive financial support from NHS Boards (e.g. NHS Lothian; the Scottish Ambulance Service) with six annually being match-funded by the University. To top up external funding, and to address the financial constraints that can be experienced by overseas and self-funded students, a dedicated Postgraduate Research Support Fund is available of up to £800 per student, on application, to support additional training, fieldwork and conference expenses. Students have benefitted from this fund to attend advanced training courses, to present at international conferences, to fund networking events, and to go on placement overseas (e.g., to gather data in Nigeria).

PGR students gain wider experience and participation in research through the following activities:

- A monthly seminar programme led by the students themselves and encouragement to attend Divisional, Faculty and University seminars and events.

- More formal bespoke training is delivered at three levels: i) by the relevant staff section, ii) through the University's dedicated Institute of Advanced Studies (IAS), and iii) via membership of the ESRC's Doctoral Training Centre in Scotland.
- PGR students are encouraged to identify training topics to suit their own needs that complement generic training available; these sessions are delivered by the relevant staff as required and are recorded and made available as podcasts.
- Students can register on modules from the postgraduate taught portfolio (e.g., the online Masters in Health Research which is of particular benefit to our distance students).
- An annual two-day residential retreat, providing further training, interdisciplinary collaboration, and a chance to socialise.
- The IAS offers central access to University induction and training, structured around employability and careers, IT, learning and teaching, and generic research skills.
- Membership of the ESRC's Doctoral Training centre in Scotland gives students access to advanced training at different institutions nationally.
- Students may attend bespoke external training/ career development opportunities such as the Scottish Government Internship Scheme from the Scottish Graduate School of Social Science where some students have been seconded for three months to Scottish Government.

Supervision for each PGR student is provided in teams of at least two supervisors (one of whom must be experienced) with complementary interests and disciplinary specialisations from across the University. All supervisors undergo full training and are required to complete an online course, comprising eight units representing all aspects of the supervisory process, with a further requirement for at least one further top-up training session per semester. Students meet with their supervisors at least monthly, in line with University-wide regulations, with progress and actions being recorded in an online log.

Annual progress appraisals are conducted by two independent members of academic staff, and separate pastoral care and support is available via the Director of Postgraduate Research. Student progression is monitored and governed via IAS. We encourage high-quality publishing at postgraduate level, to ensure that by the time of submission one or more papers is already in process. Students have opportunities to present their research within their staff sections, at the annual postgraduate retreat, through University-wide initiatives such as 3 Minute Thesis and at national and international conferences. It is notable that eight of our doctoral students have gone on to Lectureships or research positions within the University.

2.3 Postdoctoral Researchers

Postdoctoral researchers are an integrated part of the wider ECR staff. We ensure they are offered significant opportunities to develop their careers and to become full members of the academic community. Indeed, four prior postdoctoral researchers (Abhyankar, Berry, Hibberd, Taylor) are now full members of academic staff. Postdoctoral researchers are full members of individual research groups and internal funding is available to support conference attendance, pilot work, and impact events. They sit on research-related Faculty committees (e.g., the Research and Researcher Development Committee). Professional development activities available for University staff are also available to postdoctoral researchers.

2.4 Equality and Diversity

The University has an Institutional Bronze Athena Swan award (renewed 2016) and colleagues are actively working towards a 2023 Silver Award. The Faculty of Health Sciences and Sport (which houses three of our staff sections) was awarded a Bronze award in May 2019 and has held Bronze awards since 2015, with plans to submit for Silver in 2022.

Faculty based Athena Swan groups (consisting of staff and students) lead on monitoring equality and diversity across all areas of activity, supported by a University level executive committee.

Equality is a standing item on all committee agendas. Evidence of success of our Equality and Diversity initiatives include:

- Three times more staff feel supported to apply for research leave in 2018 than in 2014.
- In Psychology, in 2014 29% of staff self-identified as female, in 2019 this proportion had risen to 48%.
- In NMAHP, ISMH and Health Sciences female staff at senior levels has risen from 53% to 82% between 2014 and 2018, with 67% of promotion applications in 2018 coming from female academic staff compared to 38% in 2014.
- In NMAHP, ISMH and Health Sciences we funded and undertook a series of interviews (2018), to understand the ease with which staff felt they could get the family-related leave they need and how easy it was to return to work. Eleven staff had taken carer's leave most finding it a positive experience (91%, n=10). We have created a "family related leave" Champion who supports staff before, during and after all family-related leave.
- 71% of those in research leadership roles have protected characteristics.

Monthly drop-in sessions are led by the Athena Swan team in order that staff can raise and discuss equality, diversity and inclusion issues.

All academic staff (regardless of contractual hours, gender or any other protected characteristics) are afforded considerable autonomy in flexible working and a 2018 survey suggested that an informal flexible working model was preferred by staff. For example, we operate in a family friendly environment and hold key meetings between 10.00am and 4.00pm to allow for attention to be given to other caring responsibilities.

Access to internal funding, such as the Staff Development Fund and the Conference Travel Fund, is monitored via our Equality and Diversity Action Plan by the Athena Swan group to ensure that there is equity across groups, including those with protected characteristics. We are committed to the AURORA Leadership development programme (Leadership Foundation for Higher Education) and four of our female academics have taken part in the programme.

We support returning to work in a range of informal and formal ways. We ensure that the duties of women and men taking respective maternity/paternity/shared-parental or adoption leave are fully covered, including overlap periods pre- and post- leave to ease back to work transition, including keeping-in-touch days. We have various schemes to aid in the transition back to work including a period of research protected time. A University central fund covers replacement teaching for six months (pro rata) following return to work from maternity/shared maternity and adoption leave. This allows staff to have up to six months (pro rata) research leave on return to work.

Applications, success rate and feedback from promotions committee are monitored for gender, and the application form supports applicants to note any other circumstances the committee should be aware of (such as periods of extended absence, or significant responsibility outside academia). We monitor unsuccessful grant applications to ensure additional support is provided to staff who need it when applying for grants.

The University undertakes an anonymous staff survey every 3 years to gather staff attitudes and information on their health, well-being, and other needs. The survey is undertaken by an external agency to ensure full anonymity. Over successive surveys, we have seen improvements in those who feel part of a team and those who feel valued by colleagues, and an increase in survey results from those who "agree" that staff are treated on their merits irrespective of their gender (57% in 2018 v 39% in 2014, Faculty Health Sciences survey results). An action plan is prepared utilising the results of the survey and progress against it formally monitored.

Research leads from each of our staff sections have formed a REF submission group with two-way communication to and from the group to all staff. This group have been responsible for developing the submission and communicating with staff about the submission. Our output policy asked staff to rate their own publications, and staff received feedback from external reviewers, on proposed output ratings, hence giving everyone the opportunity to input into the output process. Research Group leads, section leads, and members of the Professoriate were asked to give feedback on the environment statement to ensure it suitably captures the research environment. We have discussed the submission openly at our annual research away days, giving all an opportunity to input verbally or in written format across the submission.

Section 3. Income, infrastructure and facilities

3.1 Research Funding and Strategies for Generating Research Income

The success of our funding strategy is evident in the 254% growth in research income since 2014, securing ~£18.1M income compared to £7.1M secured within the last REF period. We have been awarded 236 research grants, many of which are 1) large grants, 2) seed funding GCRF grants to support future development; and 3) from prestigious funders such as Horizon 2020, FP7, NIHR, ESRC, MRC, GCRF, AHRC, CSO, CRUK. Some examples of our £1M plus grants include: Tobacco in Prisons study (NIHR PHR ~£1.2M); a clinical trial and process evaluation of self-management of vaginal pessaries (NIHR HTA ~£1.1M); the preventing depression and improving awareness through networking in the EU study (EU Public Health Programme ~€1.1M); The Tobacco Control Capacity Programme (MRC ~£3.4M); mindfulness trial (Horizon 2020 €3.9M) and the Community Pharmacy Highlighting Alcohol use in Medication appointments programme (NIHR Programme Grant ~£2M). To support grant funding, we actively seek to build and maintain relationships with research funders and policymakers. For example, colleagues worked with Cancer Research UK to deliver several studies which informed the UK Government's recent consultations on regulating marketing for foods high in fat, salt and/or sugar.

Working in interdisciplinary collaborations has led to large grant capture. Several projects have evolved through interdisciplinary work within the Health and Behaviour Programme such as a health, social science and psychology collaboration project using a SMS and financial incentive intervention to help men with obesity lose weight (~£1M NIHR funding). Our interdisciplinarity has also supported targeting of additional funders such as an ESRC funded collaboration between nursing, child protection, addiction services, law, and sociology on governing parental opioid use (~£1.8M). Our strategic development work towards GCRF funding has led to success in seed funding applications, such as a project on the prevention of road traffic accidents in Malawi, with subsequent linked success in a larger grant application (£683K MRC funding) that focusses on adolescents and road safety. Overall, there were 14 Stirling grant applications that led to successful GCRF / Newton Funding of £3.1M in the following countries or regions: Malawi, Kenya, Uganda, Zambia, Gambia, Ghana, South Africa, Nigeria, Ethiopia, India, Bangladesh, Brazil, Peru, Malaysia, S Asia, SE Asia.

We recognise the value of smaller grants particularly around clinical impact and ECR development, for example a Scottish Ambulance Service funded study to assess their implementation of a new Clinical Response Model involved two ECRs and was discussed at the Scottish Parliament Health and Sport Committee. We have expanded our external directly funded consortia and have secured funding through applications within those consortia such as with **Shaping Public hEalth poliCies To Reduce ineqUalities** and harm consortium. Because of our recognised expertise across topic areas, colleagues are sought to work with policy makers or charities to undertake research that is required for a direct impact to practice. For example, using a central message developed by research looking at how long second-hand smoke remained in the air the Scottish Government developed the 'Take It Right Outside' mass media campaign to promote smoke-free homes.

Grant writing workshops are hosted by NMAHP-RU and led by two professorial staff. These workshops support peer review and share learning, skills and methodological expertise. NMAHP-RU and ISMH host academic teaching staff on research leave to offer a supportive environment where high level skills, grant craft and publication knowledge are constantly available which has led to grant capture, such as our trial of vaginal pessaries which links Health Sciences with NMAHP-RU, and publication such as Hackett's involvement with the smoking in prisons study with mentoring from Hunt.

3.2 Organisational Infrastructure

Our organisational structures are designed to support collaboration, idea generation and research integrity. The research infrastructure supports all staff to produce high-quality research. In terms of organisation, research is supported by both a top-down and bottom-up approach. University Research Committee makes decisions, following consultation, about research strategy. The Associate Deans for Research, a key research leadership role within Faculties, are members of the University Research Committee and disseminate key information to the Faculty-level Research and Researcher Development Committee (RRDC). The RRDC, chaired by the Associate Dean for Research, oversees research development, monitors research activity, sets guidelines, evaluates performance, and reports on progress to Faculty Executive Committee and University Research Committee. Bottom up, the research sections meet at least monthly to nurture and support research activity. Academic staff are supported by Research and Innovation Services who dedicate staff to work with individual Faculties. These colleagues ensure a steady flow of information about research funding opportunities to staff, support RRDC, and the management of funded projects and administration of the Conference Travel Fund. Conference/event planning and organisation is provided by Professional Services staff within Faculties.

Our research is enabled by a full range of physical and online resources, facilities and laboratories. Health Psychology have a Health & Behaviour Research Laboratory, with one-way mirrors, and psychophysiological assessment equipment. Psychology also has a dedicated kindergarten housed within the section which supports our child development research, such as studies on pain in children and parental responding. The kindergarten is a unique resource where children can participate in research studies while also being offered learning through the early years curriculum. Laboratory facilities for molecular biology, biochemistry and cell/tissue culture are used by colleagues who undertake biology and physiological based *Determinants* studies, for example on cachexia and cancer. Health Sciences has relocated into a building with improved infrastructure for health-focussed research including, large, shared offices to co-locate project-based researchers, doctoral students and the administrative staff that support them.

We source additional external infrastructure through interdisciplinary collaboration, for example, Clinical Trials Units, as required to support our activity. Staff can apply for funding, held within each research section, to utilise external facilities as required.

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

4.1 Arrangements for, and Effectiveness of, Research Collaborations

Our researchers are involved in multi-university consortia, and have a collaborative approach to engagement in all aspects of research with public sector stakeholders, international/national grant-holders and co-authors.

Multi-University Consortia. ISMH was part of the UK Centre for Tobacco Control Studies (2008-2013) and UK Centre for Tobacco and Alcohol Studies (UKCTAS) (2013-2019), and this is now superseded by the **Shaping Public hEalth poliCies To Reduce ineqUalities and harm (SPECTRUM)** consortium (£5.9 million funding over five years by the UK Prevention Research

Partnership) with collaborators from ten UK and one Australian University. SPECTRUM focusses on the commercial determinants of health and its research aims to transform policy and practice to encourage and enable healthy environments and behaviours. Fitzgerald is Deputy Director of SPECTRUM and responsible for leading impact, knowledge exchange and public engagement, ensuring the research leads to policy change.

Our researchers were part of a multi-university consortium successful in bidding to become one of the new NIHR funded Policy Research Units in 2019. Our research collaborations include working with Fuse, the Centre for Translational Research in Public Health at Newcastle; CEDAR, the Centre for Diet and Activity Research at Cambridge; the York Centre for Reviews and Dissemination; and the EPPI-Centre (Evidence for Policy and Practice Information and Co-ordinating Centre), UCL.

The Alcohol Minimum Unit Pricing Evaluation Collaborative brings together all researchers leading studies to evaluate the implementation and impact of Minimum Unit Pricing. Our researchers have led and been involved with multiple funded research studies within that collaborative. The collaborative brings together researchers from across academia and policy in the UK to share methodological challenges and emerging findings. It was formed in 2017 and will continue until the completion of the five-year review phase for the policy.

Half of the overall NMAHPRU staff are based within Glasgow Caledonian University (GCU). The Director is funded and located at Stirling, but is also responsible for the research performance within the Unit in GCU. There are weekly meetings, annual external stakeholder review of the Unit's performance, extensive collaboration on grants and outputs, as well as in sharing expertise across both institutions (e.g. our implementation study about pelvic floor muscle training involves researchers in NMAHP-RU at Stirling and GCU).

NMAHP-RU, Health Psychology and Health Sciences are key partners in the £3.25 Million Scottish Implementation Science Co-ordinating Centre (SISCC) www.siscc.dundee.ac.uk which is funded by Scottish Funding Council, Chief Scientist's Office, NHS Education for Scotland, and the Health Foundation. SISCC uses a collaborative model bringing together expertise in research, improvement and implementation science, practitioners from health and social care settings, policy makers, service users and volunteers. SISCC aims to strengthen the evidence base for improving the quality of care sustainably and at scale and to bridge the gap between academics in the fields of improvement and implementation science. The collaboration involves six universities, three Health Boards, one council region, and the national Alliance for Health and Social Care in Scotland with experts from across academic disciplines and health and social care delivery. We made a strategic investment of £446,721 in-kind from 2015 to support SISCC workstreams, dissemination activity, post-doctoral training and two PhD studentships. Our collaboration has led to practice relevant publications such as using theoretical domains to investigate midwives' barriers and facilitators to health promotion behaviours.

International Collaborations: In 2014, we had a limited number of international collaborators, and a key strategic direction was to grow our international collaborations, reach, impact and reputation. Figure Two demonstrates the reach of our collaborative efforts, with the larger circles denoting greater activity. Examples noted below have been developed since 2014:

- One of our large multidisciplinary projects, Football Fans in Training, within the *Determinants and Interventions* topics collaborates with researchers and policy makers in Australia, Canada, Netherlands, Norway, Portugal and New Zealand, and has multiple grants, including from European Union (EU), NIHR, CSO, Canadian Cancer Society Research Institute, Government of Western Australia.
- In Europe, our researchers are co-founders of the European Alliance Against Depression, and have been involved in three related EU grants since 2014 covering 17 European

countries. This ensures reach across a network of key partners and provided free evidence-based resources to millions of people via www.ifightdepression.com, available in 14 languages with >32k registered users (August 2018). Other collaborators are situated within The Karolinska Institute in Sweden (*Determinants, Interventions and Practice*) and LMU Munich (*Determinants*).

- In USA/Canada, our researchers within the *Interventions* and *Practice* topic areas collaborate with academics within University of British Columbia, Canada, and the University of Pennsylvania (*Practice*, for example, in comparing the quality of life with people with urinary catheters in the community between the UK and USA).
- In Asia, the majority of our collaboration is within our *Determinants* topic, including the Department of Community Medicine, Kasturba Medical College, India, and we were awarded an International Development Research Centre Award in Vietnam. We have MyFamily MySmoke Newton Fund Impact Scheme collaborations with three universities in Malaysia, giving the potential to develop further multicentre research on air quality.
- In Australasia, our researchers collaborate with academics in the University of Queensland (*Practice*), La Trobe University (*Determinants*); University of Otago (*Interventions* and *Practice*, for example, in the trialling the use and effectiveness of biofeedback for urinary incontinence).
- In Africa, our *Determinants, Interventions* and *Practice* topic area researchers collaborate with academics at the University of Malawi, the Kenya Medical Research Institute, the University of Cape Town, the South African MRC, Keta Municipal Hospital in Ghana, Ghana Police Hospital and the Makerere University, Uganda (e.g. in studying protein deficiency, sarcopenia and cardiometabolic risk in older urban black Cape Town populations).

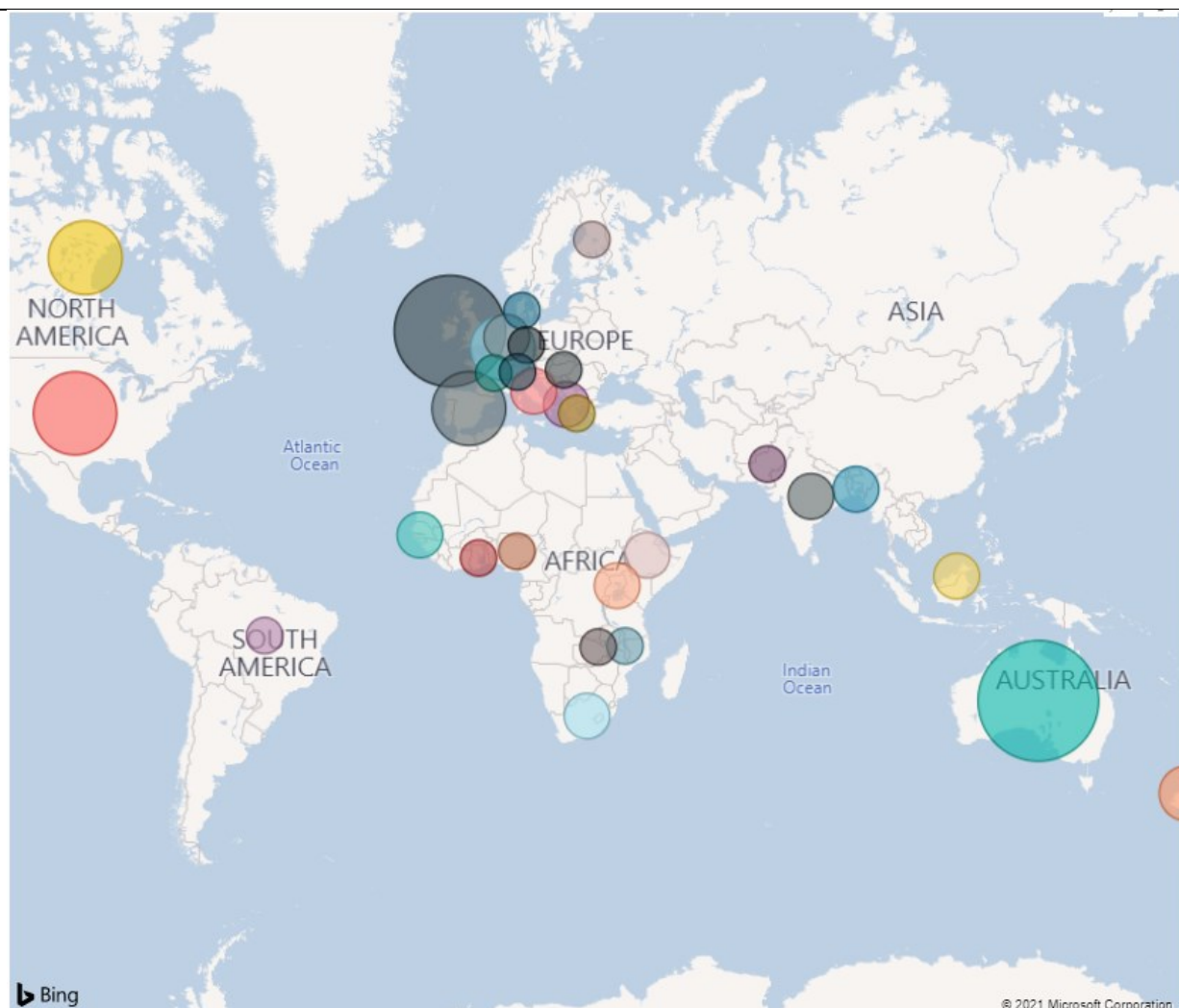


Figure Two: Our worldwide map of collaboration on grant funding (size of circle indicates extent of collaborations/ number of grants)

Future collaborations with potential for international impact

The development of impact case studies post REF2021 are a vital part of our research culture going forward. Based directly from research findings, Semple is involved in training for the African Thoracic Society and Lung Health in Africa and associated evaluation of its impact is planned. Dissemination of the 'Jenny's Diary' resource on health and social care for people with dementia and Down's Syndrome across the UK and translated into French, Italian, German, Norwegian and Chinese Mandarin, will have international usage - we expect to be evaluating the effect on health and social care outcomes for people using this resource internationally. More recent research on the policy of reducing the drink drive limit in Scotland was found to be insufficient to reduce road traffic accidents in Scotland, compared with England - this together with other research on policy related to alcohol consumption reduction measures could provide some rich sources of impact for the future. Pelvic health research across our topics also has impact potential on health and social care interventions for women with pelvic floor dysfunction, as well as men and women with long-term catheters.

4.2 Engagement and Impact with key research users and wider society

Since 2014 we have demonstrated our collaborations with key research users across society by investing in Patient and Public Involvement (PPI) and increasing our community outreach.

Our public engagement activities support people to think and behave differently and therefore make positive transformations to the challenges facing society today. We have members of one PPI group commenting upon NMAHP-RU strategic reviews and research strategy as well as on grant applications. We have established a Health and Behaviour PPI group who support grant development and some individuals are co-researchers and members of research project teams. This PPI input was crucial in obtaining our recent MRC grant on improving adherence in adolescents with poorly controlled asthma. Our PPI commitment is evidenced in work with prison staff, union representatives and other partners to ensure the introduction of the smoking ban in Scottish prisons fully took account of the perspectives of staff and people in custody, those most affected by the new policy. In a polypharmacy study, people living with Dementia and Down's Syndrome were involved from design to publication to support impact in social care settings.

Our clinical committee work at local and Government level demonstrates an 'at the table' approach which ensures our research (and research generally) is adopted into health and social care practice. Our researchers contribute to relevant working groups related to their research and its findings, and selected examples include:

- Evidence and Data subgroup of The Scottish Government review of provision of maternity and neonatal services;
- Scottish Government Ministerial Research and Evaluation Group on Tobacco Control;
- Scottish Government equalities working group to inform Scotland's Third Dementia Strategy; and,
- WHO-Europe on the management of conflicts of interest in alcohol policymaking and science.

We retain robust links to practice through our large clinical doctorate programmes where students are senior national and international clinical colleagues across nursing, AHP and Psychology from Saudi Arabia, Malaysia, USA and across the UK.

Greater outreach work has engaged the University Communications teams to create policy briefings of our work that support greater penetration of our research into service domains. We communicate to our stakeholders through a variety of mechanisms such as: membership of advisory or working groups; dissemination workshops designed for encouraging discussion with stakeholders such as the public, patients, carers, health and social care professionals; feedback and (what next) service implications; parliamentary receptions; multi-media dissemination of Research and Policy Briefings, Newsletters; webinars; websites; publication in peer reviewed journals; contribution to clinical guidelines; and presentations and workshops at conferences and NHS/Social care/Third Sector events.

4.3 Contribution to sustainability in the discipline

Beyond standard academic outlets, staff contribute their expertise more widely through participation on a variety of organisations and activities:

- On interdisciplinary international health organisations (e.g. WHO; NGO policy committees; Government Committees)
- On prestigious advisory panels (e.g. membership of the DFID/Commonwealth Scholarship Commission Academic Adviser Panel; Research Advisory Board, Council of Deans of Health)
- On the development of clinical guidelines (e.g. NICE)
- On REF 2021 sub-panel assessment (UoA2; UoA3);
- On funding review panels for organisations (e.g. quinquennial review of the University Medical Centre, Groningen; NIHR; Chief Scientist's Office); and,
- Provided over 40 keynote speaker presentations since 2014.

The success in securing international funding demonstrates our responsiveness to international sustainable health goals. Interdisciplinary work on the rights to health in prisons with communities in the Favelas in Rio, Brazil, and the prevention of road traffic accidents and improvement in pre-hospital care in Malawi are examples of our international research that have stretched the normal confines of research in this discipline. These funded projects bring together researchers from public health, law, media, philosophy, criminology, nursing, paramedic science and public health, and uses diverse, culturally sensitive and alternative health messaging modes of delivery.

Throughout 2020, we were awarded funded COVID studies (funding totalling £1.1M) that demonstrates our responsiveness and agility in responding to current health challenges. Using our existing strengths in areas such as *interventions* in prehospital care, we have been able to work across interdisciplinary teams in a very short time frame to gain funding and start work where health challenges are exacerbated by the pandemic (e.g. gambling, mental health and physical activity).

The sustainability of NMAHP research and the need to further develop clinical academics within the discipline are two pressing professional challenges that we aim to weave through our research culture. The development of our own researchers, as well as colleagues in clinical practice, is essential for the sustainability of research in this area. Within NMAHPRU, we lead research capacity and capability building in nurses, midwives and allied health professionals and employed a Capacity and Capability Manager (2014-2018), working with the Chief Nursing Office, to develop clinical research academics.

4.4 Indicators of Wider Influence

Staff are actively engaged in a range of national and international leadership roles and professional activities to develop NMAHP, health psychology and social care practice and research. We are a member of the ESRC Doctoral Training centre with three PhD students coming through this route.

Our influence extends to multiple roles on professional committees, such as: Semple Chairs the Advisory Board of the African Centre for Clean Air Research and the Smoke-free Home Network; Hunt is President of the UK Society for Social Medicine and Population Health and Fitzgerald is President of International Confederation of Alcohol Tobacco and Other Drug Research Associations. Our expertise has been sought for National and International committees, such as: O'Carroll advises the NICE Centre for Guidelines; Hunt, Haw and Semple sit on the Scottish Government Research & Evaluation committee on Tobacco; Watchman sits on an Alzheimer Europe working group and Scottish Dementia Research Consortium; and Critchlow sits on the Salvation Army Scottish Drug and Alcohol Strategy Group.

Expertise is provided to international funding committees such as GCRF Health and Context Panel and MRC/DFID African Research Leaders; and German Federal Ministry for Education and Research panel for their Structural Development in Healthcare Research awards. We sit on several NIHR Boards (Policy Research Unit Commissioning Panel, HTA Prioritisation Committee, HTA Commissioning Board, HS&RD Grants Board, Programme Grants Board, PHR Board); MRC Boards (Population and Systems Medicine Board, PHIND panel) as well as ESRC Health, Families, Relationships & Demographic Change Pathway, annual studentship and Chief Scientist Office Health Improvement, Protection and Services Research Committee.

We contribute to our many disciplines through Editorship/ Associate Editorship of academic journals including BMC Nursing; Annals of Work Exposures and Health; BMC Public Health; BMC Pilot and Feasibility Studies; BMC Pregnancy and Childbirth; Midwifery; International Journal of Behavioural Nutrition and Physical Activity; Plos ONE; British Journal of Learning Disabilities.

Our wider influence is recognised through honorary appointments (international examples at esteemed Universities such as Visiting/ Honorary Professors at Universiti Malaysia Terengganu Semple; Curtin University, Australia Hunt; (Honorary Senior Scientist) Institute of Occupational Medicine Semple; and University of Pennsylvania Shepherd. Hunt's expertise has been sought for a visiting fellowship at Newcastle University, Australia and a travel fellowship hosted by Curtin University and Western Australia Cancer Council. Bugge has been awarded Fellowship of the European Academy of Nursing Scientists and Cheyne is an Honorary Fellow of the Royal College of Midwives. Finally, Watchman's work with people who have Dementia has been awarded the winner of the best UK Dementia training initiative and the Alzheimer Society Research Leader Award. Watchman's work to develop Jenny's diary was awarded Scottish Self-Management Resource of the Year and she received the Mental Health Nursing Forum Award winner for Grace Notes.

In conclusion

Our research culture fosters an agile and dynamic research environment in which researchers work together on solving complex health and social care challenges facing today's societies to augment Living Well. Our research strategy strives to develop researchers who have the skill and ability to support innovative interdisciplinary research across the life course. Our researcher community ensures we respond effectively and timeously to diverse health and social care challenges to produce useful impact. Our onward research strategy is both responsive and innovative to ensure continued relevance to address health challenges for people, patients, carers and practitioners. We are continuously building capacity and capability within our team, we are putting PPI at the heart of everything we do in research, with the end goal of delivering scientific and practical impact to people.