

Institution: University of Glasgow
Unit of Assessment:UoA2
1.Unit Context, Structure, Research And Impact Strategy

1.1.Unit Context and Structure

Staff submitted to UoA2 are part of the Institute of Health and Wellbeing (IHW), a **multidisciplinary, cross-College** research institute established in 2011. It spans the Colleges of Medical, Veterinary and Life Sciences (MVLS) and Social Sciences bringing together complementary expertise in **population health sciences** and **social sciences**.

UoA2 staff play leading roles in two University of Glasgow (UofG) research beacons; cross-disciplinary areas of research excellence which have attracted major financial/intellectual investment:

- Addressing Inequalities
(<http://www.gla.ac.uk/research/worldchanging/inequalities/>)
University Ambassador: **Moore**
- Precision Medicine and Chronic Diseases
(<http://www.gla.ac.uk/research/worldchanging/precisionmedicine/>).
University Ambassador: **Mair**

1.2.Research Group Structure and Research Themes

UoA2 includes:

- The flagship **MRC/CSO Social and Public Health Sciences Unit (SPHSU)** which receives joint core funding of **£18M from the Medical Research Council (MRC) and Scottish Government Chief Scientist Office**. Core funding is supplemented through additional grant funding; a further **£9.6M** in external grants between 2015-2020.
- **Robertson Centre for Biostatistics (RCB)** part of a **UKCRC-registered Glasgow Clinical Trials Unit** consisting of biostatisticians/database managers/software developers/technicians/health informaticians/project managers/administrative staff, dedicated to the design/conduct/analysis/interpretation of clinical trials. Currently supporting **>100** trials.
- Three research groups with clinicians/social scientists/health economists/statisticians
 - Health Economics and Health Technology Assessment (HEHTA)
 - General Practice and Primary Care (GPPC)
 - Public Health (PH)

In line with our collaborative research philosophy and, in comparison to REF2014, when the majority of IHW (**48.42FTE**) were submitted to UoA2, IHW now contributes significantly to other UoAs, with almost half now submitted to UoA1/UoA4/UoA20. This UoA2 submission consists of **28.4FTE** with expertise in public health/primary care/health services research.

Management structure: UoA2 operations are overseen by the Institute Management Team comprising: Director/Head of Administration/Deputy Directors/Research Convenor/Knowledge Exchange/Impact Champion/Directors/Heads of Research Groups and Themes/Early Career Researcher (ECR) representative/Internationalisation lead/Postgraduate Research (PGR)/Postgraduate Teaching (PGT).

Research And Impact Strategy

At REF2014, UoA2 highlighted our intention to increase focus on the development, evaluation, and implementation of effective interventions, whilst maintaining our reputation for excellent descriptive and explanatory research. Following an organisational review in consultation with our International

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Scientific Advisory Board (ISAB), we refined our strategic aims and focused our research themes as follows:

Overall aim: to improve population health and wellbeing and reduce health inequalities: locally/nationally/globally.

From 2014 onwards, our strategy includes:

- restructuring into **multidisciplinary research themes** that emphasise wider determinants of health
- expanding our **global health research**

Under this strategy we have developed:

- a research portfolio that spans ‘**understanding**’ (**Determinants of health and health inequalities**)’ with ‘**doing**’ (**Solutions Focused Research**)
- a stronger focus on **intervention studies** with a specific emphasis on **cross-sectoral, upstream interventions**
- **partnership-working** and **co-production** with external stakeholders including the public/patients/practitioners/charities/policymakers (Section 4)
- maximised use of **real-world routine data**

We emphasise the need to understand and address wider determinants and outcomes and be impactful nationally/globally. We support research performance under both pillars of our strategy as follows:

Multidisciplinary research: Since REF2014, UoA2 has secured **>£128M** in external funding. Our strategy of promoting multidisciplinary research is reflected in our success in achieving a **diverse funding portfolio: 48% Research Councils/8% charities/34% NIHR/government/5% EU/Horizon 2020/other 5%**.

We have secured large-scale grants that support the development of multidisciplinary, multiagency collaborations and consortia. Including:

- **MRC Mental Health Data Pathfinder Award (£1M)** (Co-PI: **Moore**): established SHINE - a Scottish Schools Health and Wellbeing Improvement Network. (<https://shine.sphsu.gla.ac.uk/>), which is collecting large-scale data on adolescent mental health and using it to co-produce novel school-based interventions with the education sector.
- **NIHR Global Health Research Group (£2M)** (PI: **McIntosh**): a consortium with University of Newcastle and the Kilimanjaro Clinical Research Institute in Tanzania, that is investigating the health/societal impact of arthritis in Tanzania.

Global health research: We have achieved our ambition of expanding our global health research; successfully pursuing new opportunities afforded by **GCRF** and **MRC/DFID/NIHR funding** with 22 awards to date worth **>£14M**. Including:

- **The ARISE Hub – Accountability and Responsiveness in Informal Settlements for Equity (£12M)** (**Leyland/Pell**). A UKRI GCRF-funded research consortium, set up to enhance accountability and improve the health/wellbeing of marginalised populations living in informal urban settlements in LMICs. This interdisciplinary research hub will adapt existing methods/tools/instruments to collect metrics to reflect lived realities/inequalities/priorities for change in informal urban settlements in India/Bangladesh/Kenya/Sierra Leone and will combine these with existing data to analyse intersecting inequalities and social determinants of wellbeing.
- **Centre for Sustainable, Healthy, and Learning Cities and Neighbourhoods (£3.2M, UKRI GCRF, Mitchell)**. Aims to strengthen research capacity and increase our understanding and ability to address, urban, health and education challenges in neighbourhoods across fast-growing cities in Africa and Asia.

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To foster interdisciplinary working, we conducted social network analysis early in the REF cycle to demonstrate how our changes influenced collaboration in terms of manuscript authorship, and investigators on successful grant applications.

All metrics improved for co-authorship and collaborative grant applications, with mean number of collaborations per academic increasing from: 4.08-to-5.41 (for publications); and 7.34-to-8.25 (for grants). Benefits include increased grant income (Section 3).

The three themes outlined below were chosen to reflect: existing strengths, critical mass of expertise, wide reaching networks, priority areas for funders and potential for impact.

Theme 1. Determinants of health and health inequalities

Aims to further understanding of factors that affect health and contribute to **health inequalities**. It covers a range of biological, lifestyle, social and environmental factors, but with a strong focus on:

- the **wider social and environment determinants** of health
- understanding **risk factor clustering** and **effect modification**
- factors predisposing to
 - **multimorbidity, ageing and frailty**, and
 - **global health**

This theme underpins theme 2 by identifying **modifiable factors** that can become the subject of interventions and non-modifiable factors that can inform the **targeting** of interventions (precision public health). Examples:

- **NIHR-funded Global Health Research Group on Social Policy and Health Inequalities (£2.5M)**. (PI: **Leyland**) Working in collaboration with the Centre for Data and Knowledge Integration for Health in Brazil, UoA2 is developing novel linkages of the *100Million Cohort* to social security and health data to study the impact of welfare policies on health and health inequalities in Brazil.
- Using an internationally unique **Scotland-wide record linkage of 14 routinely collected health and education datasets (including 95% of children in Scotland)**, we demonstrated **strong seasonal patterning of the association between month of conception and learning disabilities and autism** that was not apparent for other forms of special educational need such as sensory impairment/mental health problems (Mackay, Am J.Epidemiol 2016).

Theme 2. Solution-focused research

This theme develops and evaluates **evidence-based interventions** working across the spectrum of:

- theoretical frameworks
- feasibility/pilot studies
- complex intervention studies
- randomised controlled trials (RCTs)
- natural experiments
- It also progresses **implementation** of our findings into policy and practice by working with the public/patients/other stakeholders (Section 4)

Areas of focus include **chronic physical and mental health conditions** and **multimorbidity**.

The interventions include **preventive** and **salutogenic** interventions, as well as disease management, with an emphasis on **upstream, environmental interventions** consistent with the focus of theme 1 on wider determinants of health. Co-production is embedded from inception of

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studies. Interdisciplinary research has been promoted through setting up these cross cutting interdisciplinary themes.

Intervention studies:

UoA2 researchers have evaluated a wide range of **upstream policy interventions**. Examples include:

- Drink-drive legislation (**Lewsey, Lancet 2019**)
- Social security reforms (**Katikireddi, Lancet Public Health 2018**)
- Smoke free prisons (**Hunt/Sweeting, Annals of Work Exposures and Health 2020**)

We have obtained funding to continue such work:

- **Evaluating possible intended and unintended consequences of the implementation of Minimum Unit Pricing (MUP) of Alcohol in Scotland: a natural experiment. NIHR (PHR/11/3005/40).** (PI: **Leyland**) (£1.1M) This study aims to determine the impacts of alcohol MUP on selected acute health harms and to monitor what if any, unintended consequences occur.

UoA2 researchers have developed and evaluated a range of **novel, cross-sectoral interventions** as well as **patient-directed interventions** such as:

- **The Best Services Trial (BeST 2):** Effectiveness and cost-effectiveness of the New Orleans Intervention Model for Infant Mental Health. **NIHR Public Health Research Programme. £2.7M.** This trial is hugely novel within the legal system, with families with children who are being taken into care, being randomised to one of two services. The trial will determine which service is best for children's development.
- **European Fans in Training (EuroFIT):** an international, multicentre RCT which seeks to improve physical activity and sedentary behaviour through elite European football clubs, building on the work of the Scottish Football Fans In Training study, which showed a similar intervention was effective. **European Commission FP7, £4.9M.**

Theme 3. Data Science

This theme uses routine administrative and clinical data to **underpin** the work of the other themes. In keeping with the foci on wider determinants of health and cross-sectoral, upstream interventions, the Data Science theme has a strong focus on developing **cross-sectoral record linkage**.

We have made significant progress in **maximising use of routine data**.

Cross-sectoral data linkage:

Funding of £312k from Farr Scotland followed by **£762k from HDR-UK**, in addition to two UKRI Innovation HDR-UK Fellowships, have enabled UoA2 researchers to:

- develop novel Scotland-wide linkages of databases covering health (e.g. maternity/prescribing/hospitalisations/deaths), education (e.g. school pupil census/attendance/exams), employment, and physical environment (e.g. solar radiation/pollution) data,
- determine health/educational outcomes associated with a range of childhood conditions such as diabetes (Fleming, Diabetes Care 2019).

e-Cohorts:

UoA2 has demonstrated the feasibility/usefulness of constructing **electronic cohorts** using linked routine data.

- Linkage of routine data demonstrated **higher risk of adverse neurodegenerative outcomes among 7,676 former footballers** than 23,028 matched population controls (Mackay, NEJM 2019).

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Linkage of primary and secondary data:

- Pell has been a member of the Scientific Committee of **UK-Biobank** since inception. **UoA2** has developed a successful interdisciplinary programme of epidemiological and genomics research using UK-Biobank addressing issues such as **multimorbidity/cardiometabolic health/COVID-19** as evidenced by **>80 publications (e.g. Mackay/Pell BMJ 2017; Pell BMJ 2020, Mackay/Pell JAMA Cardiology 2017; Nicholl/Mair Lancet Public Health 2018; Nicholl/Jani/Mair Lancet Public Health 2018)** (Section 4). (<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mentalhealth/research/projects/ukbiobankresearchatihw/ukbiobankresearch/>).
- We have championed the development of **new trial methodologies** that exploit linkage to routine data to improve trial efficiency e.g. Early detection of Cancer of the Lung Scotland (ECLS) study, which recruited >12,000 patients and is using linked data to monitor outcomes over 10 years (Mair, European Respiratory Journal 2020).

Shaping the Research Landscape

UoA2 researchers play leading roles in developing research methodologies:

- Moore (BMJ 2015) led the **MRC Process Evaluation Guidance (2703 citations)** (Google Scholar)
- Wu (Director) leads the **NIHR Complex Reviews Support Unit (£1.9M)** which develops and supports complex review methodology
- **MRC/CSO SPHSU** are leading on new guidance for developing and evaluating complex interventions (<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mrccsosocialandpublichealthsciencesunit/programmes/complexity/complexinterventions/complexint/>)

1.3.Promoting Impact

Working in partnership with key stakeholders (Section 4) to build strong relationships is integral to our strategy as evidenced in our impact case studies and reflected in our funding applications which routinely include external stakeholders and partners. We ensure colleagues at all levels are exposed to policy/decision makers by providing networking opportunities (e.g. by hosting a policy day bringing together national/local government/third sector organisations to discuss key health challenges in Scotland including obesity/health inequalities). We provide toolkits, regular training/workshops, and embed impact discussions/targets in annual reviews. Considering impact in **every study** has produced the following impact examples illustrating the breadth/benefits of partnership working:

- Football Fans in Training (FFIT), 12-week weight management/healthy lifestyle programme delivered through professional football clubs which has expanded to 11 countries/four sports and had major population health impacts (expressed as net monetary benefits) of **£128.6M** for participants and **£118.3M** for NHS.
- Work in partnership with the Scottish Prison Service to deliver an evidence-based smoking ban; implemented across all 15 Scottish prisons November 2018 (approximately 8,200 prisoners/4,000 staff); resulted in a **91% drop in second-hand smoke levels in Scotland's prisons** after 6 months.
- Research has shaped HIV biomedical prevention policy by supplying the key data needed by Scottish Government policymakers to plan/fund pre-exposure prophylaxis (PrEP) for HIV prevention, **reducing risk of HIV infection by 43%**.
- Work demonstrating greater risk of adverse neurodegenerative outcomes among former professional footballers outlined above, rapidly resulted in **Football Associations (England/Scotland/N. Ireland) banning children under 12-years from heading footballs during training/issuing guidelines limiting heading in 11-18-year olds**. Globally, the findings led to a process of review of head injury management in football, with the

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International Football Association Board sanctioning a trial of concussion substitutes for football to improve in-game management of head injuries.

1.4.Promoting Research integrity

UofG has committed to ensuring our research excellence is underpinned by research integrity. Each College has an Integrity Champion. We have an Institute Research Integrity Adviser (**Mair**), with a clearly defined role, to provide staff/students with an informal opportunity to discuss concerns about research integrity. All PIs/postgraduate students are required to undertake research integrity training and adhere to the University's code of practice in research. We promote OPEN ACCESS (OA) publishing through ENLIGHTEN (the University repository service for published research material). **All staff returned to UoA2 have an ORCID; OA compliance is 96.5%.**

We are committed to open data/data sharing and encouraging/developing best practice in undertaking research that is reproducible. As major users, we send all our code back to UK-Biobank to share our learning. However, we go beyond this as exemplified by our use of data from the Scottish Diabetes Register. Linked to hospitalisation data for Scotland, we examined heart failure trends in diabetes. In the first population-based study to examine heart failure case-fatality in type-1 diabetes, they found that death was more common for type-1 but not type-2 diabetes. **To improve transparency and enable re-use, the authors published their code** and (after minimal aggregation/redaction to preserve confidentiality) data. **To improve communication, they published an interactive figure allowing readers to explore how risks differed for different combinations of age/sex/deprivation** (McAllister et al. Circulation 2018).

1.5.Future Strategic Aims/Goals and Mechanisms to Deliver

Overall improvements in many health indicators over the last decade have been marred by widening health inequalities. This, in part, reflects over-reliance on individual level interventions. UoA2 researcher (**Katikireddi**) **was a member of the Academy of Medical Sciences expert working group that produced the “Health of the Public 2040 Report”** which highlighted the need to focus on cross-sectoral/upstream interventions to reduce health inequalities/improve health.

This shift in focus requires interdisciplinary/multi-agency research to develop and evaluate novel interventions. UoA2 has completed/achieved the first phase of its strategy through the aforementioned mechanisms.

We are now in the second phase. With **£50M**, we are constructing a new building (**Clarice Pears building**) that will co-locate UoA2 with researchers from other areas of IHW (in 2022 (Section 3)) and encourage planned and opportunistic networking. UoA2 staff involvement (**Wu**) in the **£38M** UKRI Strength-in-Places-Fund award also provides opportunities.

Our research strategy going forward, approved by our ISAB includes:

- **Expansion** of our **global health research, with a focus on NCDs, particularly in Africa**
- **Increasing interdisciplinary partnership-working** and **co-production** with external stakeholders especially third sector/practitioners/policymakers/public/patients
- **Growth** of our **intervention work** (including external partners (e.g. education/workplace), underpinned by **data science**, with a focus on reducing inequalities

2. People

2.1. Overview

UoA2 is firmly committed to the principles of **equality and diversity (E&D)**. We believe science will not meet its full potential unless all talent is engaged and supported to flourish and aim to be a **beacon of excellence with regards to E&D** within UofG and beyond. In this endeavour, we:

- **champion equality widely**, staff initiated the formation of the College-wide Equalities, Inclusivity & Diversity Committee and sit on UofG Gender Equality Steering Committee to drive progress across UofG, and advise/support other Athena SWAN applications locally/nationally
- **embed E&D** in all aspects of our work with staff/students
- have mandatory **unconscious bias** and **E&D training**
- **celebrate success** through a monthly newsletter when staff good news is shared.

UoA2 has **33 nationalities** represented within our doctoral student cohort. The **proportion of staff from outside the UK has doubled** over the REF period.

2.2. Staffing Strategy/Staff Development with a particular focus on ECRs

Within the policy framework of our home Institute, UoA2 has prioritised growing “rising stars” by focusing on **mentoring, skills and career development**, and **enabling promotion** of our talented staff. We support staff to pursue prestigious doctoral/post-doctoral fellowships from funders such as MRC/Wellcome and we have **grown our ECR numbers** within a supportive and nurturing environment through mechanisms outlined below. Consequently, we have more than **doubled our REF-submitted ECR numbers** from **8% (REF2014)** to **20%**.

Mentoring: Our mentoring scheme aims to improve career development of **staff** research and teaching (R&T)/ECRs/professional and support staff) **and students**. Mentors assist mentees to make the best decisions for their future and aid career/skills development. We have a working group for **gender sensitive ECR issues, aspirations and development**.

Support for ECRs: We have put in place mechanisms to support ECRs and their development and to provide them with a strong voice:

- all newly appointed **early career academic staff Grade7/8** are supported in developing their academic skills and with career progression through the [Early Career Development Programme \(ECDP\)](#). This provides learning and development opportunities in all aspects of the academic role, including allocation of a mentor to provide support and advice, the creation of a **Personal Development Plan** and the setting of annual objectives to enable academics to develop the abilities to meet the criteria for promotion to Grade 9 within a defined timescale
- a working group that focuses on **maternity/paternity/parental/carer issues**
- a monthly “**ECR Corner**” in our HAWKEYE newsletter - bringing all the latest news and happening from our ECRs and signposting opportunities
- an **ECR Forum** consisting of **representatives of ECRs** across UoA2 that aims to identify ECR needs/support ECR career development/promote effective communication and help people overcome the challenges that ECRs face in academia, including uncertain short-term contracts; progressing careers in unstable funding environments
- **ECR** input to Institute Management Group (Section 1)
- Annual UoA2 Research Away days, which all staff/students, including ECRs, are expected to attend, ensuring staff have a shared understanding of our research/impact strategy/research themes
- Regular international keynote speaker series (**Maurice Bloch Lecture Series**) to promote international networking and inspire staff, particularly ECRs

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- Paper-writing groups aimed at ECRs
- Monthly “**Cross Theme Seminars**”, where researchers (particularly ECRs) are encouraged to present their work, to promote interdisciplinary working across research themes
- Investment in research support administration that provides pre- and post-award support for all staff (including ECRs)
- For ECRs employed on short term contracts, we have a process whereby those with impending contract end dates can apply for upcoming posts through an internal process before external advert to promote employment continuity
- Our ISAB, consisting of internationally renowned researchers, meets biannually - and is a **valuable source of strategic research/impact advice**. We provide them with information about our research/impact achievements and challenges, give them an opportunity to hear presentations from senior staff/ECRs concerning our research, and put specific queries to them. The ISAB provides an independent/objective sounding board to guide our research/impact strategy
- We strongly support the UofG’s Flexible Working Policy. All staff working within UofG for ≥ 26 weeks have the right to request flexible working. Flexible working options include: working remotely (from home/location other than usual office); part-time working; changing working patterns
- Staff can take study leave to attend training/conferences and longer-term study leave/sabbaticals

Clinical staff and integration and career development

UoA2 includes clinical staff (Public Health/General Practice and Primary Care). Academic career pathways are available to such staff during training through the Scottish Clinical Research Excellence Development Scheme (SCREDS) and post training via NHS Education for Scotland-funded academic pre doctoral fellowships. Such staff have gone on to win doctoral/post-doctoral fellowships (e.g. **Jani/Gallacher**) and tenured UofG posts (e.g. **Jani**). Academic clinical staff continue to provide NHS services through General Practice and Public Health Scotland and undertook secondments to the NHS during COVID-19 (e.g. **McAllister**).

Performance and Development Review: Training for academics/ECRs, is bespoke and determined by individual needs.

- ECRs/other Academics consider training/development throughout the year with line-managers
- At annual review meetings, ECRs and other staff have an opportunity to reflect on successes/objectives/ challenges and to set plans to enable fulfilment of career aspirations
- Annual checks by Director/Deputy Directors, ensure everyone has an appropriate development plan.

Together these actions promote a positive, nurturing environment and promote research productivity and excellence (Section 3). Our field weighted citation impact reports show our FWCI (all outputs during period) were above those of the Russell group in all categories:

All Science Journal Classification subject	Average Russell Group FWCI	UoA2 FWCI
Family Practice	1.22	3.57
General Medicine	3.14	16.68
Health Policy	1.18	1.54
Public Health, Environmental and Occupational Health	1.12	1.92
Psychiatry and Mental Health	1.30	1.99

Unit-level environment template (REF5b)

2.3.PGR Students

Our PGRs are funded from a diverse mix of sources, including MRC (e.g. Doctoral Training Partnership (DTP) in Precision Medicine, MRC /CSO SPHSU, MRC Clinical Research Training Fellowships); Chief Scientist Scotland Clinical Training Fellowships; EPSRC DTP; and we also support international students with scholarships including by the China Scholarship Council.

We have mechanisms to **attract PGR students** and **support them**, contributing to our **doctoral degree student numbers increasing by 52%** over the REF period (**73% increase in international students**). Our doctoral degrees awarded per submitted staff FTE over the REF period are **1.99** making us the **highest for all UK institutions within UoA2** when benchmarked against the average supervisor load per FTE of doctoral degrees awarded for all UK institutions within UoA2, based on REF2014 contextual data.

PGR recruitment: Our PGR recruitment strategy is predicated on excellence with strategies in place to ensure high quality applicants from diverse backgrounds are targeted and encouraged:

- Broad advertising and close liaison with College Graduate School to attract high quality applicants from diverse backgrounds, including protected characteristics
- The establishment of high-quality Masters programmes (e.g. Masters in Public Health) that act as 'feeders' for our PhD programme
- Active encouragement of staff to engage with undergraduate students, including intercalated programmes, honours and PGT students, to engage the best students
- PGR supervisor search facility assists potential applicants to source academic supervisors relevant to their research interests using an algorithm based on continually updated academic profiles of UoA2 supervisors

PGR environment: Our PGR ethos is to be open/approachable with a focus on the health/wellbeing of our students. We have:

- A **PGR Convener** and Deputy Convener to support local policy and community building
- **Dedicated administrative support** to manage/support our PGR student population
- **Two PGR representatives** who assist with planning events/provide peer support to students
- **Signposts to mental health/wellbeing resources** in our induction material

Every PGR has two academic advisers (in addition to minimum two PhD supervisors), who meet with students annually to review progress/offer career advice/pastoral support; these academics are available for consultation at other times, if required, and can provide students with impartial advice. In addition, we have an **ECR-PhD mentorship scheme** where PGRs get support from ECR staff in bolstering the process of completing a doctoral thesis. In turn, ECR mentors gain better understanding of the student's experiences, as they progress through the doctorate, which serves as valuable background knowledge to underpin any future supervisory role.

PGRs have access to a wide range of specialist/generic research skills training including social science skills training, where appropriate. Students have a range of opportunities for developing/extending Public Engagement/research impact skills, including:

- national Explorathon events,
- Café Scientifique where ECRs/PGRs discuss their research with the public,
- Three-Minute Thesis competition.

UoA2 provides an interactive postgraduate community (82 PGR students awarded a doctoral degree during the REF period) and regular research seminars with contributions from influential national/international researchers. We have a postgraduate/ECR Forum (IHAWKES), and blog where PhD students/ECRs can broadcast their work, share ideas and reflect on experiences. International students have access to an International Student Orientation Programme and an International Student Support team to help them settle into UofG.

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Mitigating the impact of COVID-19: A COVID-19 mitigation plan for every student has been created in collaboration with supervisors and will continue to be discussed at annual reviews. Our PGR conveners added online dial in sessions to support students; additional sessions were run for supervisors. During lockdown, all PhD vivas moved online with new guidance for remote vivas. Our PhD vivas have adapted well to this new mode and positive feedback has been received.

Where the lockdown or personal circumstances caused a significant delay in studies, we enabled affected students to apply for a fully-funded extension to their studies. Seven extensions of up to 6 months granted.

2.4.Approaches to inclusivity

We made rapid progress from achieving Athena Swan Bronze in 2014, to **GOLD Athena Swan status (2018)**. To progress from this very strong base we are driving forward a range of initiatives including:

- annual qualitative interviews on key topics identified through focus groups
- annual staff/student surveys
- audits/information gathering exercises to monitor progress
- establishment of 50+ Workers Group that aims to encourage and enable working in later life
- Working group for gender sensitive ECR issues, aspirations and development
- Working group for LGBTQ+ staff issues, ambitions and development

Recruitment Strategy and Processes: To ensure a welcoming environment, we:

- promote flexible working/equal opportunities/Athena SWAN information in all job descriptions
- audit job descriptions against standards annually (our work in this area led the wider University to adopt these approaches across the institution)
- ensure gender-balanced recruitment committees

We have made efforts (Section 1) to grow our global research and promote UoA2 at UofG as an internationally excellent location for research. The success of these endeavours is evidenced by our **growth in internationally recruited research staff from 12% in 2013/14 to 25% in 2019/20** (67.6% from the EU; 32.4% from outside EU). We have made **4 strategic Professorial appointments - Crampin** (to advance our global research agenda), **Hawkins** (to grow our health technology assessment team), **Meier** (expand policy appraisal/natural experiment work) and **Taylor** (increase Clinical Trial activity).

Induction: is standardised, supported by regular workshops for line managers and a formal checklist, signed off in discussion with the new appointee within one month of starting. It includes:

- **online repository for induction materials**
- **research integrity training within 4 weeks** of commencing
- **invite** to join one of our **working groups focussed on inclusivity**
- UofG's **Dignity at Work and Study Policy** as required reading
- tour of facilities/introductions to key staff/a same-grade induction buddy to help with wider staff group introductions, working environment, and for coffee breaks/lunch
- **informal coffee meeting with Institute Director**, to answer questions/queries.

We evaluate on an ongoing basis, through a short survey at the end of each induction. In 2018/19, 90% of respondents rated their induction as good, very good, or excellent.

Career Development: We promote access to career development activities and monitor to ensure fair access. Examples include: UofG's Early Career Development/leadership training programmes/participation in Aurora Leadership development initiatives, and conference attendance through an Institute funding scheme.

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Promotion: is supported by:

- running **annual promotions workshops for ECRs**
- **an online training course**, covering the promotion criteria/process (compulsory for line managers of R&T staff)
- **providing unsuccessful applicants individual feedback** from the Director/Deputy who attended the promotion committee, to improve chances next time, and set a target date for re-application

Of 48 promotion requests during REF period, the success rate was 83.33% (**92.6% Females: 71.4% Males**). Of 12 requests for promotion to Professorial level, the success rate was 66.7% (**75.0% Females: 62.5% Males**).

Developing a supportive environment and positive research culture: Our proactive approach includes raising awareness in areas relating to the protected characteristics cited by the Equality Act 2010. Exemplar actions include:

- a **transgender awareness event (2016)**
- hosting a **harassment prevention workshop (2017)**
- in addition to mandatory "E&D essentials" and "Managing diversity" all UoA2 staff complete online "Understanding unconscious bias" training
- **displaying materials relating to bullying and harassment prevention**, including #FullStopToBullying posters
- regular **Athena SWAN twitter feed** posts about harassment and bullying, initiatives to counter this, and the importance of sharing with trusted colleagues any oppressive treatment experienced/witnessed
- **hosting an invisible disabilities awareness-raising event (2019)** - "Out of sight, out of mind?"

Staff Gender Representation: UoA2 has a track record of female leadership since 2002, and has an increasing cohort of strong, visible female role-models (e.g. **Director (Pell); Research Convenor (Mair)**).

Our promotion actions are impacting on women's career progression; we have increased the **proportion of female Professorial staff** from **46.2% in 2014** to **51.3% in 2020**; this compares with **23.3% in Russell Group Universities for 2018/19**. Our HOW-WIS project (Health Outcomes and Wellbeing of Women in Science), which plans a gallery of achievements of our female academics, will celebrate our journey in our new building.

REF2021: Staff were made aware that they could voluntarily and confidentially come forward to declare any personal circumstances that may have affected research productivity since 2014 without being individually identified or approached.

All those involved in REF processes (including output review/selection) within the UoA undertook mandatory training including ED&I principles/unconscious bias/sensitive data handling. In accordance with the University's Code of Practice, outputs were selected and allocated to authors to maximise the UoA's GPA. An interim equality impact assessment of our methodology indicated no significant bias against any protected characteristic. **REF eligible staff male-female ratio is 13:16.**

3. Income, infrastructure and facilities

3.1. Overview

Since 2014, we have consolidated our research around three core strengths:

- Determinants of health and health inequalities

Unit-level environment template (REF5b)

- Solution-focused research
- Data Science

This focus and our ongoing strategy to support staff (Section 2) ensures they are engaged and helped to flourish.

At the census date:

- **100% of submitted staff held research funding**
- our total **research income/expenditure has significantly increased**, from £7.2M in 2013/14 to over £13M in 2018/19 (drop in 2019/20 due to reduction in expenditure during COVID19 lockdown).

Over the REF period UoA2 has collaborated successful research applications worth **>£128M** and averaged £284K per annum in research income per submitted FTE. We compare favourably with other Institutions – in **2018/19**, our research income/FTE puts us **3rd in the Russell Group** compared to **HESA Cost Centre-101 Clinical Medicine** and **2nd** compared to **HESA Cost Centre-105 Health & Community Studies**. UoA2 investigators have been **awarded £13.6M for GCRF projects** (a strategic objective, Section 1).

Research Council income is steady, with an average of over **£3.8M/year** and has consistently provided over **40% of all income**. Income from **UK Charities and Overseas sources has more than trebled during the REF period**. We also have a track record of collaboration with industry, particularly in relation to clinical trial work. Top 5 industrial funders: Vifor Pharma (CH), Abbott Laboratories (UK), Boehringer Ingelheim (DE), A. Menarini (IT), and Bristol-Myers Squibb (BMS) (US). Total value of industry awards **>£23M**.

3.2.Support for generating research income

Bespoke ECR support: nurturing our talent is a core strand of our staffing strategy (Section 2). ECRs are supported to seek and secure funding from the outset through a range of initiatives including:

- grant-writing group led by gender balanced team of more senior staff
- qualitative researchers support group
- coaching for fellowship applications, including mock interviews
- peer-review of all fellowships
- funding panel workshops to offer insights from senior researchers
- one to one grant writing support/mentorship for grants >£100k; ECRs/mid-career researchers are recommended to access this for smaller grants.

These initiatives have enabled us to develop a strong cohort of ECRs within the UoA, leading to **72 new fellowships (pre-doctoral/doctoral/post-doctoral) since 2014 (£11.8M from research council (14), charity (15), Chief Scientist Office Scotland (19), Scottish Government (19), other (5))**, with a **76% increase in numbers of fellowships per submitted FTE** across the census period. Examples include:

- **Wellcome Trust Intermediate Clinical Fellowship (McAllister) £709,217:** combining efficacy estimates from clinical trials with the natural history obtained from large routine healthcare databases to determine net overall treatment benefits
- **Wellcome Trust University Award (Pearce) £871,086:** to examine why children from less advantaged backgrounds have worse health than their more advantaged peers and what might be done to prevent this

3.3.Underpinning Infrastructure and Facilities

UofG partners with NHS Greater Glasgow & Clyde (NHSGG&C) through the Glasgow Health Sciences Partnership (GHSP), creating an integrated, interdisciplinary centre of excellence for the

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management and execution of non-commercial/commercial clinical research. GHSP supports clinical research by enabling access to the patient base of NHSGG&C and, through a wider West of Scotland Network, the surrounding health boards of the West of Scotland. This patient base, of 2.8million (52% of the Scottish population), includes areas of significant health inequalities and high incidence of premature chronic disease and comorbidities.

3.3.1.Determinants of health and health inequalities

Partnership with NHSGG&C and Glasgow City Council, supported by funding from the Scottish Government to establish and support the **Glasgow Centre for Population Health** augments our abilities to develop insights and evidence, test new approaches, and inform policies to improve health and tackle health inequality with increased likelihood of translation into practice. Examples include, our CSO-funded “Multimorbidity in the context of Socioeconomic deprivation: a mixed methods exploration of how Community and Individual factors interact to influence patient capacity to manage Multimorbidity” (£376,082) (**Mair/Lewsey**).

3.3.2.Solutions focused research

The Glasgow Clinical Research Facility (GCRF) - provides state-of-the-art research space across several geographical sites including the £5M facility at Queen Elizabeth University Hospital Campus. GCRF is part of the Glasgow Clinical Trials Unit providing specialist services in collaboration with **UoA2 Robertson Centre of Biostatistics (RCB)**. Our key partner role gives us outstanding access to the GCRF, which underpins/contributes to the strength of our research. Supported work includes the REACH-HFpEF (Heart Failure Preserved Ejection Fraction) study (£2M) (**Taylor/McConnachie/McIntosh**), the largest international trial of rehabilitation in HFpEF to date funded by NIHR.

Population Health Research Facility (PHRF) – hosted within MRC/CSO SPHSU and part of the Glasgow Clinical Trials Unit. PHRF provides methods advice, project management, data management, database development and field work operations and management. Working in partnership with UoA2’s RCB, it provides support for complex interventions, particularly community-based trials/natural experiments such as the **NIHR PHRP programme grant** “Evaluating possible intended and unintended consequences of the implementation of Minimum Unit Pricing of Alcohol in Scotland: a natural experiment” (**Leyland/Katikireddi**) **£1.1M**.

West of Scotland Node of the National Research Scotland Primary Care Network promotes recruitment to primary care studies (**Mair**). This group was instrumental in facilitating the successful recruitment of **>12,000 primary care patients** to the Early Detection of Lung Cancer Scotland (ECLS) trial and ensures we are well placed to recruit for large-scale primary care studies.

3.3.3.Data science research

Glasgow SafeHaven is a collaboration between RCB and NHSGG&C and is the largest in Scotland. It was established as part of a national drive for delivering research excellence and to enable rapid access to high quality health data for research purposes, and providing a research platform for the collation, management, dissemination, and analysis of anonymised Electronic Patient Records. It provides a physical and electronic area that delivers required levels of security to support access to local healthcare data for service/research purposes (e.g. McConnachie, Br J Cancer 2019).

Scottish Learning Disabilities Observatory - provides better information about the health and healthcare of people with learning disabilities and people with autism in Scotland. The Observatory generates and translates information into knowledge, that is designed to inform actions, practice and policy to benefit people with learning disabilities and people with autism. We have generated 23 outputs with the Observatory since 2015 and partnered on trials such as “BEAT-It” (Lancet Psychiatry 2017, **Briggs**).

Health Data Research UK Scotland - is part of the national institute for health data science, we bring together the sharpest scientific minds and provide safe/secure access to rich health data to better understand diseases and discover new ways to prevent, treat and cure them. Being part of this initiative promotes access to data sources to underpin our research such as the **MRC-funded** study “Linking education and health data together to study relationships between various health factors and children's educational and health outcomes” which has linked 14 routine health and education data sources providing an internationally unique data resource (£581,316).

3.4.Future infrastructure

UofG has committed **over £50M** to building new state-of-the-art, public facing premises on the Western Campus. Opening in 2022, it will provide an opportunity for UoA2 to be co-located with other Institute members. It will enhance opportunities for collaborations through co-location with a **£113M Advanced Research Centre**, this ‘research hub’ will build upon our already extensive interdisciplinary approaches and provide high quality interactive research space for existing groups as well as new researchers. In addition to providing new space for recruitment and to house excellent communal facilities, the building has interaction spaces that will create a research culture to foster interdisciplinary research and encourage large, multi-applicant grant applications.

- It includes ideation space for partnership working with stakeholders and facilities for knowledge exchange and public engagement events,
- It is civic facing including a Community Hub and exhibition space that showcases the work of UoA2 researchers developed in collaboration with colleagues at the Glasgow Science Centre.

The new building will embody our beliefs and values. Our plans are underpinned by the ethos of the Civic University, which aims to build stronger connections between universities and the communities they serve. Meaningful engagement is at the forefront of our plans. Working in partnership with **Scottish Community Development Council** and **Community Health Exchange** we are co-designing a **community resource** accessible to individuals/organisations across Glasgow. The building will house a permanent exhibition space that is being **designed in partnership with the Glasgow Science Centre**: as an **exemplar public engagement space** that will showcase our research in collaboration with key external stakeholders; and establish a series of skill sharing events and workshops with local organisations to increase the exposure of the public to our research but also improve the research literacy of partnership organisations. It will have a social enterprise run café that will serve affordable and healthy food.

It has been designed to high environmental and sustainability standards. In keeping with our culture of **E&D**, the building is intellectually and physically accessible. We believe the building should improve the health/wellbeing of occupants/visitors and have incorporated: indoor green space/natural light, ventilation/contemplation and social space.

3.5.Delivering impact

Our **impact strategy** is interwoven and embedded within our **research strategy** and continuously updated, to guarantee our research is relevant, meaningful, and **useful** to decision makers/research users (Section 4). Our strategy aligns with the University Knowledge and Innovation strategy especially Priority 3: High-quality policy and practice in a changing landscape and 4: Inclusive public and community engagement.

Within our strategy, public engagement and knowledge exchange (PEKE) are priority objectives to ensure effective delivery of benefit. Specifically, we have embedded a culture of PEKE by:

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- Setting up and resourcing a PEKE Committee with representation from relevant patient groups to provide access to specific PEKE advice to those who are applying for research grants
- Identifying PEKE “champions” in each research theme and for our research relevant committee and group
- Supporting a PPI group to comment on and provide input to all grant and fellowship applications
- Supporting a shared understanding of PEKE as necessary for pathways to impact through the development and dissemination of training in PEKE and impact, for example, our “**Impact toolkit**”, subsequently adopted across MVLS (<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/ihwimpact/toolkit/>)
- Identifying “best practice” through regular audits and providing illustrative case studies, (<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/datascience/casestudies/>)
- Advertising opportunities to engage with PEKE through newsletters and at seminars,
- UoA2 staff regularly contribute to a range of events (e.g. Festival of Social Science/ STEM events/Pint of Science/TEDX Glasgow/bespoke activities)

To date, this has directly supported several large-scale projects that now have patient engagement at their core. For example, staff have been successful in securing internal and external funding to undertake community engagement work (e.g. Scottish Public Engagement Network (SCOTPEN) funding in conjunction with Children’s Neighbourhoods Scotland to work directly with primary school children to identify research to mitigate health inequalities (**Pearce**)).

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

We support collaboration, interdisciplinary research and internationalisation through regular discussions at our Institute Management Group to increase the impact of our work. We promote cross College/cross University collaborative research opportunities as they become available. We also partner with the public/patients/third sector organisations/Government/industry to promote health/wellbeing. We ensure our voice is heard by policymakers through contributing to Scottish Government (SG) cross-party working groups – we have representatives on the following working groups: Health Inequalities (**Representative from MRC/CSO SPHSU**)/Sexual Health & Blood Borne Viruses (**McDaid**)/Improving Scotland’s health (**Moore**)/Arthritis and MSK (**Nicholl**)/ Chronic Pain (**Nicholl**).

Katikireddi’s work on COVID-19 and ethnicity, has informed the pandemic policy response at UK level by presenting evidence to SAGE, being a member of the SAGE subgroup on ethnicity and COVID-19 and contributing verbal/written briefings to the Chief Medical Officer (Whitty) and Chief Scientific Adviser (Vallance). He is also co-chair for the Scottish Government’s Expert Reference Group on ethnicity and COVID-19 which made recommendations in September 2020 to the Minister for Older People and Equalities on data and systemic issues.

Below are **exemplars of our collaborative partners** and the impact of our collaboration.

4.1. Cross College/Cross University Collaborations

Collaboration between UoA2 (**Mair/Gallacher/McIntosh**), MVLS’ Institute of Cardiovascular and Medical Sciences, UofG’s College of Science and Engineering, and Lancaster University has resulted in EPSRC Programme Grant Funding for: **Quantum Imaging for Monitoring of Wellbeing & Disease in Communities (£5.6M)**. The team are using quantum technologies to enable “precision healthcare” delivered to the home, via passive sensors requiring no action by users, making them accessible to a broad range of users. The work is being undertaken in collaboration with a range of business partners including IBM and Microsoft.

4.2.External Collaborations

Patient and Public Involvement and Engagement (PPIe): a team secured support from the MRC Proximity to Discovery and Wellcome Institutional Strategic Support Fund to develop PPIe activity. This initiative has enabled the establishment and roll-out of:

- **A PPIe Steering Group** which links a range of community organisations and partners directly with our researchers to enable project specific discussions and advice. It provides strategic oversight to PPIe within all UoA2 grants. It has established a hub and spoke model with links to a large network of patient groups and third sector organisations across the West of Scotland. Current membership includes The Alliance (an umbrella organisation for those living with chronic illness), the Mental Health Foundation, Queens Cross Housing Association (the largest in Glasgow) and NHSGG&C.
- **Training for researchers with support from PPIe group members.** As part of our commitment to PPIe a pilot project (**Nicholl**) delivered research training to users/members of The Alliance. PPIe representatives are asked to scrutinise research studies yet often have no research training/background and this can be daunting, particularly for traditionally hard to reach groups. **A bespoke introductory training package focusing on research process, methods and analysis was successfully delivered.** The training has subsequently been delivered to PPIe Steering Group members.

Scottish Government/other National Bodies: Examples of direct engagement to effect change include:

- Contributing to work commissioned by **SG to inform the transformation and re-design of primary care services in Scotland (Nicholl/Jani/Mair)**
- Researchers in MRC/CSO SPHSU worked with **SG and the Scottish Prison service** to help develop a joint action plan detailing how indoor smoke-free prison facilities could be delivered in line with the SG's aspiration to create a tobacco-free generation of Scots by 2034. Our researchers then gained NIHR funding to evaluate graduated progress towards, and impacts of, the implementation of indoor smoke free prison facilities in Scotland. (£853,045). This activity guided the implementation of the **smoke free policy** across all Scottish prisons (REF2021, impact case study)
- We won 2/4 networks and 1 of the 4 consortia awarded by the UK Prevention Research Partnership supporting interdisciplinary networking activities around broad challenges in primary prevention research on non-communicable diseases (NCDs):
 - **SIPHER (Systems science In Public Health and Health Economics Research) consortium (PI: Meier) <https://sipher.ac.uk/> (£5M) -** aims to develop systems-based economic evaluation methods and tools to provide a common basis on which to appraise the effectiveness, costs and benefits of policy measures implemented in different sectors
 - The **Maternal and Child Health Network (MatCHNet) (www.gla.ac.uk/matchnet)** (£400k; PI: **Dundas**) has laid the groundwork to establish multidisciplinary public health preventive research programmes evaluating the impact of national policies and policy contexts on reducing adverse childhood outcomes and their consequences for NCDs in adulthood. It brings together researchers/stakeholders/decision makers to harness administrative data across the UK countries to evaluate national policy impacts on maternal/infant/child health. MatCHNet engages with stakeholders from various Government departments and third sector organisations across the UK including **NHS Health Scotland, Public Health England, The Children's Commissioner** and the **Maternal and Child Health Directorate** at SG. We have links with the administrative data communities in the four countries (ISD/HDRUK/SAIL/BSO)

- The **Population Health Agent Based Simulation Network (PHASE)** <http://phasenetwork.org/> (£400k; PI: **Moore**) focuses on the application and use of agent-based models among researchers/decision makers to develop insights on the interdependent and interacting processes that result in NCDs and health inequalities. PHASE provides the opportunity to work across disciplines and with decision makers and industry in widening the use and understanding of agent-based models in population health research and practice
- Using data from UK Biobank, a prospective, general population cohort, we showed that active commuting involving cycling was associated with reduced risk of developing cardiovascular disease and cancer, as well as all-cause mortality (**Pell/Mackay**, BMJ 2017). The findings have led to a partnership with **British Cycling** and **HSBC Bank** to develop and implement an intervention to encourage cycling across the bank's UK-wide network of branches. It also resulted in the investigators being invited to **join a stakeholder engagement group, led by SG**, to ensure that the inaugural UCI World Cycling Championships to be held in Glasgow in 2023 achieve a lasting physical activity legacy.
- In January 2015, Scotland moved from a targeted system of Free School Meals to a universal service for children in Primary 1 to Primary 3 to reduce health inequalities. This is a major **SG** policy and researchers from UoA2 are working in partnership with **NHS Health Scotland** to evaluate this programme and provide recommendations on where schools and local authorities could make improvements in delivering the policy.
<https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/socialscientistsinhealth/research/improvinghealthandwellbeing/freeschoolmeals/>

Department of Work and Pensions (DWP): We led the “*Supporting Older People Into Employment*” (SOPIE) programme (**Leyland/Katikireddi**)- a mixed methods longitudinal study funded by the MRC (£750K) as part of the *Extending Working Lives Partnership* awards. The work aimed to inform on interventions, support and factors assisting the over 50s return to work and involved partnership working with DWP (<https://policyscotland.gla.ac.uk/3329-2/>). A major feature of this work was the multi-disciplinary cross-sector ageing research.

Macdonald (PI) is a Member of Ministerial Expert Advisory Group (SG) - since 2017: Appointed by the Minister for Social Security. The Group participated in a national consultation on ‘Improving Lives: The Work, Health & Disability’, in 2016 and shared their findings with the Joint Work and Health Unit in London in August 2017 and the Director of Work and Health Unit and Office for Disability Issues at DWP in 2018.

Charities: Examples of our engagement with charities to collaborate on priority research areas include:

- FFIT - Following the success of the RCT, the **Scottish Premier Football League Trust** continued to deliver the FFIT programme, expanding delivery to new football clubs (33) across the Scottish Premier League. (<https://spfltrust.org.uk/projects/football-fans-in-training/>) (REF2021 Impact Case Study).
- **Transdisciplinary Research for the Improvement of Youth Mental Public Health (TRIUMPH)** is a UKRI-funded research network (£1M; **Inchley/Moore**) that creates transdisciplinary research capacity to identify social, behavioural, organisational, environmental and cultural mechanisms of change. It is working in partnership with young people aged 11–24 years and with multi-sectoral public and third sector partners to develop effective and sustainable interventions to improve public mental health. Key TRIUMPH partners are our Youth Advisory Group recruited through partner youth organisations: **Young Edinburgh Action**, **Voices of Young People in Care (VOYPIC)**, **Advice Leading to Public Health Advancement (ALPHA)** and **Free2B Alliance**. The Youth Advisors provide guidance on the strategic development of the TRIUMPH network, help identify priorities for research, and support the network to provide opportunities for other young people to be involved in

Unit-level environment template (REF5b)

mental health research, and input into the network management group, which includes partners from the **Mental Health Foundation**.

4.3. International Collaborations

We have vigorously pursued **GCRF opportunities** as a strategic objective. Examples of our work in Brazil and Tanzania have been provided in previous sections but additional exemplars are:

- Prof Crampin, Director of the Malawi Epidemiology and Intervention Research Unit (MEIRU), who gave a talk on multimorbidity as part of the Maurice Bloch lecture series then went on to collaborate with UoA2 researchers (**Mair/McIntosh**) to get **MRC funding** for a salt reduction trial ("**No to Na**" **£1.1M**), illustrating how our outreach efforts are resulting in tangible benefits.
- We host the International Coordinating Centre (ICC) for the **Health Behaviour in School-Aged Children** (HBSC) study, a World Health Organisation (WHO) Collaborative Cross-national study of adolescent health/wellbeing, involving 49 countries across Europe/North America. The ICC team work closely with the **WHO European Office**, the primary study partner, to maximise coverage/impact of the research. For example, WHO colleagues recently presented HBSC data at the Regional Committee meeting, attended by **Ministries of Health** across all 53 member states within the WHO European Region. The ICC also work closely with national teams located in academic/public health institutions and provide advice and support for youth participation activities/stakeholder engagement/knowledge exchange/impact activities.

4.4. Contributions to the research base

Funding panels: >50% of UoA2 are shaping decisions about science funding and strategy through membership on panels of major funders nationally/internationally. Examples include:

- UKRI-FLF (Mair Deputy Chair);
- MRC (Pell (Member of Council), Mair, Moore, Taylor (co-Chair from 2017));
- Norwegian Research Council (Mair);
- Dutch Heart Foundation (Mair);
- Independent Research Fund, Denmark (Leyland);
- Swedish Research Council (Leyland);
- Irish Health Services Board (Mair, Simpson, Leyland);
- NIHR (Leyland, McIntosh, Wu, Moore, Katikireddi, Simpson; Meier, Taylor (Chair NIHR Health Services and Delivery Research Researcher-Led panel, March 2014-Feb 2018));
- Cancer Research UK (Pell);
- Chief Scientist Office Scotland (Lewsey, Jani, Wu, Mitchell, Simpson);
- British Heart Foundation (Pell, Non-Executive Director);
- Wellcome Trust (Ellaway).

Peer-review and publishing: We contribute to scientific publishing as Editors in Chief and associate Editors across leading scientific journals, for example:

- Mair, Editor in Chief; Jani Associate Editor - Journal of Multimorbidity and Comorbidity;
- Mair (BMC Medicine/Journal of Telemedicine and Telecare);
- Katikireddi (The Lancet Public Health/Cochrane Public Health);
- Leyland (European Journal of Public Health);
- Meier (Addiction/Drugs/Education, Prevention, Policy/Nordic Studies on Alcohol and Drugs);
- Taylor (International Journal of Technology Assessment in Health Care, European Journal of Preventative Cardiology, Neuromodulation, Pain Practice, Cochrane Heart Group);
- McIntosh (Health Economics);
- Simpson (International Journal of Behavioural Nutrition and Physical Activity/BMC Public Health).

Unit-level environment template (REF5b)

4.5.Partnership with NHS

Health Professionals/Professional Organisations: The General Practitioners at the DEEP End collaborative project is part of the Data Science and Solutions Focused research themes. This involves working with 100 general practices in deprived communities in Scotland, in partnership with the Royal College of General Practitioners. This collaboration has provided a voice for practitioners in deprived areas, and together with academics within UoA2 articulates key concerns relating to current funding inequities in general practice. This work has led to briefing papers for SG policymakers and funded initiatives, including the Links Worker Project, whole-system interventions to improve quality of life in primary care patients with multimorbidity. This innovative initiative has now gone on to inspire similar endeavours elsewhere with DEEP END England, Wales, Europe and Australia now underway, modelled on our work. More information on the Scottish Deep End project is at: <https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/generalpractice/deepend/>

NHS staff have honorary appointments with our Institute and are hosted by UoA2 researchers with clear training paths for NHS staff (Section 2 SCREDS Lecturers/Academic Fellows).

4.6.Recognition and awards

Recognition and awards include:

- Pell: awarded CBE 2017
- Meier: awarded Fellowship of the Academy of Social Sciences (2019)
- Moore: Fellowship (Academy of Social Sciences) 2016
- Mitchell: Named among Web of Science's most highly cited researchers (2020)
- Mair: Senior Investigator Award (North American Primary Care Research Group) 2016
- McConnachie – winner of the Royal College of General Practitioners Health Service Research Paper of the Year 2020
- Katikireddi: Littlejohn-Gairdner Medal (Faculty of Public Health) 2014; Thomas Chalmers Award (Cochrane Collaboration) 2014
- Simpson: Innovation Team Award (British Medical Journal) 2014
- Leyland: serves on the Executive Committee of the European Public Health Association (EUPHA), an umbrella organisation for public health associations and institutes in Europe, representing around 23,000 public health experts from 41 national associations
- Meier: President elect, Kettil Bruun Society for Social and Epidemiological Research on Alcohol
- Taylor: National Institute of Health Research (NIHR) Senior Investigator award, April 2015-March 2020
- Wu: member of UoA2 Assessment sub-panel (Public Health, Health Services and Primary Care) for Research Excellence Framework 2021.
- McIntosh: Clinical research paper of the year (2016)