Institution: The University of Manchester

Unit of Assessment: 2

a. Overview

The Unit of Assessment is comprised of 36 people in three sub-groups as follows:

- *Primary Care:* **Blakeman, Bower, Campbell, Checkland, Coleman, Coventry, Gask, Hann, Kontopantelis, Reeves, Rick, Sanders, Sibbald**.
- *Health Services:* **Birch, Davies, Dunn, Emsley, Fu, Gannon, McNamee, Payne, C Roberts, S Roberts, Sutton, Vail, Walshe, Whittaker**.
- *Public Health:* **Agius, Buchan, De Vocht, Hickey, Kapur, Muir, Povey, Prosperi, Webb**.

Our collective mission has been to (a) deliver high quality research to inform health systems development, supported by innovations in health research methodology; (b) disseminate research findings to promote evidence-based care; and (c) build research capacity through the provision of training and staff development, and by forging strategic alliances with other leading researchers nationally and internationally.

Headline achievements since RAE2008

Primary Care

We have realised the objectives set out in RAE2008 (UoA8) to develop and evaluate strategies to improve quality of care in general practice. Specifically, we showed that:

- Pay-for-performance in general practice improved clinical quality and reduced inequalities in care but also adversely affected some aspects of patient experience (**Kontopantelis** Lancet 372, 2008; **Campbell** Ann Fam Med 2010).
- Financial incentives may improve quality of care at the expense of small detrimental effects on aspects of care that are not incentivized. (**Kontopantelis**, BMJ 342, 2011).
- Removing quality indicators may lead to subsequent declines in the quality of care (**Campbell** BMJ 342, 2010).
- Excluding patients for whom quality targets are deemed inappropriate provides some protection from inappropriate treatment but may also lead to gaming (where exclusions are manipulated to enhance target achievement). (**Reeves** NEJM 359, 2008; **Sutton** Economic J 120, 2010).
- Initiatives which make use of patients' own strategies and resources for long term condition management (known as the WISE approach) offer greater potential for cost savings and improved well-being (**Blakeman** & **Gask** Implementation Sci 5, 2010) but large-scale implementation may not deliver the anticipated benefits (**Bower**, **Blakeman**, **Reeves** BMJ 2013).

We then applied that knowledge to develop:

- A framework for assessing when to remove a quality indicator from pay-for-performance schemes that was adopted by the National Institute for Health and Clinical Excellence. (**Reeves** BMJ 340, 2010).
- Systems for accrediting the quality of general practice care that have been adopted in the UK by the RCGP and in Europe by the European Practice Association. (**Campbell** BJGP 60, 2010).

In making these achievements we:

- Secured £20m income from new research awards, including:
  a) Five year, £10m contract from the NIHR for the *Greater Manchester Collaboration for Leadership in Applied Health Research and Care* (CLAHRC) with matched funding of £10m from NHS partners, 2008-13 (**Sibbald**).
  b) Two year, £0.9m contract from UK Government to evaluate *Care Planning in the Treatment of Long Term Conditions* (CAPITOL), 2010-12 (**Bower**).
  c) Five year, £6.3m contract from the NIHR for the *Greater Manchester Primary Care Patient Safety Translational Research Centre* (PSTRC), 2012-17 (*Esmail*, **Campbell**).
- Sustained high numbers of students completing PhDs: 27 in the period covered by REF2014 compared with 22 in the period covered by RAE2008.
- Supported a high number of Integrated Academic Training Programmes (10 Academic

Clinical Fellows and 3 Clinical Lecturers).
- Extended long-term international research collaborations with EQUIP (European Association for Quality in Family Medicine), winning the European Health Forum Gastein award for the European Practice Assessment accreditation scheme.
- Sustained and further developed international collaborations with the Australian National University, Universities of Melbourne, Heidelberg, Nijmegen, and the Karolinska Institute (see Section e).

Health Services

Building on achievements in primary care (above), we extended our research into the impact of financial incentives and targets to other health care sectors, where we showed that:
- Setting waiting time targets for hospital care can reduce waiting times without diverting activity from other less well-monitored aspects of care and without decreasing patient health on exit from hospital. (**Sutton** J Public Econ 94, 2010).
- Pay-for-performance in hospitals may reduce costs without detrimental impact on the quality of care. (**Sutton** N Engl J Med 367, 2012).

In partnership with other universities (Aberdeen, Liverpool, LSE) we:
- Developed the models which underpin resource allocation funding for the NHS in England and Scotland. (**Sutton** Health Economics 19, 2010).
- Developed and evaluated ways to improve primary mental health care provision for marginalised groups. (**Gask** Psychol Med 40, 2010).

In making these achievements, we:
- Secured £21m income from new research awards totalling £125m from a range of funding bodies, becoming one of the leading universities in England for research grants awarded by the MRC Research Methodology programme.
- Increased the number of students completing PhDs from 4 in the period covered by RAE2008 (UoA6, Biostatistics) to 13 in the period covered by REF2014.
- Established a new Centre for Health Economics, recruiting **Sutton** from Aberdeen as its leader and building a 30-strong academic team.
- Sustained and further developed leading international collaborations with the Universities of McMaster and Michigan. (see Section e)

Public Health

In the field of public health, we:
- Showed that reports about health inequalities, and policies to tackle them, made little difference to the major inequalities in England over forty years. (**Buchan** BMJ 342, 2011).
- Elucidated the risk factors underpinning suicide risk. (**Webb** Arch Gen Psych 68, 2011).
- Identified which aspects of mental health service provision are most effective in reducing suicide rates (**Kapur** Lancet 379, 2012).
- Showed that long-term exposure to air pollution (PM_{10} and NO_2) is associated with small but statistically significant reductions in lung volume growth in children of elementary-school age (**Agius** & **De Vocht** Environmental Health Perspectives 2013).

In making these achievements we:
- Secured £16m income from new research awards totalling £75m including:
  a) Five year, £4.3m contract from the MRC/RCUK to lead the North of England *Health eResearch Centre* (HeRC) with additional funding of £11m from industry and academia, 2013-18 (**Buchan**).
  b) Five year, £1.5m contract from the UK government (Health & Safety Executive) to sustain The Health and Occupation Research Network (THOR), 2012-2016 (**Agius**).
  c) Five year, £2.5m contract from the Northwest Development Agency to establish the *Northwest Centre for BioHealth Informatics*, 2008-12 (**Buchan**).
- Increased the number of students completing PhDs from 7 in the period covered by RAE2008 (UoA6, Occupational Health) to 39 in the period covered by REF2014.
- Further developed our web-based Masters in Public Health and Occupational Health, graduating 357 students since 2008 and securing funds from the University of Manchester and the Association of Commonwealth Universities to provide more than 30 scholarships for students from developing countries (Nigeria, Tanzania, Uganda and Rwanda).
- Secured one Integrated Academic Training Programme.

- Reinvigorated public health training and research through the establishment of 2 new lectureships in 2013, funded by the Northwest Deanery.
- Sustained and further developed leading international collaborations with the Universities of Aarhus, Amsterdam, and Karolinska. (see Section e).

b. Research strategy

The University of Manchester (UoM) aims to make a unique contribution to improving people's health and quality of life regionally, nationally and globally through research, education, and the translation of knowledge into practice. To achieve these goals, the Faculty of Medical and Human Sciences was reorganised in 2012 to create 6 institutes (Brain, Behaviour and Mental Health; Cancer Sciences; Cardiovascular Sciences; Human Development; Inflammation and Repair; Population Health) that sit within a matrix structure which promotes interdisciplinary research across the clinical Schools of: Medicine; Dentistry; Nursing, Midwifery and Social Work; Pharmacy; and Psychology. Research in primary care, health services and public health was brought together in the new Institute of Population Health (IPH).

IPH is comprised of 6 centres – Biostatistics, Epidemiology, Health Economics, Health Informatics, Imaging Sciences, and Primary Care – that collectively aim to improve people's health and reduce inequalities in health through high quality research and education. ***Primary Care*** research is carried out principally in the Centre for Primary Care which builds on the achievements of the *National Primary Care Research and Development Centre* to deliver world leading research into quality of care improvement in general practice. ***Health services*** research is concentrated in the Centre for Health Economics and Centre for Biostatistics which aim to increase efficiency and equity in the production of health, through the development and application of economic and statistical theories and techniques. ***Public Health*** research is carried out principally in the Centre for Epidemiology and Centre for Health Informatics which aim to elucidate the factors underpinning disease causation, progression, and response to treatment - particularly in the fields of occupational and mental health - and apply that knowledge to improve public health. All three fields of research - primary care, health services and public health - are supported by multi-disciplinary working across Centre boundaries and with 84 affiliated staff members drawn from other Institutes and Schools in the Faculty who bring expertise in medicine (notably psychiatry), dentistry, nursing, pharmacy and psychology. Strong links have been forged with the Manchester Business School that bring expertise in organisational and management science.

Forward research plans

We aim to improve people's health and reduce inequalities in health through:

a) Improved understanding of the factors underpinning disease causation, progression, and response to treatment.
b) Innovations in healthcare policy, organisation and delivery, including screening and prevention.
c) Better tailoring of health interventions to the needs of the individual, including innovations in personalised / stratified medicine.

First, we will increase knowledge about the factors which underpin disease causation, progression and response to treatment, developing and applying new methodological approaches to the analysis of unique databases which link clinical, biological, and environmental information about patients. Current research, conducted in partnership with the Institutes of Cancer and Inflammation and Repair, is focused on identifying latent classes of people who appear to have different risk factors or treatment outcomes attributable to discrete underlying mechanisms – so called 'endotypes' – in cancer (breast, prostate) and asthma. Findings from this research will be used to design and test screening systems that more accurately stratify patient populations by risk of disease occurrence, progression and response to treatment. Allied methodological work will advance the analytic and modelling techniques in epidemiology, biostatistics and informatics needed to explore complex data and draw valid inferences concerning both patterns of association and the direction and strength of causal influences.

Second, we will work with healthcare policy makers, providers and patients to develop and test ways to improve people's access to care, experience of care and quality of care with particular attention to the consequences for marginalised peoples. The role that new technologies play in

allowing patients and clinicians to meet and share information in virtual space, rather than face-to-face, forms an important part of this work:

- HeRC will continue the development of informatics tools to support healthcare planning and delivery. Existing applications include the Missed Opportunity Detector, developed by the CLAHRC, which uses linked electronic medical records to identify missed opportunities in the primary care management of patients who later experienced an unplanned admission to hospital for a major vascular event. Future applications will focus on patient safety at the interface between primary and secondary care (see PSTRC below). Innovations in tool development will include text-mining to analyse un-coded information in electronic medical records, and the development of professional social networks to test and improve tools.
- We will improve understanding of how patients and clinicians co-produce healthcare information, using mobile technologies to capture longitudinal data from patients; and use analyses of the data to support patient-clinician communication through HeRC. Allied qualitative research in the Centre for Primary Care will elucidate how patients integrate these new technologies into their everyday lives to support long term condition management, with the findings fed back to shape the next generation mobile technologies.
- The PSTRC will develop and test new systems to improve safety in primary care. Planned programmes focus on the development and evaluation of (a) systems for measuring and monitoring safety in primary care and at the interface with other healthcare sectors; (b) integrated Safety Management Systems to improve medication safety in primary care, particularly in relation to the care of patients with multiple morbidities; and (c) innovative approaches for educating primary care staff in safety improvement methods.
- We will continue research into the use of financial and non-financial incentives to improve quality of care through joint working across the Centres for Health Economics, Epidemiology, Informatics and Primary Care. Payment-by-results in hospital care and care for marginalised populations (notably drug misusers) is a key focus for this work. The use of incentives by NHS commissioners will be investigated through the Department of Health Policy Research Unit for Commissioning – jointly run by us and the London School for Hygiene and Tropical Medicine.

Third, we will mobilise knowledge from research to improve patient care regionally, nationally and internationally. This will be achieved primarily through the NIHR CLAHRC for Greater Manchester. The second generation CLAHRC, secured in 2013, will focus on improving cardiovascular disease management in primary and community care, building on the success of the first generation CLAHRC. The planned programmes of work are aligned with the forward objectives of the Greater Manchester Academic Health Science Network (GM AHSN) whose strategic plan we helped to develop; and with the forward objectives of the population health and cardiovascular domains of Manchester Academic Health Science Centre (MAHSC). The second generation CLAHRC will act as the primary platform for implementing knowledge from innovations in primary care developed through HeRC and PSTRC into the local and regional health economy.

Strategy for delivery

In order to realise our research ambitions, we will continue to invest heavily in:

1. Staff recruitment and development (See section c);
2. Research students (See section c);
3. Collaborations with leading researchers and research organisations (See section e).

c. People, including:

i. Staffing strategy and staff development

Our aim is to recruit, nurture and support the very best staff in disciplines relevant to research in primary care, health services and public health.

Since 2008 research in public health and health services has been strengthened through major UoM investment in health informatics (chair, lecturer, 2 studentships) in addition to the £15m external investment in HeRC (see above), leading to the creation of the new Centre for Health Informatics under the leadership of **Buchan**. UoM capacity and capability in health economics has been expanded under the leadership of **Sutton** who was recruited in 2008 to develop the new Centre for Health Economics, building a 30-strong team with recruitment of **Gannon** to a Readership in 2013. Research in public health was strengthened through the appointment of **Muir**

to a chair in epidemiology in 2012 and *Berzuin*i to a chair in biostatistics in 2013 to develop improved approaches to cancer screening and prevention through the use of genetic biomarkers. Recruitment is currently underway for 4 additional chairs - two in primary care and one each in biostatistics and economics – to support research in primary care and health services evaluation.

New recruits complete the "New Academics Programme" within their first 3 years which offers training and guidance in all major aspects of university work, including research, graduate student and research staff supervision, teaching and learning, knowledge transfer and the management of academic activities. The Faculty also provides a Headstart Leadership Development Programme to prepare the next generation of senior academic leaders; **Checkland** (primary care), **Payne** (health services) and **DeVocht** (public health) are current participants. During the assessment period, promotions to chair recognised research excellence in primary care (**Bower**, **Campbell**), health services evaluation (**Davies**, **C Roberts**) and suicide prevention (**Kapur**).

Through regularly scheduled performance review meetings, all researchers have the opportunity to discuss and plan their career. Joint appraisal of clinical staff by academic line-managers and clinical supervisors helps to align work objectives and delivery plans. Where additional training or support is required, this is organised by line-managers and its success reviewed at subsequent meetings. The development of a mentoring culture is supported through the award-winning Manchester Gold programme which is available to any staff member. Staff on this programme are matched to a more experienced colleague, who acts as their career mentor over a 9 month period. Institute staff can also secure mentors through an initiative led by the Manchester Medical School. During the assessment period, good mentoring helped **Checkland**, **Payne**, **Povey** and **Vail** gain promotion to reader, and **Kontopantelis**, **Sanders** and **Webb** gain promotion to senior lecturer/senior research fellow.

We work to ensure that research staff on fixed term contracts/fellowships are provided with advice and support to sustain and further develop their academic careers. This forms part of the performance and development review process, and the mentoring schemes described above. In addition, UoM runs Research Staff Conference that provides up-to-date information and networking opportunities to research staff from across the university, and has developed a Concordat Implementation Plan to support the career progression of research staff. This received the Human Resource Excellence in Research Award from the European Commission. After end of contract, staff are given an additional 3 months paid and 3 months unpaid support to find employment within UoM through the redeployment register. A Faculty Research Staff Handbook is distributed to ensure that all researchers are aware of the support available to them.

The staff survey conducted May 2013 obtained a 71% response rate and showed that 96% of Institute staff believe the University is a good place to work, 94% feel proud to work for us, and over 96% support our vision and goals.

Early career researchers

Early career researchers receive specific advice and support to help them plan the next stage of their career. Short term bridging fellowships are available from the Faculty as well as most of the Institute's Centres to help newly graduated PhD students prepare post-doctoral fellowship applications to external funders. Promising early career researchers are further supported by fellowships awarded through the NIHR School for Primary Care Research of which we are members. Since 2008, 17 such awards have been made to students working in public health, health services and primary care at Manchester. Outstanding fellowship holders may then be offered "tenured" positions within the Institute (e.g. **Emsley**, **Kontopantelis**).

These initiatives are supported by the wider university in a number of ways. The "An Academic Career" website, developed by the UoM Careers Service, is a comprehensive guide to working in higher education and was the winner of the Times Higher Education 2011 Award for Outstanding Support for Early Career Researchers. UoM additionally received the 2011 Scopus Fostering Young Researchers Institutional Award. This award was given by the US-UK Fulbright Commission and Elsevier, and was based on the university's number of highly-cited Early Career Researchers.

In addition, the Faculty has secured £3m for investment in the Fellowship Academy, launched in 2013, to increase the number, quality and successful acquisition of external fellowship awards. The

Academy provides funding and support for researchers to apply for prestigious career development awards offered by Research Councils, the NIHR and the Department of Health, including: (a) "pump-priming" fellowships of 1 year to develop a doctoral fellowship application and (b) "stepping stones" fellowships of 2-3 years to develop a postdoctoral fellowship application. 4 of our students have held stepping stones awards. Integrated Academic Training Programmes (14 since 2008) were secured to support the academic progression of clinicians planning careers in research/teaching.

Equality and Diversity

UoM is committed to the advancement of equality in employment and career development for its staff. Equality data monitoring and action planning is therefore embedded into its annual performance reviews. This includes monitoring and identifying actions in relation to recruitment, current staff profile and promotion.

UoM is actively involved in the Athena SWAN charter that promotes the advancement of women in Science and Engineering and currently holds a Bronze award. The Institute applied for and was awarded a Bronze award in 2013, and aims to achieve a Silver award by 2015. **Sibbald**, as Director of IPH, acts a role model and mentor for aspiring female academics in the Institute.

UoM has been awarded the "Two Ticks" disability symbol. This is a guaranteed interview scheme for disabled job applicants who meet the essential job criteria. The university has a dedicated support service for disabled staff.

UoM is one of a small group of institutions that is part of the Equality Challenge Unit's Black and Minority Ethnic (BME) Systemic Change Pilot and is undertaking career development initiatives in relation to recruitment and mentoring. *Esmail* in the Centre for Primary Care provides leadership and direction on BME issues within the Institute and beyond as a University Associate Vice President for Equality and Diversity.

ii. Research students

Research students are vital to the culture and success of our institution, and we aim to give them the best possible education by aligning teaching and training to our areas of research strength. 26 PhD students are currently registered in primary care (Centre for Primary Care); 17 in health services research (associated with the Centres for Biostatistics and Health Economics) and 28 in public health (associated with the Centres for Epidemiology and Health Informatics). PhD completion rates within 5 years average 83%; submission rates within 4 years average 77%. Since 2008, 50 PhDs have been awarded.

Funding for studentships has been secured from: the (former) National Centre for Co-ordinating Research Capacity Development; National Primary Care Research and Development Centre (through its contract with the Department of Health); ESRC; MRC; NIHR; and Health Foundation. Three of our students hold a President's Doctoral Scholar Award. This is a flagship funding scheme which launched in October 2011, and offers over 100 elite studentships per year, representing an investment of £2.5m over four years.

The Manchester Doctoral College oversees all aspects of UoM's doctoral training and researcher development, integrating postgraduate research support with research career development at an institutional level. There is postgraduate student representative in each Centre of the Institute and a forum in which students meet regularly to discuss issues of mutual interest. Their views/concerns are fed back to the Institute Senior Management Team through the Institute's Director for Postgraduate Education (**Povey**) and prompt action is taken to meet student needs. Progression and support for postgraduate researchers is provided through eProg, an online system which maps each student's training programme, flags key assessment milestones and allows continual supervisory feedback. The system has been commercialised and since contracted to three further UK HEIs. Effective supervision forms the basis of our 'New Supervisor' courses which introduce supervisory policy and good practice in recruitment, managing student-supervisor relationships and supporting career development. All new supervisors act as a co-supervisor alongside an experienced academic prior to holding primary supervisory responsibility. The Researcher Development Framework is promoted as a skills audit to help research students to map out their future development goals.

The UoM Careers Service is widely recognised as one of the best in the UK and is consistently voted best in the country by both students and employers. Postgraduate support is a central component of their work. The annual "Pathways" event supports delegates in career choices, exploring future plans and discovering the breadth of opportunities available to them through open discussion with PhD graduates from a wide range of job sectors.

Postgraduate Teaching

We invest in postgraduate taught courses as a means of (a) preparing students for PhD study; (b) updating the knowledge and skills of our research staff; and (c) supporting our clinical staff seeking professional reaccreditation.

The Institute provides two Masters programmes that use the latest methods in distributed learning to meet the needs of health professionals worldwide. The Masters courses in Occupational Health (Medicine and Hygiene) are delivered through blended learning, while the Masters in Public Health is taught entirely by distance learning. Teaching online is enhanced by captured lectures, audio and video files, as well as remote 'real time' face to face contact with students. Both programmes offer students a wide range of awards - Masters programmes, postgraduate diplomas, certificates, single units - that reflect the varied needs of our target groups. Funding from the UoM 'Equity and Merit' scheme and the Association of Commonwealth Universities is available to support the most able students from Nigeria (10), Tanzania (5), Uganda (10 current, 5 completed) and Rwanda (2). Since 2009, Masters degrees have been completed by 357 students; postgraduate diplomas by 151 students; certificates by 64 students; and single units completed by 276 students.

d. Income, infrastructure and facilities

Income

We generated £57m in income from research contracts awarded in the period 2008-2013. Major prestigious awards are highlighted in Section a (above); total income is summarised here.

	Primary Care	Health Services	Public Health
EU	1,387,846	1,120,867	2,165,839
Research Councils	1,086,958	3,648,084	4,735,870
Government, NHS, NIHR	17,323,689	15,448,933	6,767,307
Other	246,743	607,942	2,338,155
Total	20,045,236	20,825,826	16,007,171

Infrastructure and Facilities

Most staff in this unit of assessment (34 of 36 people) are co-located in excellent accommodation in the Jean McFarlane Building and the adjoining Williamson Building. Opened in 2008, the Jean McFarlane Building houses the Centres for Biostatistics, Health Economics and Health Informatics; it has a state-of-the-art infrastructure for desk-based research, including seminar rooms able to accommodate conferences of up to 100 people. The Centre for Primary Care enjoys high quality accommodation in the adjacent Williamson Building; this was refurbished in 2011/12 to refresh the décor, create additional office space for the expanding research team and install modern double-glazing. The UoM has approved plans for redevelopment of the Stopford Building that will create the opportunity to co-locate staff in the Centre for Epidemiology in a high quality desk-based research suite. The MRC has provided £1m capital investment to refurbish the adjacent Vaughan Building to accommodate the growing Centre for Health Informatics.

IPH has unique national, longitudinal databases that underpin its research in public health and health services, including: (a) The Health and Occupation Research Network (THOR): a network of GPs and specialist physicians which reports on occupational health problems contributing to official statistics published by the Health and Safety Executive; (b) The National Drug Evidence Centre (NDEC): a national database linking clinical and criminal justice information on substance misusers, contributing to official statistics published by the Department of Health; (c) The Trauma Audit Research Network (TARN): NHS official dataset on patients presenting to English hospitals with major trauma; (d) National GP Worklife Surveys: capturing information from 1998 onwards on GP job satisfaction and intentions to quit for the Department of Health; and (e) the Salford Integrated Record (SIR) system which has delivered real-time medical record linkage between

general practice and hospitals for 250,000 people for more than a decade with pseudo-anonymous information extracted to support informatics research. IPH is also home to the Centre for Integrated Genomic Medical Research: a recognised centre for biobanking, providing the infrastructure to support research on diseases with a complex gene/environment basis.

IPH staff have access to the UoM Library, which is a designated National Research Library, offering a range of tailored products and services that directly underpin research in UoM. This includes provision of research-conducive facilities across campus with a range of IT facilities, providing access to an unparalleled range of electronic resources including over 40,000 e-journals and a complete range of research databases. Through Manchester e-Scholar it offers researchers a premium resource to deposit and disseminate their research outputs. The Library also delivers a range of bespoke training services in all areas of the research process and launched a Research Data Management policy and service in autumn 2013.

Our research governance procedures are governed by our Code of Good Research Conduct available at http://documents.manchester.ac.uk/display.aspx?DocID=2804.

e. Collaboration or contribution to the discipline or research base

We seek out collaborators in order to complement or strengthen the knowledge and skills of our own team - and our collaborators take a similar view in working with us.

Strategic collaborations: national and local

Since 2008, we have held collaborative research grants, yielding joint publications, with the Universities of Brighton; Bristol; Cambridge; Cardiff; DeMontford; Exeter; Glasgow; Imperial College London; Kent; Kings College Institute of Psychiatry; London School of Hygiene and Tropical Medicine; Nottingham; Oxford; Sheffield; Strathclyde and York.

Within UoM we have held grants with Psychiatry, Pharmacy, Dentistry, Nursing and Social Work, and the Manchester Business School. **Sibbald** founded and chaired the UoM Institute of Health Sciences (IHS) which is a networked organisation bringing health services researchers together from across the university and local NHS partners. Within the IHS we led the development of interdisciplinary research networks for Addictions, Primary Care Mental Health, Health Inequalities, Health and Work, and Patient Safety.

Strategic collaborations: international

Since 2008, we have held collaborative research grants, yielding joint publications with the following organisations overseas:

- Australia: Australian National University, Australian Primary Health Care Research Institute (with R Parker); Curtin University, School of Economics and Finance (with M Harris); University of Melbourne, Dept Primary Care (with C Pearce).
- Denmark: University of Aarhus, National Centre for Integrated Register-based Research (with PB Mortensen).
- Germany: University of Heidelberg, Dept of General Practice and Health Services Research (with J Szecenyi).
- Ireland: National University of Ireland (Galway), School of Psychology (with B McGuire).
- Netherlands: University of Nijmegen, Centre for Quality of Care Research (with R Grol, J Brasspenning, M Laurent and M Wensing); University of Amsterdam, Department of Clinical Psychology (with P Cuijpers).
- Sweden: Karolinska Institute, Dept Medical Epidemiology and Biostatistics (with P Lichtenstein); Centre for Pharmacoepidemiology (with B Godman, L Gustafsoon, B Wettermark and R Malstrom).
- USA: University of Michigan, Department of Pediatrics and Communicable Diseases
- (with L Prosser); Harvard University, Division of Clinical Informatics (with C Safran); University of Washington, Department of Biomedical Informatics (with T Payne).

Strategic appointments of part time (20%) overseas chairs were made to assist in the development of new programmes or fields of research. Examples include:

- Primary Care: Barbara Starfield was recruited from Johns Hopkins (until 2010) to develop our multimorbidity research in the NIHR School for Primary Care Research.

- Health Services: **Birch** was recruited from McMaster University Canada to support development of our Centre for Health Economics.

Measures of esteem

People in this unit of assessment have collectively secured 26 prizes/awards/fellowships; given 178 invited, all expenses paid lectures; served on 83 national/international committees; and worked on 33 editorial boards of scientific journals.

Indicators of esteem:

	Prizes, awards & fellowships	Invited lectures	National/international committees	Editorial Boards
Primary Care	6	34	16	9
Health Services	7	86	39	16
Public Health	13	58	28	8

Selected examples:

Campbell Senior staff, Primary care	Member National Commissioning Board- Patient Safety for Primary Care from 2013; Member RCGP Primary Medical Care Provider Accreditation Committee 2008-11; Commissioning Editor General Practice: British Medical Bulletin; Visiting Chair University of Melbourne 2012-17; Visiting Chair Australian National University 2009-11; 13 invited talks at international meetings in Sweden, Switzerland, Australia, USA, Germany, France.
Kontopantelis Junior staff, Primary care	NIHR School of Primary Care Research Training Fellowship 2010-13; Plenary talk at NIHR School of Primary Care Research Showcase, London 2012; Member editorial board, Statistical Methods in Medical Research; Honorary Research Fellow University Hospital of Erlangen, Germany.
Walshe Senior staff Health services	Chair, Scientific Advisory Committee for European Health Management Association (from 2008); Specialist advisor to House of Commons Health Select Committee inquiries on NHS reforms (2011,2013); Member of scientific committee for HSR Europe (2010-2012); Chair of commissioning board and associate programme director for NIHR Health Services and Delivery research programme (from 2012) and before that for the NIHR Service Delivery and Organisation research programme (2008-2011); Editor Health Services Management Research (from 2012); Member of editorial board of International Journal of Quality in Health Care (from 2008), Quality in Primary Care (from 2006).
Hickey Junior staff Health services	Society of Environmental Toxicology and Chemistry Young Scientist Award 2009; Member National Adult Cardiac Surgery Audit Project Broad and Research Group (from 2012); Member Informatics and IT working group at the National Institute of Cardiovascular Outcomes Research; Assistant Editor: European Journal Cardiothoracic Surgery (from 2012), Interactive Cardiovascular and Thoracic Surgery (from 2012); Honorary Senior Lecturer, Institute of Cardiovascular Science, UCL (from 2013).
Agius Senior staff Public health	Chair management committee, Monitoring Trends in Occupational Diseases (MODERNET EU), a 20 nation consortium; Member of Board Faculty of Occupational Medicine RCP; Member Conseil Scientifique du Réseau National de Vigilance et de Prévention des Pathologies Professionnelles, France; Associate Editor Occupational and Environmental Medicine; 13 invited talks at international meetings in Netherlands, Germany, Spain, Italy.
Prosperi Junior staff Public health	Prizes: 2nd place in the Geneious' "iEvoBio" challenge for the best bioinformatics plugin (http://www.geneious.com), online challenge, 2012; and Computerworld Honors Awards 2008 given to the EuResist Foundation, where **Prosperi** developed the core application, Washington, USA, 2009. Merit scholarship: specialty course in Phylogenetics and Bioinformatics, University of Milan, 2009. Adjunct professor, doctorate school in Biology and Clinic of Tropical and Infectious Diseases, Catholic University of the Sacred Heart, Rome (2010). Three invited talks at international meetings in Argentina, USA and Serbia 2013.