

<p>Institution: University of Warwick & Liverpool School of Tropical Medicine</p>
<p>Unit of Assessment: A2 – Public Health, Health Services and Primary Care</p>
<p>a. Overview: Since the last RAE we have developed important new strategic alliances, doubled our research income, doubled PGR completions, and are publishing increasingly excellent research.</p> <p><i>The University of Warwick (UoW)/Liverpool School of Tropical Medicine (LSTM) partnership</i> This is a joint submission between the UoW and the LSTM. The two organisations formed a strategic partnership that became fully active in 2012 to support the development of a long-term collaborative research programme. The partnership’s overarching aim is to facilitate the delivery of high quality applied health research in resource-poor environments. It draws upon the LSTM’s experience of work in such environments (principally sub-Saharan Africa) and UoW’s expertise in health sciences and related disciplines. The LSTM was founded in 1898, and awarded Higher Education Institution (HEI) status on 19/07/13. Out of our submission of 34.77 FTE, 29.77FTE are UoW appointments, 3.0 FTE are LSTM appointments and 2.0 FTE are joint UoW/LSTM appointments. Staff with joint appointments are full members of both HEIs dividing their time between Warwick, Liverpool, and overseas collaborations as required.</p> <p><i>Warwick Medical School (WMS)</i> WMS became an independent medical school in 2007, and made its first RAE submission in 2007. Staff included in this submission are largely organised into two Divisions; Mental Health & Wellbeing, and Health Sciences. Within the University there are important links with Warwick Business School (WBS), the Departments of Economics, Maths, Psychology, Statistics, the School of Life Sciences, and to WMG (a joint Institute of Digital Healthcare). More broadly across the regional health economy during this assessment period we have helped establish the West Midlands (WM) Academic Health Sciences Network (WM-AHSN) and, with colleagues from WBS, have made a substantial contribution to the new WM Collaboration for Leadership in Applied Health Research and Care (WM-CLARHC). These initiatives share common themes around mental health, care of long-term conditions (e.g. musculoskeletal disorders, obesity, and diabetes), and digital technology. We have established the solid platform needed to deliver the world class research that will ensure the translation of original discovery in biological and social sciences into clinical and public health practice; including public mental health.</p> <p><i>UoW/LSTM Centre for Applied Health Research & Delivery (CAHRD)</i> The work of the UoW/LSTM partnership is focused around the work of the Centre for Applied Health Research & Delivery (CAHRD). Whilst described here within Unit of Assessment (UoA) 2, the work of CAHRD is a cross & inter-campus activity. The CAHRD includes exciting inter-disciplinary academic collaborations between the LSTM and academics from across the UoW, including Economics, Engineering, Mathematics, School of Life Sciences, and Warwick Business School.</p> <p>Overall aim Our joint overall aim is to deliver high quality, applied health services research, which informs and changes policy and practice, locally, nationally and internationally. Our particular objectives during this REF cycle have been to:</p> <ul style="list-style-type: none"> • consolidate and strengthen our substantial portfolio of applied health services research; • make a significant contribution to improving health in a clinical and public health context, and • make the strategic changes needed to underpin and secure our future development. <p>Whilst many individual academics have an area of clinical focus our overall research effort is organised around six main methodological themes; Clinical Trials, Evidence Synthesis, Statistics, Epidemiology, Health Economics, and Social Science.</p>
<p>b. Research strategy</p> <p>Overview Our overarching aim is to deliver high quality research to inform clinical practice and policy. This is underpinned by the application and development of excellent and innovative methodologies. Major achievements during this REF cycle include demonstrating that:</p> <ul style="list-style-type: none"> • hip resurfacing is no better than arthroplasty [Costa], • same-day LED fluorescent microscopy can efficiently & equitably diagnose (TB) [Cuevas], • early interventions only have a short term benefit for whiplash [Gates], • salbutamol is dangerous in acute respiratory distress syndrome [Perkins],

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- the importance of bridging the gap between child and adult mental health services [**Singh**],
- the risk of catching sleeping sickness varies according to house design [**Torr**],
- exercise is ineffective for depression in care home residents [**Underwood**],
- CBT is effective as a treatment for low back pain [**Underwood**],
- routine antibiotic use is ineffective for pre-term birth in high risk populations [**Van den Broek**].

Alongside our quantitative work we have a programme of qualitative work that adds to knowledge and enhances the design and interpretation of the quantitative work. During 2013 we incorporated the UoW School of Health and Social Studies into WMS, strengthening our expertise in this area for the coming assessment period.

The combination of key new appointments at Warwick [**Birchwood, Clarke, Petrou, Torr, Underwood, Waugh**] and the CAHRD initiative will enable us to augment our existing strategy to ensure leadership in both applied research of relevance to the NHS, and in global health research. We deliver research that addresses areas of clear need and maximises opportunities provided by national and international priorities; whilst not excluding work in innovative new areas. To achieve this we provide an environment that promotes a vibrant and active research culture. We strive to ensure we work in a supportive, but academically challenging, environment, e.g. using peer discussion and work in progress seminars to support and challenge our staff. Cross-campus working between WMS, Economics, Engineering, Maths, Statistics, WBS, and WMG is key to both our UK and International (CAHRD) research. Appropriate training and development are encouraged and provided for all levels of staff, and we have been granted a **Silver Athena Swan** award. We have an active programme, including joint [LSTM / UoW](#), activities such as seminars and discussion groups in medical statistics, trials, epidemiological and a range of other methods, as well as clinical topics, which support our inter-disciplinary activities.

Our overall strategy is informed by the UoW's [Vision 2015](#), and its Global Research Priorities (GRP); specifically, 'Science and Technology for Health'. Warwick GRPs respond to global challenges by bringing together research expertise across faculties and departments to focus on key areas of international significance. This provides a focus through which the University provides research support and attracts potential commercial partners. The main themes of the Science and Technology for Health GRP are; healthy ageing, early diagnosis and treatment, and improving health in resource poor environments. This links with CAHRD's strategic foci on translational research and capacity development in Low and Middle Income Countries. The GRP was described as an exemplar and case study for effective inter-disciplinary collaboration by EPSRC in its report to BIS.

Strategic developments

During the assessment period, we have made strategic investments to develop the research environment; Most notably establish a health economics group, the CAHRD and the WM-CLARHC. In addition to the appointment of **Winstanley** (from Liverpool) as Dean of Medicine, we have made new professorial appointments in Youth Mental Health [**Birchwood**], Health Economics [**Petrou**], Neglected Tropical Diseases [**Torr**], Primary Care [**Underwood**], Public Health [**Waugh**], and awarded personal chairs to five existing staff [**Clarke, Costa, Gates, Griffiths, Perkins**].

We have taken a strategic decision to invest in health economics and in addition to a professor of health economics [**Petrou**] we have appointed two assistant professors [**Madan & Mistry**]. An additional professor of health economics [Niessen] with a joint UoW/LSTM post will join us after the census date. The health economics group has now grown to seven research staff and three PhD students, establishing them as a new centre of excellence in economic evaluation.

Centre for Applied Health Research & Delivery

An Institutional Strategic Support Fund award from the Wellcome Trust and new investment from the UoW and the LSTM has enabled the creation of five new joint posts in the CAHRD: two of these appointees [**Torr & Uthman**] are part of this submission, two appointees [Niessen & Lilford] will join us after the census date. These posts, and other joint posts, will support the development of the CAHRD to deliver high quality multidisciplinary health sciences research in resource poor environments. At Warwick this enables multi-disciplinary collaborations in support of one the UoW global research priorities (GRPs); improving health care in low-income environments. Included in this submission from the CARHD are **Cuevas, Garner, Kandala, Torr, Uthman, Van den Broek** and **Winstanley**. We are particularly excited that the new institutional-level collaboration between UoW and the LSTM allows us to exploit complementary areas of research skills, and use these in

collaboration with partners in low and middle-income countries.

Addressing national and international priorities

At the UoW, a substantial proportion of our work is funded through the NIHR, which is clearly related to UK priorities. The work of Warwick Evidence is driven by the needs of NICE for high quality technology assessment and of evidence. All the phase III cancer trials at Warwick have been designed and developed with members of the NIHR Cancer Clinical Studies Groups and are all adopted on the NIHR NCRI trials portfolio. The importance of the question and design of the study undergo rigorous internal peer review before we submit applications for grant funding. Over recent years we have been extremely successful in our aim of generating project grant funding, as evidenced by our rapidly increasing research income. We are actively extending our funding base, which now includes two Wellcome Clinical Fellowships (in public health and clinical ethics) in excess of £1m industry funding, and four substantial EU FP7 projects [**Seers, Singh, Stewart-Brown, Stallard**]

During this assessment period Warwick CTU have been awarded 20 grants for multi-centre trials with a value of over £25M now in progress, with a target recruitment of over 35,000 individual participants, most of which will report in the next five years.

Grant income for CAHRD/Public Health at the LSTM over the assessment period is >£30M. The main part of this funding is from the Department for International Development, including major awards to [van den Broek](#) and [Garner](#) totalling over £34M.

The success of this strategy is demonstrated by the international importance of our multi-centre trials with over 20 publications in the best journals, e.g. BMJ, Lancet, JAMA, & NEJM.

Our researchers work flexibly across our six main methodological themes.

1. *Clinical Trials* [**Birchwood, Cuevas, Costa, Dale, Dunn, Gates, Griffiths, Hutton, Lall, Parsons, Perkins, Petrou, Seers, Stallard, Stewart-Brown, Underwood, Van den Broek, Waugh, Winstanley**]
2. *Evidence Synthesis*. [**Bruce, Clarke, Cuevas, Garner, Gates, Miller, Parsons, Rees, Royle, Singh, Sutcliffe, Uthmann, Waugh**]
3. *Statistics* [**Dunn, Gates, Hutton, Kandala, Lall, Palmer, Parsons, Stallard**]
4. *Epidemiology* [**Birchwood, Kandala, Miller, Raymond, Sidebotham, Stranges, Torr, Van den Broek, Weich, Winsper**]
5. *Health Economics* [**Madan, Mistry, Petrou**]
6. *Social Science* [**Dale, Griffiths, Singh, Underwood**]

There is strong complementarity in our approach to research, with cross-group working encouraged to support a multi-method approach to tackling research problems.

We are actively building platforms for future research beyond the lifetime of current projects including for example, work on national joint replacement registers, establishing a national registry of hospital cardiac arrest survivors, a repository of individual patient data from back pain trials, multi-country consensus on the essentials of emergency obstetric care, and multi-country laboratory and health system capacity for the implementation research on new TB diagnostics.

c. People:

i. Staffing strategy and staff development

Overview

Both WMS and the LSTM are dynamic and entrepreneurial and provide an inclusive environment that values and supports all members of staff and students. To achieve our overall aim of delivering high quality research that subsequently informs clinical and public health practice and policy we have built, and continue to develop multidisciplinary teams, which engage across both campuses.

Career development

WMS is committed to ensuring that all staff, including full-time, part-time and fixed term staff, participate in a review of their performance and development needs through the Annual Review process offered across the University. Staff on Fixed Term Contracts also receive regular career review meetings. Each member of staff has an individual learning account allowing access to a tailored training portfolio. This includes both specific scientific courses and also more generic skills such as foreign language training.

Academic staff are assigned mentors; annual appraisals identify personal and professional development goals. Staff supervising research students attend an Introduction to Research Supervision workshop. The Postgraduate Certificate in Academic and Professional Practice has

been created to recognise, support and develop the varied roles of new academic staff with a specific module focused on research activities. The UoW provides a portfolio of management development activities including: The Warwick Leadership Programme; Warwick Mentoring Scheme; Development of Mentoring and Coaching Skills; Career Development Workshop; and workshops on topics such as Leading Teams, Time Management, and Handling Difficult Conversations. We provide opportunities for prolonged study leave (one term to one year) for academic staff to develop their research ideas. During this assessment period, 40 periods of study leave have been approved for 22 members of staff.

The LSTM runs similar processes with published guidelines for induction, appraisal and promotion. Training is supported through budgets held by the Management and Research Committees, coordinated through the annual appraisal system. Formal mentoring schemes are in place to support all levels of staff, particularly junior researchers preparing their first grant applications as PI. Supernumerary tenure-track appointments are available for early career researchers based on meeting a range of targets based on excellence in research and teaching.

Researcher development

This is a key part of both our long-term strategies. A key aspect of the annual review is identifying individual researcher development needs. The UoW has an extensive programme of in-house training. Where appropriate, research staff are encouraged to attend modules from our portfolio of masters degrees.

The UoW **Learning and Development Centre** (LDC) supports researcher development, identifying and developing a comprehensive training programme targeted at research-active staff needs. The LDC offers one-to-one support and a variety of workshops on such topics as managing and leading research teams, core personal effectiveness skills, teaching and learning, research project management, academic writing, statistics and data analysis, technologies for research, enterprise and entrepreneurship, and Equality and Diversity. Tailored training in public engagement and impact is provided by both a Public Engagement and Policy Advisor (and Public Engagement Network) and Research Impact Officers. The UoW [Institute of Advanced Study](#) offers personal development support & targeted fellowship programmes for early career researchers.

We have a ring-fenced budget to support external training and conference attendance for research and administrative staff. During the 2012/13 academic year, around 20 early career research staff were helped in this way. We have an agreed strategy for developing research staff, which includes ring-fenced time to develop their own ideas with a view to increase publications and facilitating applications for a personal fellowship. In our annual promotion round high performing research staff are encouraged to apply for promotion. WMS has recently taken a strategic decision to increase our investment in career track assistant professor posts; with automatic promotion to associate professor on completion of probation. This policy will underpin the long-term sustainability of our research. Since early 2012 we have made four such appointments; contrasting with just one in the preceding five years.

The LSTM runs similar researcher development programmes, including mentorship, skills workshops, and annual appraisals. The LSTM has run an active tenure-track system since 2007 that provides additional support (enhanced membership and pro-active reviews) for excellent researchers over a 3.5 year period. There are currently seven people in this programme.

WMS has a scholarship programme to pay PhD fees for staff, and subsidises the fees for taught part-time masters level programmes. Masters programmes provide foundation academic training for new academic fellows. We include early research staff in key decision-making bodies, e.g. the divisional strategy groups and the WMS research strategy group. We have a good record of externally funded fellowships and a programme supporting independent grant applications.

Job security

We are very conscious of the insecurity inherent of research posts that are reliant of continued research grant funding. We have an established policy to agree continuing support for staff coming to the end of personal fellowships. WMS underwrites an academic post, subject to meeting agreed performance standards, for all recipients of externally funded national fellowships (such as NIHR Career Scientist Awards) to nurture the academic development of our faculty. The contracts of fixed term research staff in UoW and the LSTM are reviewed regularly to ensure that wherever appropriate open-ended contracts are offered. Our rate of growth over recent years has provided a good level of job security for our research staff.

Equality of opportunity

The UoW and the LSTM have been implementing the principles of the Concordat agreement between funders and employers of researchers in the UK 2009. The UoW has recently been awarded the HR Excellence in Research Award. Equality and diversity is a key part of our strategy. The UoW **Single Equality Scheme** and associated **Equality Objectives** explicitly cover all research full-time, part-time and fixed term staff. The UoW achieved an institutional **Athena SWAN Silver Award** in 2013. The Athena Action Plan has been amalgamated into the University's Equality objectives. WMS is the only English Medical School with an **Athena SWAN Silver Award** (April 2013). WMS are striving to be eligible for a Gold award in 2015. The LSTM joined the Athena Swan Charter in 2013, just 12 days after achieving HEI status, and have already submitted an application for a Bronze award.

The Warwick self-assessment team, and the **Welfare Strategy Group** (WSG, chaired by the Dean), embraces the wider departmental working, environment and culture. Members come from all areas of WMS with a wealth of differing experiences in staff and student welfare. The co-chair of the University-wide Athena SWAN Group sits on our WSG to advise on University and national matters. The WSG strives to take a strategic, rather than responsive, approach to achieving and being perceived to have achieved fair working practices across an organisation.

The LSTM, as a relatively small HEI, has equality and diversity represented at the highest levels of management with extensive senior academic representation on our Equal Opportunities Committee and Athena SWAN Group. Equality is also a major research theme at the LSTM. We run large programmes in gender equality and health in many of the countries in which we operate.

Research Staff Forum

At Warwick the Research Staff Forum has a networking function and provides a focus for gathering Research Staff views on issues such as induction, training and development opportunities etc. The forum has an important role in shaping the University's policy and practice so that they improve the experience of being a researcher at Warwick. In Liverpool this activity is performed by the Departments and is overseen by the Research Committee, which reports to the highest decision-making group in the School. Our (WMS) vibrant early career researcher group meets monthly to discuss WMS, University and external research opportunities and challenges. This discussion forum of non-clinical and clinical scientists facilitates the sharing of ideas, experience and knowledge across disciplines, encouraging post-doctoral researchers to stay at WMS.

Clinical academic appointments and training

Joint (University & NHS) Academic Strategy Committees agree new clinical academic appointments and developments in partnership with WMS. Joint appraisals are carried out for all NHS/WMS appointments. WMS was awarded 11 'Walport' Fellowships and seven clinical lecturer posts (public health, orthopaedics, reproduction). We match nationally funded clinical lectureships to further build local capacity to develop early career clinical researchers.

We have an integrated approach to providing clinical and international public health academic training. The LSTM's Wellcome Trust Centre has a strong track record of securing funding for PhD Clinical and Training Fellowships, principally through the Malawi-Liverpool-Wellcome programme in Blantyre, Malawi. Warwick and LSTM Fellows, with joint supervision and collaboration from LSTM and Warwick senior academics, have been established since 2010. The posts are focussed on our key areas of interest: Public health and orthopaedics – both shortage specialities. Nearly all (80%) of our academic clinical fellows have achieved funding for PhD fellowships. A particular feature of our work is that we are very active in studies of rehabilitation involving non-medical clinical academics (e.g. nurses, physiotherapists & health psychologists). The support programme for these clinical academics is integrated with that of the medical clinical academics. In this assessment period eight of our non-medical clinical research staff have completed PhDs.

(ii) Research students

Our PhD programmes provide a stimulating environment for postgraduate researchers to meet and interact with other students in an interdisciplinary setting and to develop core research skills. Staff student liaison committees foster a two-way exchange of ideas.

Students have at least two supervisors (at least one of whom holds a substantive contract and at least one of whom has previous experience of supervising a research degree). All supervisors attend mandatory training every three years. Student progress is monitored continuously and rigorously with annual progress reports. The UoW offers training and personal development programmes to support research students at all stages of their studies. This includes sessions on

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academic writing, oral communication, networking, team working and teaching skills, consistent with Research Council requirements. WMS runs an active programme for postgraduate students and staff including a regular seminar series with local, national and international speakers, and focused training sessions designed to develop research skills. There is an annual research day at which students present their work (posters, oral presentations) to peers and academic staff. WMS students have access to the extensive Masters training programmes which provide opportunities for tailored training specific to the demands of their chosen PhD, including modules on research methods, critical appraisal and medical statistics. Students also participate in our Research Team Leaders Programme and general research / academic skills training.

WMS supports staff and student development at every level and actively backs promising young researchers who are seeking to develop as the next generation of academics through NIHR Lectureship Programmes.

Our PhD students are part of two cross-campus doctoral training centres (DTCs); the complexity science DTC and in the ESRC doctoral training centre there is a 'Health and Social Care' pathway.

Stallard leads a cross-campus (with Life Sciences, Mathematics, Statistics, and Engineering), MRC funded, Capacity-building Studentships programme in Mathematics and Statistics that funds 4 four-year studentships. We are setting up a DTC in Applied Health Research systematising and formalising our PhD programme across the Division of Health Sciences, pump primed by UoW funding. Students in the DTC will be supervised and work closely with those working in the CLAHRC and the AHSN. The success our strategy is evidenced by more than doubling our doctoral completions at WMS from 2008/08 (9.0) to 2012/13 (22.4).

At the LSTM we have 77 PhD students registered with the University of Liverpool, as we do not yet have degree awarding powers. PhD students are embedded within our research programmes, providing a major part of our delivery as well as receiving training in a broad range of skills. All students have at least two supervisors and receive regular reviews monitored through a web-based records system. Appraisals by an 'external' academic Advisory Committee are carried out on an annual basis and provide scientific support as well as more general mentorship. Students present their work at an Annual Research Day.

Postgraduate Certificate in Transferable Skills in Science

The Postgraduate Certificate in Transferable Skills in Science helps PhD students in the sciences be successful doctoral researchers and become successful post-doctoral researchers.

It helps graduates to use the skills they master during their PhD in other areas of work and improve employability following completion of their studies. The University pays the registration fees for all Science and Medicine students.

d. Income, infrastructure and facilities: We are housed in modern premises either at the Gibbet Hill Campus or the LSTM. All full time staff, and nearly all part time staff have personal office space and we are well provided with hot-desking space for students, part time staff and clinical and scientific staff whose primary base is off campus. All staff and PhD students have access to full IT services. Where appropriate we share specialist facilities with others in the UoW; for example our statisticians using powerful computing services elsewhere in the University for simulations or the orthopaedic surgeons using stress-testing equipment housed in the engineering department. All facilities at the LSTM have been extensively improved over the last five years with a £2.5M refurbishment of areas used by Public Health staff and a £8M programme to create a new centre with a major focus on Public Health research that will be completed in October 2014.

Key infrastructure support has come from competitively attained Department of Health funding such as: (a) ~£5m a Technology Assessment Review TAR team (Warwick Evidence); (b) ~£3m to host the west Midland South Primary Care Research Network (local recruitment of patients to primary care trials has grown by 2.9-fold over 5 years to >8,600 patients in 2012, with over 50 practices in the area actively participating in studies); (c) partnership in the West Midlands Research Design Service; the award for this was renewed in 2013 and is worth £300K annually (£1.49m total). The LSTM Cochrane Infectious Disease Group receives £870K annually from the Department for International Development (DFID). Warwick CTU was first established in 2005 and has grown rapidly since then, its grant income increasing by 23% per annum for the last four years, with an income in 2012/13 of >£5M. It has £400,000 per annum in NIHR pump priming. Our involvement in the West Midlands AHSN and CLAHRC will provide more than £2m of infrastructure support for applied health services research annually.

We are committed to continued development of the physical environment, and have made major

investments in this during the assessment period. At Gibbet Hill we have a new, £5M state of the art, Clinical Trials Unit (CTU) building, meeting the highest environmental standards, built with £4M of investment from the West Midlands Science City Research Alliance (SCRA). This underpins a strong commitment to reducing the carbon footprint of our research activity. The CTU building provides accommodation for over 100 research and administrative staff. The LSTM has attracted £3M in competitive funds to create a new building housing over 180 staff including the expansion of CAHRD activities that will open in October 2014.

We have been through a period of rapid expansion in research activity with our joint (WMS + LSTM) annual research grant income for UoA2 increasing from £10.9M to £22.6M - an overall increase of 107% in the last five years; mainly from UK government (NIHR & Department for International Development). At the time of writing we have a further ~£35m of unspent grant awards (Current active grants + grants in pre-funding stage) that assures support for our research programme over the coming period. This has been largely from prestigious NIHR funding.

Major grants, recently awarded, that will support our future development, include EU FP7 project grants supporting innovative methodology for small populations research (£1.9m) **[Stallard]** and youth mental health care (£4.3m) **[Singh]** and a £7M Big Lottery Fund grant to evaluate services for young disadvantaged and vulnerable children [Barlow].

Our research is conducted within the appropriate legal and ethical frameworks. To support this we have detailed standard operating procedures, and data management policies. We have dedicated research governance support based in the CTU, and supported partly by the School and partly from grant funding with broader oversight for the whole unit of assessment provided by a more senior school post. We have dedicated servers to store patient data; separate from main university system to ensure data confidentiality. All research staff involved in handling patient data undergo regular training in good clinical practice. All our principal investigators running clinical trials have attended the highly regarded Chief Investigators course we provided both to University staff and research active colleagues from our partner NHS Trusts. Early in 2013 the CTU underwent an MHRA inspection; no major concerns were identified.

e. Collaboration or contribution to the discipline or research base

(i) Collaborations

Both at the LSTM and WMS, staff work collaboratively between and across units on a range of research projects. We have active research collaborations with other departments at the UoW. We have joint appointments with the Engineering, **[Burton]** the Centre for Complexity Sciences **[Griffiths]**, and Psychology **[Wolke]**. WMS has research collaborations with Warwick Business School (WBS), The School of Life Sciences, Psychology, Mathematics, Statistics and Warwick Manufacturing Group. With the LSTM, the CAHRD is building on these foundations to further our international work. WMS and WMG are partners in the West Midlands Academic Health Sciences Network.

Warwick has a number of mechanisms to support inter-disciplinary working. The Institute of Advanced Studies awards peer-reviewed funds to promote cross-disciplinary working, both internally and externally to the University, and promotes international academic visitors. The Research Development Fund provides individual awards of up to £50,000 to support the development of new research initiatives. At Warwick the CAHRD's roots are in its strong cross-campus roots. The LSTM further supports inter-disciplinary working and collaboration with developing country partners through its role as the co-ordinator of the CAHRD network. Its first global Consultation on Applied Health Research and Delivery will conclude June 2014.

In 2011, Warwick established a [strategic alliance](#) with Monash University. We have established a collaborative group working on the design and evaluation of complex interventions allowing us to test our innovations in different research environments. Within this UoA these are focused on complex interventions **[Costa, Dale, Perkins Underwood]**, and developing academic training in Africa **[Kandala, Stranges]**. This has already generated grant funding; e.g. A\$766,311 from NHMRC in Australia for a trial of Aspirin for leg ulcers.

Research Partnership with Industry

Our unit has established meaningful long-term collaborations to support applied health research through a number of strategic partnerships. The 'Warwick Healthcare Partnership' (WHP) whose members include The UoW, GE Healthcare, University Hospitals Coventry and Warwickshire (UHCW) and Coventry Council, provides a local and regional test bed for innovative solutions to the problems of chronic and continuing disease. WHP was chosen from five world centres, by GE

Healthcare, to showcase to colleagues worldwide, our Breast Cancer Clinical Pathway at UHCW, as part of the Breast Cancer Innovation Laboratory.

Other partnerships include a pioneering Learning Lab in collaboration with Bosch and industrial collaborations facilitated through the SCRA. We have established Joint Academic Strategy Committees with each of the major NHS Trusts in the area and between them they invest approximately £7M in joint appointments in WMS to support the growth and development of research.

NIHR and Commercial Trials are positively encouraged in all our local acute and community Trusts in which WMS staff hold honorary contracts. WMS successfully won a substantial commercial research grant (>£1M) from Bayer for a ground-breaking trial of the treatment of venous thromboembolism in cancer patients. The growing commercial portfolio exemplifies our desire for, and commitment to, multi-sector funding programmes in priority areas.

The WMS Philanthropic campaign; '50 Forward', proactively raises money from UK Trusts and Charities and other donors, for research into the healthcare needs of the local community and those in low-resource countries (<http://www2.warwick.ac.uk/giving/priority/medicine/cancer/>). £14M has been raised so far to pump prime key research programmes.

We maintain a strong tradition of user involvement, in, and user-driven, research. We work closely with the University Teaching and Research Action Partnership (UNTRAP), which is a partnership between the University, and health & social care service users, and carers (http://www2.warwick.ac.uk/fac/cross_fac/healthatwarwick/untrap/). We have established training and support programmes for users involved in research and guidelines for costing the time of users involved in the research process. It is our policy to include users as full members of study teams and many of our current grant applications have included a user as a co-applicant.

The LSTM relies on research partnerships to deliver the complex programmes that are hosted in Liverpool. Delivering tangible improvements in health through work in over 70 countries worldwide requires strong relationships with local research teams as well as groups involved in implementation. Partnership is therefore an inherent part of our research and provides a rationale for one of our three main strategic aims; capacity strengthening. The LSTM not only engages with partners but also provides support and training to strengthen their systems to conduct research and to deliver health benefits.

(ii) Committees, award giving bodies and editorships

Clarke: HTA monograph series Editor & Chair of the Journal's audit committee (2006 -); associate editor of Journal of Epidemiology and Community Health (2006-2010) & European Journal of Public Health; Treasurer Society for Social Medicine (2004-10). Vice chair of the Faculty of Public Health Research Committee (2013). NICE Technology Appraisal Committee (2013 -)

Costa: Chair National Injuries and Emergencies Specialty Group of the NIHR Comprehensive Research Network (2013 -); Associate Editor (Research Methods) Bone and Joint Journal; NIHR HTA Board: themed call for surgical trials (2012 -)

Cuevas: International Editorial Board: Journal of Medical Sciences (Brazil); Editor Tuberculosis Research; Editor of Journal of Tropical Medicine; TB Diagnostics Research Forum, NIH/NIAID (2012 -); Scientific Advisory Committee, TB Diagnostics, WHO (2005-2009); European Forum for TB Innovation, European Respiratory Society (2012 -)

Garner: Specialist Associate Editor with the International Journal of Epidemiology; Co-ordinating Editor, Cochrane Infectious Diseases Group; Editorial Board, Systematic Reviews; WHO Malaria Technical Guidelines Group; Cochrane Editorial Board Executive (2005); MRC Physiological Medicine and Infections Panel - Board member, with special responsibilities for MRC Units in developing countries, malaria and tropical diseases

Griffiths: Partners Advisory Forum of the Consortium for Advanced Research Training in Africa from (2010-2012); Board of Management of the Consortium for Advanced Research Training in Africa from (2010-2012); NIHR Programme Grants for Applied Research core group of methodological experts (2011-13). NIHR SDO programme Panel; CLRN West Midlands, Network Specialty Lead for Injuries and Emergencies

Hutton: Wellcome Trust Study Design Expert Group (2007- 2011); Core Methodology Panel, NIHR (2011 -); Member of NIHR TCC PDF panel (2010-2013); Committee of Mathematical Sciences Bologna working group (2006-2009)

Perkins: Member (2005 - 2010) and now Co-Chair International Liaison Committee for Resuscitation Task Force Executive Committee (2010 -); Chair European Resuscitation Council

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BLS/AED Committee; Co-Director Research Intensive Care Foundation; Resuscitation Council UK Research Committee; Editor Resuscitation

Madan: Health economic advisor on two NICE scientific advisory panels

Mistry: RFPB Panel (2012 -)

Seers: RFPB Panel (2006-2010); NIHR HS&DR (formerly HSR) panel (2009 -); associate editor of Pain (2005 -) and Evidence Based Nursing (2004-2012)

Singh: Hub lead Mental Health Research Network (MHRN) Heart of England Hub; Director, Research and Innovation, Birmingham and Solihull Mental Health Foundation Trust; West Midlands RfPB panel (2006-2011; Panel NIHR PGAR (2010 -)

Sidebotham: Co-editor Child Abuse review (2011 -)

Stallard: MRC Methodology Research Panel (2012-2014); Core Group of Methodological Experts, NIHR PGFAR (2011 -); Multiple Sclerosis Society's Grant Review Panel for Biomedical Research (2011-2014); Member of MRC Global Health ad hoc Panel (2011)

Stewart-Brown: Pan European collaboration for DataPrev FP7 programme; and now contributing to FP8 PAN European Project ROAMER Road map for mental health research in Europe

Underwood: NIHR Senior Investigator (2013 -), HTA commissioning Board (2010 -), ARC Health Sciences Panel 2007-10; Arthritis Research UK Fellowships Implementation Committee (2010 -);

Van Den Broek: Co-chair; Maternal Morbidity Working Group (WHO Geneva); Global Consultation on Midwifery, WHO, Geneva (2012); Swedish Research Council; Editor BMC Pregnancy and Childbirth (2010 -); Editor British Journal of Obstetrics and Gynaecology (2012 -); Global Maternal Health Task Force (2008 -)

Weich: Clinical Director West Midland South CLRN 2010 -; Chair West Midlands RFPB panel 2013; Member, NIHR HTA Prioritisation Strategy Group (Jan 2009-current); Member, NIHR HTA Strategy and Oversight Group (March 2013 -)

Winstanley: President of the Royal Society of Tropical Medicine & Hygiene (2011-2013); one of the prime movers behind the West Midlands AHSN established in 2013; Wellcome Trust public health & tropical interview committee (2011-2014); NIHR senior investigator (2008-2013); main applicant for the Liverpool NIHR BRC, and then its director until departure for Warwick in 2010.

(iii) Academic collaboration, NHS & Industry engagement

As part of the West Midlands Clinical Research Infrastructure and Trials Platform we have had 77 business engagements and business assists over the period.

Griffiths, Kandala, Stranges have major contributions to the Consortium for Advanced Research Training in Africa (CARTA). This includes hosting research methodology residential workshops for CARTA Fellows (25 PhD Fellows annually).

Singh: played a major role in making Youth Mental Health, particularly early intervention in psychosis and transition from child to adult care as key international priorities. *Bharat Gaurav* (Pride of India) Award for Excellence as a Non-resident Indian. Commissioner for the Equality and Human Rights Commission and member of the EHRC Disability Committee. (www.equalityhumanrights.com)

Sidebotham: Executive council of British Association for the Study and Prevention of Child Abuse and Neglect 2011 -); Learning from practice subgroup for the Munro review of safeguarding children (2011-2012); Royal College of Paediatrics and Child Health, clinical Lead developing national child protection training for consultants (2009-2010); Academic lead for a national Clinical Outcomes Review Programme (Child Health Reviews, UK); important contributions to consultations on national policy in relation to child protection (Working Together to Safeguard Children, DCSF, 2010, DfE, 2013); Protecting children and young people: the responsibility of all doctors, GMC, (2012); and child death reviews (Working Together to Safeguard Children, DCSF, 2010, DfE, 2013)

Stallard: Close working relationship with statistical colleagues from Novartis, Roche and GSK; Novartis and Roche have funded PhD studentships. Advisor to the Quintiles Center for Statistics in Drug Development Advisory board.

Weich has been Clinical Director of West Midlands South Comprehensive Local Research Network (2010-present), which is responsible for enabling and delivering high quality commercial and non-commercial trials in the NHS. He has also leads an NHS Trust R&D Department.

Underwood Chair NICE Accreditation Advisory Committee (2013 -); Chair of NICE Low Back Pain (2007-2009) and Headache (2010-2012) Guideline Development Groups