Institution: University of Leeds

Unit of Assessment: UoA2

a. Context

Public Health, Health Services and Primary Care research at the University of Leeds unites around four Applied Health Research themes: **Cancer and Genetic Epidemiology (CGE); Child Health and Lifecourse Epidemiology (CHLE); Clinical Trials Research (CTR) ; and Health Services Research (HSR)**. We aim for impact with wide reach and significance: change to national-level health policy and practice, and improved population and individual health and welfare, addressing health issues with significant consequences, such as stroke and cardiovascular disease. We have developed strategic partnerships to enable impact, including with NIHR, the NHS and Ministries of Health in low-income countries. The main non-academic users and beneficiaries of our research are:

- UK health policy makers and planners, health professionals, and populations: eg (a) survival after colorectal cancer has improved following our studies of variations of treatments and outcomes (**CGE**); (b) overall survival for teenagers/young adults with leukaemia has improved as a result of changes in clinical practice resulting from our epidemiological studies describing the variation in access to specialist care, and subsequent cohort studies to test specialist care interventions (**CHLE**); (c) myeloma outcomes have improved following a successful series of four increasingly large national phase III myeloma trials underpinned by our national myeloma early phase clinical trials centre (**CTR**); and (d) UK Department of Health policy and NHS practice, and the 1.2 million stroke survivors in the UK, have benefited from our research on stroke rehabilitation (**HSR**).
- low-income country Ministry of Health and NGO health policy makers and planners, health professionals, and populations: for example, the TB policies and practices of the Bangladesh, China, Nepal, Pakistan, Swaziland and Uganda Ministries of Health, and the 2.8m people living with TB there, have benefited from our research on TB care (**HSR, CTR**).
- UK health intervention assessors (eg NICE), and global health organisations (eg WHO), whose recommendations to policy makers and planners we have influenced, eg by the research above.

b. Approach to impact

To improve the health of individuals and populations, our research teams consider how to achieve impact from before the start of research through to after its completion. We strategically choose to undertake research with major potential for impact (ie where there is wide user interest in the outcomes, and substantial potential for reach and significance), guided by the University's Biomedicine & Health strategy, which focuses on translational and challenge-led research. The University has been awarded substantial applied health research funding from organisations focusing on applied health research in the UK (eg NIHR £42.7m) and low income countries (eg DFID £7.5m). Much of our research is commissioned, focusing on priority health problems (eg in the UK, our work on stroke rehabilitation is funded by the NIHR HTA Programme which has a formal prioritisation process involving policy-makers, practitioners, patients and communities; and in low-income countries our research on improving TB care delivery addresses priorities identified by the Ministries of Health in Bangladesh, China, Nepal and Pakistan). We take care to avoid inappropriate influence by research funders (eg in our INTERPHONE study on links between mobile phone use and brain cancers). Evidence from our research is by design of direct use to health policy makers, planners and decision-makers, and we actively ensure our research findings influence national health policy and practice.

Our existing approach to facilitating impact has the following components:

- develop and maintain **strategic partnerships** at policy and care delivery levels to ensure we address priority problems, do policy-relevant research, and influence policy and practice change.
- assemble appropriate **flexible multidisciplinary teams** within a supportive multidisciplinary environment (i.e. for each research project, rather than retaining conventional groupings that may restrict what can be done, ensure the team needed is determined by the requirements of the project, which may typically include skills in quantitative research methods, qualitative methods, health economics, clinical delivery, behaviour change and research uptake).
- use **appropriate research designs** so that research findings will be policy-relevant.
- include effective **end user involvement** in research to ensure findings are widely applicable.
- provide **expert knowledge transfer (KT) support** to staff to facilitate impact at all stages of research to support development and implementation of **research uptake strategies**.

- **translate research findings** into materials appropriate for non-academics.
- carry out **research into facilitation of KT**, and ensure the findings inform our impact strategy.

Examples demonstrating this approach to maximising the impact of our work include the following:

- We have developed **strategic partnerships** in the NHS that allow us to carry out research into health data linkages (Clamp), that has led to research using routine data with rapid impact (Foy, Wyatt); and with clinical commissioning groups and the NHS West Yorkshire Research and Innovation Unit – funded by an NIHR Programme Grant (ASPIRE) – to develop and evaluate cost-effective and sustainable ways to implement evidence-based clinical care (Foy).
- Our NIHR-funded programmes and projects assemble appropriate **flexible multidisciplinary teams** across UoAs including skilled methodologists within an adaptive, approachable environment to ensure the best possible intervention design, and appropriate research design and analysis, to explicitly address health service priority problem-led research questions. They **involve end users** including policy-makers and patients/lay members in study design, and **use appropriate research designs** including analysing contextual factors to ensure interventions and findings are widely applicable. A specific example is our RfPB-funded work on the NHS approach to breast screening (Hewison). This included social science research, involving the general public, to understand women's perceptions of the advantages/disadvantages of screening and how they differ from health professionals' perceptions; social science and health implementation science research to clarify what we mean by a 'positive' test; basic science to reduce false positives; health implementation research to develop an appropriate intervention; a subsequent RCT; and KT to ensure findings were translated into policy and practice.
- Our COMDIS research programme consortia (2006-11 and 2011-17) have developed long-term relationships with policy-makers, providing advice on wider policy and practice. The **expert knowledge transfer support** of our full-time Research Uptake Manager assists development of project-specific **research uptake strategies** to ensure that findings are genuinely translated into policy and practice at national scale. Strategies typically include supporting Ministry applications for health development funding, so we can embed our research into ensuing large-scale development projects; jointly developing research priorities; encouraging policy-makers' ownership of ensuing research; and ensuring research delivers policy-relevant findings and is used to identify effective and context-appropriate interventions designed with scale-up in mind. These include policy guidelines, tools (eg desk guides) and training materials, and running 'training of trainers' courses. An example is our work on public-private partnerships for TB control in Bangladesh (Zafar Ullah, Newell), where our **strategic partnership** with the Ministry of Health enabled us to jointly develop a contender intervention, with **end user involvement** (TB patients); demonstrate its effectiveness; develop national policy; and support nationwide implementation.
- We have **translated our research findings** into eg a) a carer guide (*10 helpful hints for carers: practical solutions for carers living with people with dementia*) in collaboration with the Dementia Services Development Centre, which has sold 25000 copies; b) an effective online intervention to prevent and reduce alcohol misuse in students, Unitcheck, promoted by the English National Healthy Universities Network; c) TB care provider materials in low-income countries.
- We have received sizable funding from MRC (House, Ward) and SDO (Ward, Keen, House) to **carry out research into knowledge transfer (exchange and mobilisation)**, which has directly informed our strategic approach to creating impact from our research. For example, our work on understanding knowledge exchange processes within healthcare teams (House, Ward) has led to the development of a guide to help research teams achieve impact by integrating knowledge exchange principles and practices throughout the course of their research; and informed an audit and feedback plan designed to support and educate research teams to integrate knowledge exchange into research proposals. We have developed relationships and advised on knowledge exchange and brokering to NIHR CLAHRCs and NIHR SDO management fellows and our work is included in the Canadian Registry of Knowledge Translation Methods and Tools; and translate findings to make them appropriate for other contexts (particularly low-income countries).

c. Strategy and plans

Our goal is that our research should achieve or contribute to fundamental national/international shifts in impact, attaining broad reach and significance. Our strategy to achieve this goal is to extend our existing approach, outlined in section b, across all departments and staff working in Applied Health Research. Our operational plan based on this strategy includes the following:

- support all staff to develop long-term relationships with key external partners (eg by linking more and less well-connected staff), work with these partners to jointly prioritise problems, and subsequently develop research questions that address national/international priorities.
- encourage staff to involve users and beneficiaries of our research throughout, to ensure interventions we develop and test are context-appropriate and feasible at large (national) scale.
- Complete our co-location plan and mix groups to aid flexible creation of multidisciplinary teams.
- ensure qualitative research is normally integrated with quantitative research to ensure its impact, by requiring assimilation at proposal inception.
- require researchers to develop project impact plans (with research→policy→practice pathways).
- require annual monitoring of implementation of project impact plans.
- encourage staff to join external advisory boards (eg NIHR) to ensure we remain well-informed, by recognising time commitments in workload management.
- employ and develop staff to ensure availability of appropriate multidisciplinary skills and attitudes, including training placements from one group to another.
- use our early career network to train researchers in the importance and achievement of impact.
- include review of progress of impact plans in our Staff Review and Development Scheme.
- reward staff for impact through explicit acknowledgement in reward and promotion criteria.

To ensure this strategy is implemented, we have appointed an Academic Lead for Knowledge Transfer; invested in methodological expertise; and carry out research on approaches to knowledge exchange. We will also use the University of Leeds Health Innovation Hub to develop academic partnerships to ensure academically driven research will lead to significant impact and innovation. The Hub provides a dedicated team of innovation professionals and funding, to support academic, clinical and industrial users who need help with enterprise and knowledge transfer.

d. Relationship to case studies

- In case study 1 (transforming stroke rehabilitation care), our research was funded by the NIHR HTA and SDO programmes, MRC and the Stroke Association, testifying to its policy relevance. Additional **strategic partnerships** were made through a nationwide stroke research network. A **multidisciplinary team** involved psychiatrists, geriatricians and trials specialists. **End user involvement** into research design and translation included providers and patient representative bodies; the latter particularly ensured appropriate research designs for working with people affected by stroke. We **translated research findings** into a carer guide in collaboration with a major carers' organisation, and professional guidelines developed with service user input.
- In case study 2 (health risks of mobile phone use), we developed a **strategic partnership** in 13 countries worldwide in response to WHO/EU calls for studies to investigate mobile phone use and brain tumour risk as an essential precursor to setting international/national policy guidelines on exposure to non-ionising radiation. We established a **multi-disciplinary team** of epidemiologists and radiation exposure experts. We developed an **appropriate research design** to provide evidence that would be credible to industry, policy-makers and the public while ensuring independence from industry funders. We **translated research findings** into messages appropriate for the general public for many non-technical websites.
- In case study 3 (making TB treatment more patient-friendly), we identified the problem through our **strategic partnerships** with the National TB Programmes of Pakistan and Nepal. There was e**nd user involvement** of policy-makers and representative providers and patients throughout intervention design and assessment. The research was developed jointly with key members of Ministries of Health, to ensure **appropriate research designs** for the low income country contexts. Research uptake was assisted by **expert KT support** by our dedicated Research Uptake Manager underpinned by our COMDIS strategy for research uptake. Our staff were involved in **translating research findings** into policy, and developing training materials and training plans to assist translation of the new policy into practice.
- In case study 4 (the AMI study), we developed **strategic partnerships** in 14 countries to develop a study taking into account changing clinical practice to assess an intervention in patients suffering a heart attack. We established a **multi-disciplinary team** involving clinicians and trialists; and an **appropriate research design** to deliver high-quality evidence of the intervention's effectiveness and safety. We **translated research into policy** through involvement with influential cardiology associations to facilitate uptake through their widely-implemented guidelines.