

Impact template (REF3a)

Institution: University of Bristol

Unit of Assessment: UoA2

a. Context

Research in this Unit of Assessment is undertaken within a single organisation, the School of Social and Community Medicine (SSCM) at the University of Bristol (UoB). SSCM staff work seamlessly across over-arching *research groups*, focusing on: genetic and molecular epidemiology, aetiological epidemiology, primary care, public health and health services research. Major cross-cutting *research themes* include mental health, infection, cancer and cardiometabolic health. SSCM *centres* include the MRC Integrative Epidemiology Unit (IEU); the Avon Longitudinal Study of Parents and Children (ALSPAC) birth cohort study; and the centre for Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer). Our aims are to conduct research with clear impacts on the health and well-being of patients and the population, utilising basic and methodological science approaches and addressing issues of importance to policy-makers, practitioners and the public.

The main non-academic users and beneficiaries of our research are:

- **Members of the public** through health promotion, disease prevention and screening, including: teenagers through smoking uptake prevention, pregnant women through dietary advice and the general public through reduced mortality and morbidity and increasing involvement in research
- **Vulnerable members of society** via early identification of threats to future health including: care practices to reduce infant mortality; improved identification and referral of victims of domestic violence; and reduced access to lethal suicide methods
- **Patients** through the implementation of research to reduce morbidity and mortality including: optimised timing of antiretroviral therapy for patients with HIV; and information enabling men to make an informed choice about prostate cancer screening
- **Third sector** by providing the evidence to inform disease prevention strategies including: the Samaritans' suicide media reporting guidelines; and the Foundation for Sudden Infant Death Syndrome (now the Lullaby Trust) for infant care advice
- **National and international health policy makers** by providing evidence to inform policies, including those of: the World Health Organisation (WHO); UNICEF; the United Nations; the UK government; the Medicines and Healthcare products Regulatory Agency (MHRA); the Human Fertility and Embryology Authority; and NHS bodies such as the National Institute for Health and Care Excellence (NICE), and the National Screening Committee.

Main types of impact and how these relate to our research activity

Our aim is for our research to deliver impact in a wide range of areas, particularly on:

- **Health and welfare** including: decreased suicide mortality through reduced access to medicines, poisons and bridge jumping locations; improved quality of life through increased rates of second eye cataract surgery; and reduced teenager smoking uptake through a school based, peer led intervention.
- **Public policy and services** through our research informing WHO policies to reduce global pesticide suicides and intimate partner violence; the WHO/UNICEF Baby Friendly Initiative to promote breastfeeding; and UK legislation to (i) improve the quality of infant death investigations (incorporated into the Children Act 2004); and (ii) reclassify cannabis from category C to category B. Our research underpinned the recommendation that one-two servings of seafood per week is beneficial during pregnancy and a change in the Human Fertility and Embryology Authority guidance on the number of embryos that should be transferred during IVF treatment. Since 2008, Unit staff have led or contributed to 11 NICE clinical/ public health guidelines and our Mixed Treatment Comparisons (MTC) methodology has been used in 59 of 129 NICE Technology Appraisals.
- **Practitioners and services** via our research leading to: increased and more timely primary care referrals of patients with the most commonly presenting cancers; increased referral of victims of domestic violence; and the Kennedy Committee adoption of the Bristol approach to the investigation of unexpected infant deaths, resulting in a major change in the way medico-

legal agencies interact to improve the quality of services for bereaved families.

- **The economy** through our research leading to millions in pounds of savings for the UK and other economies including: preventing the non-evidence based implementation of prostate cancer screening in the UK, with consequent avoidance of primary and secondary care costs; and the development and application of statistical approaches that have shown, for example, that C-reactive protein was not causally related to cardiovascular disease, thereby preventing futile lines of subsequent medicine development.

b. Approach to impact

How staff interacted with key beneficiaries to maximise impact

Our most impactful research has resulted from a strong commitment to knowledge exchange and translation with academics *working directly with the beneficiaries of research*, from study inception to policy implementation. Patient and Public Involvement (PPI) has been of key importance, both through long-standing groups including DECIPHER's 'ALPHA' (Advice Leading to Public Health Advance) and ALSPAC's 'TAP' (Teenage Advisory Panel), as well as increasing involvement of individuals as partners in research projects such as 'Protect' (Prostate testing for cancer and Treatment). Many staff are chairs or members of international and national policy and other health-related groups, enabling us to understand the challenges faced by patients, clinicians, schools, voluntary organisations, Local Authorities, Royal Colleges, clinical commissioning groups (CCGs) and policy makers, and ensure our research takes these into account. Key examples are:

a) Preventing domestic violence – interactions to identify impactful research

Feder, a practising GP and professor of primary care, met with third sector organisations to discuss the health impact of domestic violence and engaging healthcare professionals in an issue which they generally avoided. This stimulated research demonstrating that domestic violence is considerably more common than previously thought, evidence of its hazard to health as well as social well-being, and a randomised trial ('IRIS': Identification and Referral to Improve Safety) that showed substantial improvements in victim identification, referral to specialist services and improved quality of life. The intervention is now being commissioned across the UK.

b) Avoiding harm from unrestrained prostate cancer screening – interactions to develop policy

A UoB group, led by *Donovan*, was: commissioned to provide the evidence underlying the policy decisions in 1997 and 2010 by the National Screening Committee (NSC) not to encourage PSA-testing; worked with an NSC committee to produce information materials for men and GPs to support the policy; and was commissioned to provide evidence about the harms of diagnosis and treatment through specific sub-studies within the ProtecT randomised controlled trial (RCT).

How the Unit supported and enabled staff to achieve impact from their research

We support staff to publish their research in the most prestigious academic journals and to join guideline and policy committees. We prioritise engagement with professional and public user groups to share research ideas and findings. We have 'new media' and 'communications' managers to publicise research findings, leading to our research being presented on: the Channel 4 science series 'Brave New World', fronted by Professor Stephen Hawking and Sir Robert Winston; Channel 4's 'Embarrassing Bodies' (primetime audience 3.5 million); and BBC Radio 4's 'You and Yours'. We support staff to attend the SSCM 'Maximising impact' course and the University's Media Training course, and to apply for impact awards such as the annual Vice-Chancellor's Impact Award, won in 2013 by *Fleming* and *Blair* for cot death prevention research.

How the Unit made use of institutional facilities, expertise or resources

We have been supported by, and are integral to, the success of the Bristol Health Partners (Bristol HP) - a formal academic health sciences partnership between the three Bristol NHS Trusts; local CCGs; Bristol City Council and the city's two Universities. The collaborative environment provided by Bristol HP has encouraged academics, commissioners, clinicians, patients, providers and public health and social care practitioners to form Health Integration Teams (HITs), to develop NHS-relevant research programmes and drive service improvements. Seven HITs are led by UoA2 staff, including: Avoiding Hospital Admissions; Sexual Health Improvement; Reducing the NHS Burden of Respiratory Infections; Addictions; Self harm; Chronic Kidney Disease and Supporting Healthy

Environments. A recent innovation has been joint SSCM-Bristol CCG Management Fellowships, providing protected time for CCG managers to work with SSCM researchers.

The UoB Centre for Public Engagement supports and promotes public engagement with research across the University. Staff have given public lectures and supported the University's biennial city centre research celebration, which featured the 'ALSPAC Discover' event in March 2012. The Centre issues a monthly 'Engager's Digest' communication notifying staff of forthcoming events and training, and has a website for public information and interaction. The UoB Knowledge Transfer Partnership (KTP) manager has supported a partnership between Unit staff and the Meningitis Research Foundation to provide a more complete picture of the experiences and needs of meningitis survivors, leading to the production of an aftercare booklet for patients and carers.

The commercial spin-off company (DECIPHer-IMPACT', see section c) was set up with a £20K 'Enterprise Development Award' from the University's Research and Enterprise unit, as well as company law training from the 'SETsquared' partnership (a collaboration between the universities of Bath, Bristol, Exeter, Southampton and Surrey, see www.setsquaredpartnership.co.uk/).

c. Strategy and plans

A key priority of the UoB Research and Enterprise Strategy is 'to develop a portfolio of high-impact research, working across and between disciplines, to answer important societal questions and contribute to the social, political, environmental and economic well being of the region, the UK and the wider world'. A 2006 strategic aim of the predecessor Department of Social Medicine was 'to enhance the impact of our research locally, nationally and internationally'. This was continued in the 2010 SSCM research strategy, and developed in our 'Knowledge Transfer and Research Impact Strategy', which aims to 'maximise the knowledge translation and impact of SSCM research to improve patient and population health, health care delivery, health policy and the public understanding of science'. The strategy advocates working 'directly with the beneficiaries of the research, from study inception to management, dissemination and implementation', and encourages academics to 'regard our research participants as partners to conduct research *with* rather than people to conduct research *on*.' We appointed a Research Impact Director, Professor Hay, with responsibility for developing knowledge exchange and translation, and ensuring integration of research impact into SSCM research procedures. Our strategy encourages staff to improve relationships with beneficiaries by: promoting successful case studies at SSCM research meetings and on the SSCM website; promoting impact as an integral part of research project management; working with the University towards integrating impact with staff appointment and development processes; and providing information and support for staff to access funding to develop research impact. Four key approaches support and assist staff to achieve the strategy:

a) *Developing new and existing research impact through closer working with beneficiaries*

Researchers are encouraged to develop and interact with PPI, professional, commissioning, policy making, and third sector groups to discuss the clinical and policy implications of their research from inception to publication, and to optimise knowledge transfer.

b) *Increasing the reach of existing impact and identifying new beneficiaries*

We will: extend our successful 'peer-leader' approach in reducing the uptake of smoking in teenagers to other risky behaviours (such as the use of alcohol) and to new beneficiaries in Europe, India and the United States; overcome geographical and gender boundaries for the improved recognition of domestic violence in primary care (to new areas of the UK and men); lobby the Royal College of Ophthalmologists to ameliorate the risk of rationing second eye cataract surgery in response to current austerity-driven reduced NHS resources; and incorporate clinical algorithms into primary care electronic medical records to automatically alert GPs to the possibility of diseases such as common cancers in adults and urinary tract infection in children.

c) *Developing knowledge transfer and research impact capacity*

We will continue to make senior staff appointments (e.g. Feder's domestic violence group) that will lead to high impact research. We will develop expertise by drawing on existing resources, such as DECIPHer's Knowledge Exchange and Transfer Officer and the knowledge transfer group in the MRC IEU. Through staff review and mentoring, we will encourage staff to engage more fully in PPI activities and accept invitations to join Government Advisory and policy making committees. We

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will support staff applying for funding opportunities such as the NIHR Knowledge Mobilisation Research Fellowship Scheme and to receive University support via: the Enterprise and Impact Development Fund'; the 'New Enterprise Competition'; the Academic Business Fellows; the Research Commercialisation and Enterprise Education teams; and the 'SETsquared Business Acceleration' scheme.

d) Learning from existing success

We will build and learn from our successes, including three exemplars summarised below:

- i) Implementing research findings using spin out companies: 'DECIPHer-IMPACT' is a University owned, 'not for profit' company with an annual turnover of £240K employing a Chief Executive Officer and Operations Officer, providing licensure and quality assurance to maintain fidelity to the 'DECIPHer ASSIST' smoking uptake prevention intervention. To date 25 licences have been issued to health bodies in England and the Channel Islands and another for the whole of Wales.
- ii) Harnessing the global reach of the internet: IVFpredict is a low cost (49p), online tool, giving global access to couples wishing to obtain rapid, accurate probabilities of successful pregnancy and live birth following assisted conception therapy (see <http://www.ivfpredict.com/>). The website has had 5.7 million visitors (to 22 October 2013) since its launch in January 2011.
- iii) Securing research funding to implement research findings: Following the success of the 'IRIS' domestic violence trial, *Feder* has secured funding for 'IRIS – strengthening impact' (IRISimp) - an implementation vehicle to mainstream the IRIS model into general practices across the UK.

These goals will be implemented through the energy of our staff and supported by infrastructure including the NIHR CLAHRC_{west}, which will work closely with the West of England Academic Health Sciences Network (WEAHSN) to provide a coherent and well-resourced structure for PPI and capacity for implementation of research evidence, service improvement, health improvement and wealth generation. The cross-faculty UoB Elizabeth Blackwell Institute for Health Research provides support for knowledge transfer and translation, particularly at the interfaces between established and emerging disciplines, and collaborations with industry, clinical practitioners and patients. Recent examples include partnerships with industry to develop liquid phase microbial sampling techniques for large population based studies and point of care tests for infections.

Many research programmes and projects currently underway will lead to future impact, including: the ProtecT and CAP (Cluster RCT of testing for Prostate Cancer) trials (already identified as impactful, and likely to significantly further influence policy-makers, clinicians and patients when they report outcomes in 2016); a number of primary care and mental health RCTs; and the MRC IEU's research into causal effects of modifiable phenotypes identified and elucidated through the Mendelian randomisation approach pioneered in Bristol. This will have impacts through translation to phase III randomised trials, and elucidation of mechanisms through which genetic variation influences human health and hence the identification of new drugs, drug targets and interventions to improve public health. We also host six NIHR Programmes for Applied Research Grants (infection, cataract, cancer diagnosis, domestic violence, suicide and telehealth), findings from which will be readily translatable into clinical and public health practice.

d. Relationship to case studies

The eight submitted case studies epitomise our approach to impact. Their hallmarks include: close integration between lead researchers and a wide range of beneficiaries from research inception to results implementation; high quality evidence leading to new, reliable knowledge published in high impact journals; professionalised implementation via spin-out companies and dissemination via the internet. *Feder* illustrates the development of world-leading domestic violence research to address a previously stigmatised issue, conceived through interaction with third sector groups. *Sterne and May's* publications contributed to changes in policy in the developed and developing world with huge increases in the global use of antiretroviral therapy. *Gunnell, Sparrow, Donovan, Fleming and Blair* engaged with policy makers and governments to ensure accurate translation of their evidence into policy. *Ades and Welton* worked with policy makers as educators and expert advisors to maximise the use of MTC methods. *Campbell* established a spin-out company, and she and *Feder* engaged with Commissioners and Local Authorities to maximise the impact of their research.