**Impact template (REF3a)**

**Institution:** Queen's University Belfast

**Unit of Assessment:** UOA 2

**A. Context:** Research within the School of Medicine, Dentistry and Biomedical Sciences (MDBS) is organised through four Research Centres within the Institute of Health Sciences. The Centre for Public Health (CPH) is one of these Centres. CPH has four overlapping research themes: Public Health, Cancer Epidemiology, Genetic Epidemiology, and Nutrition and Metabolism. The overarching mission of CPH is to advance the health of the public at a regional, national and international level by influencing practice and policy in public health and clinical care. The main non-academic users of our research are therefore:

1) The wider Public Health Community including statutory organisations at regional and national level e.g. the Public Health Agency Northern Ireland (PHANI), the Northern Ireland Assembly, the Department of Health Social Services and Public Safety (DHSSPSNI), the Institute of Public Health for Ireland (IPH), local authorities (e.g. City Councils), Third Sector bodies such the Community Development Health Network (CDHN) and advocacy groups such as Age NI and the Children's Bureau for Northern Ireland.
2) Wider healthcare policy makers and stakeholders, including Health and Social Care NI (HSCNI), the National Health Service, bodies which produce clinical guidelines e.g. the National Institute of Health and Clinical Excellence (NICE) and Clinical/Professional Societies, and Regulatory Authorities including the Food Standards Agency and the FDA.

CPH has its origins in the former Epidemiology Department within the SMDBS, which was renowned for aetiological and population-based research in cardiovascular disease. The establishment of CPH was a concerted effort to extend the scope of research to other chronic diseases (including cancer, diabetes and renal disease), to the broader social and behavioural determinants of population health and to public health interventions, with the goal of maximising the public health and clinical impact of research within the Centre. This was achieved by

- establishing a critical mass of public health and clinical researchers, who are embedded in the delivery of health care and in public health practice
- engaging with non-academic partners
- focusing on interdisciplinary working
- establishing key research infrastructures including the Wellcome Trust/Wolfson Foundation Clinical Research Facility (£4.00M), the **N**orthern **I**reland **Co**hort for the **L**ongitudinal Study of **A**geing (NICOLA, £5.2M), the NI Longitudinal Study and the NI Administrative Data Research Centre (ESRC, £6.0M)
- ensuring critical methodological development (e.g. within the MRC Methodology Hub £665K).

Our recognition of the importance of research translation for public health impact and the need for explicit consideration of the public health systems within which impact is to be generated resulted in a successful bid (in 2008) to establish the UKCRC **C**entre **o**f **E**xcellence for Public Health (COE, £3.75M, http://www.coe.qub.ac.uk/). A renewal bid (2013-2018, £3.1M) was also successful. The COE, which embraces and implements the principles of the MRC Translational Framework for Public Health, is a highly significant development within CPH and has ensured promotion of the appropriate ethos, infrastructure, partnerships and opportunities to undertake truly translation public health research within CPH.

**B. Approach to impact:**

In general, research undertaken within CPH during the REF period aimed to have impact on the public and on patients by either influencing public health policy and practice or shaping healthcare delivery and clinical practice.

**1.** ***Influencing public health policy and practice.*** CPH approaches to influencing public health policy are exemplified by those undertaken within the COE. Translation for public health impact is complex, involves cyclical processes and requires account to be taken of the relationships between researchers and users, whose joint contributions maximize the reach of research findings. Knowledge generation and transfer in the public health setting are also most effective when part of a two-way process. COE was therefore established as a partnership with a broad range of non-academic stakeholders in the practitioner, policy making and Third Sector communities. COE has also supported a number of two-way secondments and placements of staff between CPH and, for example, the PHANI and IPH. COE has fostered and embedded a translational culture within CPH and has resulted in a 'co-production approach' to knowledge generation, testing, evidence synthesis and implementation. CPH also employs a Knowledge Exchange Officer who works closely with partnership organisations to identify opportunities to translate our research

into public health practice and achieve impact. The Knowledge Exchange Officer is also a member of the Public Engagement Ambassadors Scheme (http://www.publicengagement.ac.uk/how-we-help/ambassadors/dr-eimear-barrett).

**2.** ***Shaping healthcare delivery and clinical practice.*** CPH staff are embedded in health care delivery e.g. ten staff (9.6FTE, 32% of staff) are practicing clinicians or public health physicians with responsibility for the delivery of clinical or public health services within Health and Social Care Northern Ireland (HSCNI), and all staff have cultivated strong links with clinicians and other relevant health care professionals. This has enabled CPH staff to jointly develop and investigate research questions that are of direct relevance to patient care and public health. The CPH recruitment strategy has also ensured that the complement of academic and research staff includes the wide range of disciplines that are required to effectively investigate many health service, clinical and public health developments. The current staff profile includes public health physicians, clinicians, epidemiologists, allied health professions (including nutritionists, psychologists, physiotherapists), biostatisticians, mathematical modellers, laboratory scientists and clinical trial and evidence synthesis experts. CPH led a £1.2M University-funded initiative to foster multidisciplinary heath and health care research across the Institute of Health Sciences, especially through collaboration with the School of Nursing and Midwifery and the School of Pharmacy.

CPH staff recognise the importance of translating research findings into practice. To this end several senior staff fulfil key advisory or leadership roles in HSCNI, the PHANI and the DHSSPSNI. For example, **Young** chairs the DHSSPSNI Obesity Prevention Strategy Group and is the Belfast HSC Trust Director of Research, **Kee** has established and leads the NI Public Health Research Network, **Gavin** is Information, Analysis and Research Lead of the National Cancer Intelligence Network (NCIN) and **Cupples** leads the NI Primary Care Research Network. Occupying these leadership positions maximizes translational opportunities for CPH research.

**C. Strategy and plans**

CPH has implemented a Research Impact Strategy, the key elements of which are: (**1**) training and capacity building for impact; (**2**) partnership with key stakeholders; (**3**) organizational focus.

***1. Training and capacity building for impact.*** From an early stage of their career, the importance of demonstrating impact is instilled in PhD students and postdoctoral researchers and they are facilitated to employ a range of approaches to encourage successful translation. Examples include:

(i) Joint mentorship or supervision by senior NHS and PHA colleagues. The practice of joint supervision, which is routine for our junior researchers, is further enhanced by the provision for opportunities for secondments to relevant organisations

(ii) Knowledge Exchange Events to facilitate sharing of research perspectives with partners e.g. the CDHN e.g.http://www.cdhn.org/media/uploads/Health%20Bytes%20April%202012.pdf

(iii) Training in writing for non-academic audiences, e.g. contributions to e-zines prepared for study participants and partners e.g. http://www.communitygreenway.co.uk/reports-and-research/newssheets

(iv) Training in approaches for Patient and Public Involvement in research, organized jointly with the HSCNI Research & Development Office

(v) Students and postdoctoral scientists also regularly help plan events for the ESRC Festival of Science and deliver public workshops as part of the STEMNET initiative for students across Northern Ireland http://coe.qub.ac.uk/index.php/news-and-events/2012-03-15-10-45-29/lighting-a-flame-for-science

(vi) We have also begun to harness their energies as *Evidence Student "Champions"* as part of the NICE Student Champions scheme.

***2. Partnership working for impact*** is one of the core principles of CPH. This is enabled in a number of ways e.g. COE has established governance structures that formally involve stakeholders. Thus the PHA, the DHSSPSNI, the IPH and the CDHN are all represented on the COE Management Board. In parallel, with the support of the HSCNI Research and Development Office, we have led the establishment of the Northern Ireland Public Health Research Network. With 170 non-academic members to date, this network is facilitating pro-active engagement between the various stakeholders and increasing opportunities for collaboration and co-production of knowledge. This involvement of stakeholders has facilitated a range of activities that support impact, including:

(i) a joint annual scientific conference with the PHA and a biennial Public Health Summer School, each of

which has attracted 100-200 delegates. More recently, our MRC-funded Methodology Hub has delivered training, on an all-Ireland basis, in systematic review methods and how such outputs can inform policy.

(ii) the creation of forums to engage directly with policy makers and users of research. An example of this is our presentations at events such as the "Politicians' Breakfast" where we have shared results of the MRC/National Prevention Research Initiative funded Physical Activity and the Rejuvenation of Connswater Study directly with Members of the Legislative Assembly and with Third Sector organizations in the areas affected by the Connswater Community Greenway. This model of engagement has helped get the local community actively involved in the research in a way that empowers them to use its outputs.

(iii) Public Health and Ageing: To ensure that there is maximum political "buy-in" and subsequent use of the NI Cohort for the Longitudinal Study of Ageing (NICOLA), we obtained financial support (£100k) from the Office of the Minister and Deputy First Minister for a pilot. The Department for Social Development subsequently invited two senior NICOLA PIs to be members of their Welfare Benefits Uptake Advisory Group. NICOLA also has a multi-sectoral Stakeholder Oversight Board with representation from Age NI and the Commissioner for Older People, to ensure that each sectoral representative can help drive the dissemination effort.

***3. Organizational focus****.* All research staff have translation as a major element in their annual appraisal and development targets. Profiles for academic performance at different grades include relevant criteria for translation and impact. In addition, during the annual performance review for each Centre, the Centre Director is required to report progress against a range of Key Performance Indicators (KPIs), which include *Economic and Societal Impact of Research, Knowledge Transfer and Commercialisation, Research Impact, Responses to External Stakeholder Strategies* (e.g. key Government strategies or healthcare needs) and *Public Engagement*. This allows appropriate targets related to research impact to be agreed by School and Centre management.

**D. Relationship to Case Studies.**

The restructuring of research activity within the SMDBS into four distinct Research Centres acted as a catalyst for public health and clinical researchers within the School to focus, during the REF period, on achieving public health, health service and clinical impact of their research findings. The four impact case studies chosen are examples of the success of close engagement between CPH staff and policy makers and practitioners to achieve maximum impact of the research undertaken within the Centre.

(i) *The genetics of familial hypercholesterolaemia* case study demonstrates how **Young** and **Nicholls** took basic research findings and engaged with policy makers and funders to introduce a clinical service which has identified many patients with a life threatening condition, who have subsequently been provided with life-saving treatment.

(ii) In the *hyperglycaemia of pregnancy case* study, **Trimble** and **McCance** were key investigators in a substantial NIH funded study, and engaged with professional societies to develop new international guidelines for the diagnosis of diabetes in pregnancy, the implementation of which has resulted in the identification of many at-risk women and pregnancies not previously identified.

(iii) *Global monitoring of cardiovascular disease*. **Evans'** contribution to the production of the MONICA Monograph and Multimedia Resource Book provided the core methodologies and standards for the European Health Examination Survey, which was subsequently utilized in twelve countries as part of an EU concerted action. The impact of this work has been to improve the way that national and local health surveys are commissioned and delivered, thereby ensuring availability of robust epidemiological data for policy making and commissioning decisions.

(iv) Using the *NI Barrett's oesophagus Register*, **Murray** and **Gavin** provided significant new insights into the rate of progression of Barrett's oesophagus to cancer. They engaged with clinicians and policy makers to ensure that current guidelines for the surveillance and management of Barrett's oesophagus reflect the true incidence of cancer and the importance of focusing endoscopic surveillance on patients at higher risk.

These examples illustrate how translation was integral to the work of CPH during the REF period. The CPH strategy outlined above will help ensure our research achieves maximum impact in the future.