**Engagement with the Transdisciplinary Academic Community (Scotland Responses)**

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| **Research Discipline(s):** | **What contribution your research discipline is already making to the health of the public?** | **What opportunities are there for greater contributions through transdisciplinary research activities?** |
| **Nothing On Response Sheet** | There are many examples of this across the Usher Institute in Edinburgh; access to some of these examples from Edinburgh and other Scottish HEIs can be found on the REF website under Impact Case Studies. From University of Edinburgh these include work on Suicide prevention policyAsthma policy and guidelinesPneumonia policy and guidelinesTobacco control policiesPallative care policies and guidelines Data to support modifying diabetic retinopathy screening intervalsPharmaco-epidemiological studies | Public health academic activity is largely governed by availability of funding so there is an opportunity to foster trans-sectoral collaborations and research by establishing new funding streams that are based on trans-sectoral partnerships |

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| **Nothing On Response Sheet** | Health economics is based on understanding the links between resource inputs and their consequent outputs, and, in that sense, is key to ensuring that we get the best health for the resources at our disposal.The principles underlying health economics extend well to the public health arena, especially that of complex interventions; given the basic economic approach of assessing the societal costs and benefits of initiatives and interventions. Various methods within economics are useful for understanding public preferences with respect to public health initiatives, especially when viewed across the spectrum of possibilities in Health-in-all- policies. These methods are covered by terms like contingent valuation and Q methodology.Economics frameworks, too, like programme budgeting and marginal analysis, can be highly useful in organising priorities of organisations, like Integrated Joint Boards, aiding the shifting of the balance of care. | Public health is by definition transdisciplinary. The opportunities that we might exploit with the ongoing reorganisation would include getting those disciplines to connect in new ways – through joint posts between academics and NHS staff – creating positions that connect health economics and public health. Real collaboration needs structures and posts and funded work.More radical interdisciplinarity would come from working across sectors as well as across academic disciplines – at GCU we are focussed on civil society organisations/ the third sector and the impact of social enterprise on health and wellbeing.  |

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| **Social Science (working across social science disciplines, including sociology/social theory, public policy (including social policy), politics, history, geography/area studies**. | The social science disciplines which I see myself working across have a broad relevance to the understanding/explanation of public health, and at different times and in different ways also have an impact on the health of the public – all of this, in particular, when the health of the public is understood within a broad ‘social determinants of health’ perspective.  This is because the social science disciplines have a direct bearing on our understanding of the nature and development of our society, of the social groups and organisations which are part of it, of the relations of power which help to configure it and of the way in which these relations of power are challenged and contested, and develop and change as a result. They (the social sciences) are focused on the question of ‘who gets what, when and how’ (Laswell) (and also ‘where’) and on the consequences for ‘life chances’ of different communities, groups and individuals in different places, and also for the processes of ‘identification’ and ‘differentiation’ at work in society – with implications for status, privilege, discrimination, stigma and blame.  I could go on, though this is probably enough to make the point – all of the above (and much more that the social sciences contribute) is widely and increasingly recognised as massively important for the determination of health. Looking beyond relevance to ‘contribution’ more specifically, it is fairly clear that social science has a bearing not simply on how all of the above is ‘understood’, but also on how, in light of that understanding, people in different ways contribute to how the future is imagined/envisaged and then brought into being. This, of course, goes towards shaping the future health of the public as an inevitable aspect of the process. | There are very many indeed, but perhaps the biggest challenge is in coming better to understand how it is that evidence, ideas and argument might make a bigger impact on policy and practice in the future. |

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| **Health Psychology** | My own background is both academic and practice-based. Health psychologists can be based in academia or in organisations responsible for the delivery of health and healthcare, including the NHS, community based and third sector organisations. Many health psychologists apply learning and resources from their academic roles to practice, via involvement in research projects or their own professional practice.For example, I am responding to this consultation on the basis of my knowledge and experience in 2 health psychology work roles: 1. As an academic health psychologist, based at the University of Stirling. In that role I carry out health research focusing on health behaviour change (principally in the areas of maternal and infant nutrition, diabetes and cultural difference) and also teach and train health psychologists at masters and doctoral level. 2. As national lead for health psychology at NHS Education for Scotland (0.4FTE). The Health psychology programme at NES includes training health psychologists (based in territorial NHS Boards), carrying out research (for example on patient safety projects, NHS workforce well-being) and delivering training in health psychology approaches including behaviour change to health and social care professionals – such as those in children and families teams, dentistry, and pharmacy. Health psychologists are experts in behavioural science and apply knowledge of psychology theories and evidence to promotion of health and well-being, prevention of illness, training of health professionals, policy and practice. Health psychologists have five sets of competence, including skills in research, delivery of interventions (one-to-one; group; community/population/health system level); teaching and training; professional skills and consultancy. The overall approach is positive, holistic and biopsychosocial.It is worth noting that health psychology competencies align very closely with those of public health specialists. For example, a review in 2007 carried out by the UK Division of Health Psychology identified shared competencies in 10 out of 13 areas of public health specialist practice. The contribution of health psychology to the health of people in Scotland is notable on both academic and practitioner (health service delivery) levels. Academic health psychologists carry out research in areas directly related to government health priorities. Practitioner health psychologists design, deliver and evaluate interventions based on theory and evidence. For example: • Understanding factors related to health inequalities – eg social determinants of infant feeding behaviours or alcohol misuse, • Delivering sustainable health improvement interventions focused on individual health behaviours – eg. Improving physical activity, or reducing alcohol use in pregnant women. • Evaluating different methods of intervention delivery – eg. Comparing texting vs, face to face delivery of dietary interventions; • Health across the lifespan – e.g. healthy approaches to conception; increasing self-confidence in care home residents. • Informing policy and practice – e.g. identifying psychosocial barriers to health screening or organ donationThe British Psychological Society Division of Health Psychology in Scotland provides a useful lay summary of the roles of health psychologists. A series of impact case studies showcasing specific areas of health psychology work are also available – these are reproduced in the next section for ease of access. https://www1.bps.org.uk/system/files/user-files/Division%20of%20Health%20Psychology/public/HP\_policy\_1pager\_revised\_260618-DM3.pdf | "One of the greatest opportunities to make a difference to Scotland’s health is by focusing on prevention. Currently the primary focus for health services is on treatment. The Scottish Government is very laudably talking about the importance of prevention of serious health conditions that impact on people’s health - such as obesity and diabetes, and in relation to mental health. This needs radical and collaborative research-based activity between a wide range of disciplines, and sustained campaigns to raise public awareness of their own potential in preventing ill-health. Health psychology is a profession which operates essentially with a transdisciplinary focus, since it applies knowledge and methods from psychology to improvement of physical health, improvement of ill-health and healthcare. In any socio-economic context, it is crucial to develop an understanding of how individuals think, feel and behave, to maximise benefit and effectiveness of health improvement initiatives. Experience suggests that many disciplines believe that a psychologically informed approach ‘adds value’ to existing health-related work and workstreams, and to research led by other ’disciplines’ and professions within healthcare. Health psychology has historically developed as an academic profession which in more recent years has focused increasingly on practice and the development of evidence-based ‘real world’ interventions to enhance well-being. The role of a health psychologist is essentially that of a scientist-practitioner. However there are some barriers to maximising the influence of health psychology approaches to health care in Scotland. For example, there is a general lack of awareness of what health psychology is, and what it can contribute. There are a relatively small number of health psychology professional posts in health and social care settings which fully utilise this role, making it difficult at times to develop collaborations with other disciplines involved in health and health care, preventing " |

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| **Public Health Nutrition, Cancer Prevention, Behaviour Change** | Illustrated here by my own outputs but there are several academic Public Health Nutrition groups in ScotlandAcademic contribution – e.g1. Gray, C. M., Wyke, S., Zhang, R., Anderson, A., Barry, S., Boyer, N., Brennan, G., Briggs, A. H., Bunn, C., Donnachie, C., Grieve, E., Kohli-Lynch, C., Lloyd, S. M., McConnachie, A., McCowan, C., MacLean, A., Mutrie, N. & Hunt, K., 2018, Long-term weight loss trajectories following participation in a randomised controlled trial of a weight management programme for men delivered through professional football clubs: a longitudinal cohort study and economic evaluation In : International Journal of Behavioral Nutrition and Physical Activity. 15, p. 1-13 2. Barton KL, Chambers S, Anderson AS, Wrieden WL 2018 Time to address the double inequality of differences in dietary intake between Scotland and England British Journal of Nutrition 120 220-226 3. 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Body fatness and Cancer – Viewpoint of the IARC Working Group (Anderson AS, Baker JL, Breda J, Byers T, Cleary MP, Colditz G, Di Cesare M, Gapstur SM., Herbert RA, Hursting SD, Kaaka R, Leitzmann M, Ligibel J, Renehan A, Romieu I, Shimokawa I, Thompson HJ, Ulrich C, Wade K, Weiderpass E). N Engl J Med 375:8 794-87. Stead M, Craigie AM. Macleod M, McKells J Caswell S Steele RJC Anderson AS (2015) Why are some people more successful at lifestyle change than others? Factors associated with successful weight loss in the BeWEL randomised controlled trial of adults at risk of colorectal cancer Int J Beh Nutr Phys Act 12:87 8. Tunstall –Pedoe H, Woodward M, Hughes M Kennedy M Anderson AS, Belch JJF, Kuulasamaa K (2015). Prime mover or fellow traveller: 25-hydroxy vitamin D’s seasonal variation, cardiovascular disease, and death in the Scottish Heart Health Extended Cohort (SHHEC) Int J Epidemiol Oct;44(5):1602-129. Anderson AS, Key TJ, Norat T, et al (2015). European Code against Cancer 4th Edition: Obesity, Body Fatness and Cancer. Cancer Epidemiol. 2015 Dec;39 Suppl 1:S34-4510. Barton KL, Wrieden WL, Sherrif A, Armstrong J, Anderson AS (2015)Trends in socio-economic inequalities in the Scottish diet: 2001-2009 Public Health Nutr Mar 16:1-12. 11. Chambers SA, Freeman R, Anderson AS, MacGillivray S (2015) Reducing the volume, exposure and negative impacts of advertising for foods high in fat, sugar and salt to children: A systematic review of the evidence from statutory and self-regulatory actions and educational measures. Prev Med Jun;75:32-4312. Anderson AS, Craigie A, Caswell S, Treweek S, Stead M, Macleod M, Daly F, Belch J, Rodger J, Kirk A, Ludbrook A, Rauchhaus P, Norwood P, Thompson J Wardle J,Steele RJC (2014) The impact of a body weight and Physical Activity weight loss intervention (BeWEL) initiated through a national colorectal cancer screening programme. BMJ;348:g1823 Advisory committee to UK CMO’sSACN https://www.gov.uk/government/groups/scientific-advisory-committee-on-nutrition e.g. recommendations on sugar, folic acid fortificationPolicy contribution and engagementIllustrated here by my own outputs but there are several academic Public Health Nutrition groups in ScotlandAcademic contribution – e.g1. Gray, C. M., Wyke, S., Zhang, R., Anderson, A., Barry, S., Boyer, N., Brennan, G., Briggs, A. H., Bunn, C., Donnachie, C., Grieve, E., Kohli-Lynch, C., Lloyd, S. M., McConnachie, A., McCowan, C., MacLean, A., Mutrie, N. & Hunt, K., 2018, Long-term weight loss trajectories following participation in a randomised controlled trial of a weight management programme for men delivered through professional football clubs: a longitudinal cohort study and economic evaluation In : International Journal of Behavioral Nutrition and Physical Activity. 15, p. 1-13 2. 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Identifying dietary differences between Scotland and England: A rapid review of the literature. Public Health Nutrition Oct 2017 doi.org/10.1017/S13689800170013806. Lauby-Secretan, Scoccianti, Loomis D, Grosse Y, Bianchini F, Straif K (2016). Body fatness and Cancer – Viewpoint of the IARC Working Group (Anderson AS, Baker JL, Breda J, Byers T, Cleary MP, Colditz G, Di Cesare M, Gapstur SM., Herbert RA, Hursting SD, Kaaka R, Leitzmann M, Ligibel J, Renehan A, Romieu I, Shimokawa I, Thompson HJ, Ulrich C, Wade K, Weiderpass E). N Engl J Med 375:8 794-87. Stead M, Craigie AM. Macleod M, McKells J Caswell S Steele RJC Anderson AS (2015) Why are some people more successful at lifestyle change than others? Factors associated with successful weight loss in the BeWEL randomised controlled trial of adults at risk of colorectal cancer Int J Beh Nutr Phys Act 12:87 8. Tunstall –Pedoe H, Woodward M, Hughes M Kennedy M Anderson AS, Belch JJF, Kuulasamaa K (2015). 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Anderson AS, Craigie A, Caswell S, Treweek S, Stead M, Macleod M, Daly F, Belch J, Rodger J, Kirk A, Ludbrook A, Rauchhaus P, Norwood P, Thompson J Wardle J,Steele RJC (2014) The impact of a body weight and Physical Activity weight loss intervention (BeWEL) initiated through a national colorectal cancer screening programme. BMJ;348:g1823 Advisory committee to UK CMO’sSACN https://www.gov.uk/government/groups/scientific-advisory-committee-on-nutrition e.g. recommendations on sugar, folic acid fortificationPolicy contribution and engagement | I’m not sure the contributions are necessary only via research collaborations but research/policy/practice collaborations are needed. |

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| **Biomedical Research****Innovation****Pharmacology** | Our research is very much about impact. We have social scientists investigating the impact of new technologies and clinical pathways on the health of patients in rural and island settings, the impact of exercise on the health of school pupils, the role and benefits of physical activity in disease management and the potential of new innovative drugs and treatments for hard to treat diseases, including cancer. | The real advantage of transdisciplinary research is the avoidance of duplication of effort. Clinical studies are difficult and costly to set up, so the benefits of measuring biomedical markers and outcome alongside quality of life measures in the same study are immense. |

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| **Infectious disease epidemiology and public health** | Epidemiology is integral to public health, covering topics including surveillance, disease burden, risk factors, and design of interventions and monitoring of efficacy. Epidemiology provides the information we use to help prioritise health concerns, design interventions, assess progress and inform the public. Risk factor studies often feed rapidly into public health policy | In my field transdisciplinary approaches are integral. Epidemiology involves input from a wide range of disciplines including clinical science, behavioural science, demography, geography and economics. Frequently, the ‘added value’ of epidemiological research derives from linking different data sources. Data access is often restrictive (see below). A good example is the need to link data on antimicrobial resistance in bacterial pathogens to data on antibiotic usage. These 2 types of data are not collected, or made available, in ways that make this possible (a problem that is not unique to Scotland). |