Institution: King's College London

Unit of Assessment: 2. Public Health, Health Services and Primary Care

A. Context

King's Unit of Assessment 2 (UoA2) comprises the Division of Health and Social Care Research and the Medical Research Council (MRC) / Public Health England (PHE) Centre for Environment and Health. King's is located in a deprived area of inner London with a diverse, multi-ethnic population. Our locally determined priorities are also important global health problems, including atmospheric pollution, haemoglobin disorders, stroke and other long-term conditions. Air quality is a priority for London but is also a major issue for emerging economies where rapid urbanisation has been associated with substantial air quality problems. Approximately 40% of the local population is from black and ethnic minority groups, primarily of black African and black Caribbean origins. South East London has the highest concentration in the UK of people with sickle cell disease. This is one of the commonest genetic disorders world-wide, with 7 million babies born each year with haemoglobin defects. In the early 1990s, when King's initiated the South London Stroke Register, mortality from stroke was 34% higher than the average for England. There are 15 million strokes world-wide each year and the impact of disease is increasing with population ageing.

We recognise that there are profound public health challenges locally. We aim to implement methodologically rigorous research that will address the priorities of the local population, contributing to better health and reduced inequalities, while at the same time delivering impact with national and international reach. King's research has informed strategies to prevent disease and promote health (examples include controlling atmospheric pollution and improving air quality or sickle cell screening), as well as facilitating high-quality management aimed at improving health and reducing inequalities (for example, through innovation and quality improvement in stroke services). Our research primarily focuses on the production of knowledge as a public good but we also work with commercial partners (e.g. Computer Sciences Corporation, Quintiles). The main impacts of our research are in environmental and public health policy, health services organisation and delivery, and through the Population Cluster in the Guy's and St Thomas' NIHR Biomedical Research Centre, in the translation of basic science research into patient benefit.

Main non-academic user groups and beneficiaries: The ultimate beneficiaries of our research are patients, families and carers who gain from healthier environments, improved services and better health outcomes. Users of our research at *the local level* include members of the public, clinicians, health services managers, public health specialists, local decision-makers in health services and local government. These stakeholders are now coming together to form a Public Health Collaborative as outlined below. At the *regional level* beneficiaries and users include patient groups and voluntary sector organisations, the former strategic health authority, the Greater London Authority and Transport for London. At the *national level,* the Department of Health, the Department for Food, Environment and Rural Affairs and the Department of Transport represent key users of King's research, with Public Health England now emerging as a user of knowledge from research. In addition, King's has strong working relationships, and leadership roles, with professional organisations, the voluntary sector, public bodies and parliament at Westminster. We have *international links* that facilitate impact in Europe (stroke research, research informatics) and the United States (research informatics). We also work on *global issues* with NICE International on priority setting and stroke care, and the World Health Organisation on air quality guidelines (Kelly and colleagues).

B) Approach to Impact:

King's UoA2 researchers are active in promoting the implementation of research outputs. We support and encourage our researchers to develop impact by conducting needs-led research, involving stakeholders in the design and conduct of relevant research studies, as well as promoting the dissemination and implementation of high quality research findings. Drawing on the ESRC impact framework, our approach has been to encourage skilled people to engage in the policy process, promoting partnerships and collaborative working, and adopting leadership roles where appropriate. These activities enable translation of our research evidence into health policy, with implementation through service innovation and quality improvement, resulting ultimately in healthier environments and improved health outcomes for patients and populations.

Impacts through partnership and collaborative working: We engage with and involve patients and carers in King's research. The King's Stroke Research Patients' and Family Group was established in 2005 (McKevitt). It brings together stroke researchers from King's College London and people who have had a stroke and their family members. We collaborate with the voluntary sector, developing working links with the Stroke Association (McKevitt, Rudd, Wolfe); Connect, the communication disability network (McKevitt); DASL, the Disability Advice Service for Lambeth (McKevitt); the National Heart Forum (Maryon Davis); the Sickle Cell Society and the Thalassaemia Society (Streetly). There has been extensive community engagement in the haemoglobinopathy programme at King's. Impacts include identification of novel research questions (e.g. patient reported unmet needs); new methods of third sector service delivery (e.g. peer-support for long-term stroke); or collaborative development and dissemination of lay versions of guidelines, audits and research results. We also communicate our research to broad public audiences through interactions with news media, facilitated by the King's Press Office, with recent examples in air quality research (Kelly), cognitive function in older adults (Dregan) and stroke incidence (Wolfe). This promotes public understanding and fosters advocacy for change. At the local level in South London, we work in partnership with stakeholder organisations. We are working with the borough Directors of Public Health in our Public Health Collaborative, which is focused on developing and implementing public health interventions. We collaborated with the South London Health Innovation Education Cluster to deliver training for professionals in diabetes care (Gulliford) and training in stroke care (Wolfe). We collaborate with the London Deanery and successor organisations to provide research-led training for future NHS staff in public health, primary care and care of the elderly (Delaney, Gulliford, Wolfe), with many senior NHS staff now being influenced by their training at King's. At Westminster, we participate in All Party Parliamentary Groups on Stroke (Rudd, Wolfe) and Sickle Cell Disease (Streetly). We collaborate in the National Confidential Enquiry into Patient Outcome and Death (NCEPOD, Streetly); we contributed to the National Audit Office report on stroke care (Wolfe, Rudd). We developed a memorandum of understanding between NICE and King's (Littlejohns, Wolfe) through which we are contributing to developing and improving stroke services in China and elsewhere.

Impacts through leadership: King's contributes to leadership in public health with Maryon-Davis being President of the Faculty of Public Health (2007-2010) and Chair of the Faculty's Cardiovascular Disease Prevention Committee. Wolfe chairs the NHS Confederation's Health Services Research Network. Armstrong is National Director of the Research for Patient Benefit Programme (annual budget of £25m) that is focused on delivering research impact. King's led the roll-out of the NHS National Programme for Sickle Cell and Thalassaemia Screening (Streetly, Dormandy), hosting the national Programme Centre through a contract between King's and the Department of Health from 2000 to 2013. King's provides the Department of Health National Clinical Director for Stroke (Rudd). We provide leadership of the Royal College of Physicians' National Stroke Audit and the National Stroke Guidelines (4th Edition) (Rudd), contributing to evidence-informed stroke prevention and care.

Impacts through skilled people: King's researchers draw on skills and expertise in their fields of specialisation to inform policy-makers and the public of the scale and nature of health problems and the potential for intervention. We contributed expert advice to the development of the Department of Health National Stroke Strategy (Wolfe, Rudd). At the regional level, King's contributed expert advice and advocacy to promote improved organisation and delivery of stroke services through health care for London, providing advice on the pan-London stroke strategy to transform stroke services (Wolfe, Rudd). Kelly has twice provided expert evidence to the House of Commons Environmental Audit Committee examining the impact of poor air quality in the UK on Public Health. Kelly and Anderson are members of the Department of Health Advisory Committee on the Medical Effects of Air Pollutants, whose 2010 report introduced particulate matter exposure into the Public Health Framework indicators. We work with the London Strategic Health Authority, the Greater London Authority and Transport for London providing expert advice on air quality and respiratory health, informing the introduction of the congestion charging and low emission zones in London. Our research is evaluating the impacts of these policies and is demonstrating how improvements in air quality can improve public health in London. We advise the National Institute for Health and Care Excellence (NICE) through membership of Committees (Prevost, Rudd,

Wolfe). Professor Littlejohns is the former medical director, while Professor Martin is a non-executive director of NICE.

C) Strategy and Plans for Developing Impact:

King's is committed to delivering societal impacts from its research. The fundamental principles of our strategy will continue, including: implementation of high-quality, needs led research; engagement with stakeholders and partnership working; provision of expert advice; and leadership. Over the coming assessment period our strategy will be enhanced by an evolving infrastructure that will foster the development and delivery of impact.

Academic Health Sciences Centre: King's has formed an alliance with local NHS Trusts to form one of the UK's five Academic Health Sciences Centres. King's Health Partners, and the associated South London Academic Health Sciences Network, provide an environment that aims to bring together excellent research, teaching and health practice for the benefit of wider populations of patients and the public. These provide the immediate infrastructure and support for targeting and delivering impact in terms of health benefit for the population. A key aim is to foster a stronger research culture within health services that enables the conduct of research and the utilisation of research findings.

Urban Public Health Collaborative: Public health has been designated a key priority by King's Health Partners as one of its 'Grand Challenges'. We are developing an Urban Public Health Collaborative for south London that will facilitate the design, evaluation and implementation of complex public health interventions by involving all key stakeholders in co-production at every stage. The initiative is led by Professors Charles Wolfe and Peter Littlejohns, the latter being recruited from the National Institute for Health and Care Excellence (NICE), supported by the secondment of Dr Ruta, Director of Public Health for Lewisham. We have established a Public Health Programme Office within the Academic Health Sciences Centre, jointly funded by the King's and the Guy's and St Thomas' Charity, aiming to bring together all key stakeholders across South London boroughs in order to develop an integrated approach to public health.

South London Collaboration for Applied Health Research and Care (CLAHRC)*:* The recently announced award of a new *South London CLAHRC* will bring £18 million to help tackle some of the most pressing public health problems. The Department of Health has awarded £9 million to fund the National Institute for Health Research (NIHR) South London Collaboration for Applied Health Research and Care (CLAHRC), matched by £9 million funding from local partners, taking the total to £18 million over five years. The collaboration pools research, health services and public health expertise of both the NHS and universities in south London, bringing together King's Health Partners, with St George's Healthcare NHS Trust and St George's, University of London, as joint leaders of the CLAHRC. The major themes to be addressed include alcohol, diabetes, infection, end-of-life care, public health, stroke, women's health, psychosis, patient and public involvement. King's UoA2 provides the CLAHRC's Deputy Director (Littlejohns) and theme leads in public health (Littlejohns) and stroke and multi-morbidity (Wolfe). The CLAHRC will provide an important addition to our infrastructure for delivering impact from our research over the next five years.

D) Relationship to Case Studies:

Our Impact Case Studies highlight the delivery of impact by King's in three strategic areas of research. Each case study concerns a subject of relevance to the health of the local population and also of international significance. Our research findings have influenced policy, leading to implementation. Our researchers have developed strong links with stakeholders at the local level and have moved into leadership roles at national level, delivering service improvements and demonstrable impacts on health over prolonged periods of time.

Air Quality and Health: This research has been implemented in partnership with Transport for London with implementation of the London Low Emission Zone. Similar traffic control measures are now being implemented in many countries.

Stroke services: The South London Stroke Register has provided evidence to inform national policies for stroke, leading to a major service reconfiguration that reduced mortality and health service costs.

Sickle Cell Screening and Care: King's research provided evidence of the potential for newborn and early antenatal screening for sickle cell disease, as well as the need for improved treatment services. A Programme Centre based at King's led the roll-out of screening nationally.