The Academy of Medical Sciences

Press release

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Costs of aging population could dwarf economic downturn

The populations of the UK and the world are ageing. The average life expectancy in the UK is increasing at a rate of more than five hours a day every day. A report by the Academy of Medical Sciences highlights the urgent need to understand the connection between the underlying process of ageing and the causes of age-related disease. The report argues that only with this understanding can we ensure that any increase in life span is of benefit, rather than harm, to the health and wealth of our society.

Professor Dame Linda Partridge FMedSci, chair of the report's working group said '*Our life expectancy is increasing rapidly; we must ensure that this increase in longevity is accompanied by a rise in healthy life expectancy, whereby the added years of life are ones of relative good health. If we do not address this challenge, the costs of the demographic changes that accompany our ageing population could dwarf those of the current economic downturn.'*

Age is the single greatest risk factor for many life-threatening diseases, for example a tumour is 100 times more likely to occur at the age of 65 than 35. There is an urgency to understand the connection between ageing and age related disease because the major burden of ill-health falls on the older section of society.

Professor Partridge added, '*Discoveries about the science of ageing will change the way we view health and disease. With the appropriate leadership and vision we can turn our increased longevity into an opportunity, not a threat. We need to improve the coordination of ageing research, to attract senior scientists from other specialties to undertake basic biological research into ageing and to clearly identify the resources necessary for success.'*

The report describes exciting recent developments in our understanding of the underlying ageing process. Genetics, stem cells, stress and other environmental

factors have all been shown to affect longevity. Studies in worms have shown that single gene mutations can create strains that live up to five times longer than usual, and the association between calorie (dietary) restriction and extended life span has been found in yeast, worms, fruit flies and most recently in monkeys. These discoveries offer the prospect of treating age-related disease by tackling the process of ageing itself.

Professor Partridge added, '*We used to believe that the biological processes that underlie aging were both predetermined and different from the causes of age-related diseases such as cancer, heart disease and dementia - the processes seemed too complicated to have a single cause. But it has now been shown in animals that changes to a single gene or environmental condition can substantially extend lifespan, improve overall health and slow the onset of age-related diseases.'*

However, despite its promise, UK ageing research has not flourished and its full potential is not being harnessed.

The current UK research framework, which focuses on treatments for specific diseases instead of the underlying process of ageing, is a significant barrier. The low number of older people involved in clinical trials also presents a major challenge as they are often excluded from participating because they take many different medications and experience several medical conditions at once. Consequently older people are under-represented in trials of treatments for which they are the major consumers.

There is an urgent need for research funders, industry and regulatory authorities to consider how these issues can be addressed so that regulatory pathways for clinical and population research, and the testing of new medicines do not hinder our efforts in ageing research.

The report identifies scientific priorities for ageing research, mechanisms for investment, measures to build capacity and means to encourage interventions in the ageing process. It calls upon the Medical Research Council (MRC) and other UK funders to bring renewed leadership, vision and focus to UK ageing research, and to foster scientific and clinical excellence. Responding to the report Professor Sir

Leszek Borysiewicz, Chief Executive of MRC said, '*All over the world people are living longer, research into ageing is a priority for the Medical Research Council so we can learn how to make the extra years healthier too. This new report by the Academy of Medical Sciences provides a valuable overview of the basic science of ageing research in the UK and will make an important contribution to the wider ageing research agenda and the development of the overarching UK ageing research strategy, which the MRC is co-ordinating.*'

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For further information or copies of the report, please contact Nicholas Hillier, Communications Manager, Academy of Medical Sciences
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Notes for Editors

Full copies of the report 'Rejuvenating ageing research' are available from nick.hillier@acmedsci.ac.uk or can be downloaded from www.acmedsci.ac.uk/publications after 00.01 Monday 27 September 2009.

Academy of Medical Sciences
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Project background
In spring 2008 the Academy initiated a working group on ageing research. The project was stimulated by a range of previous Academy work, including reports on 'Restoring Neurological Function' and 'Brain science, addiction and drugs', as well as our submission to the 2005 House of Lords Science and Technology Committee inquiry into the scientific aspects of ageing. The Academy had also been approached by the MRC for independent guidance on strategic directions for UK ageing-related research - one of the MRC's six priority areas.

Working group membership:

Chair
Professor Dame Linda Partridge CBE FRS FRSE FMedSci, Weldon Professor of Biometry, University College London

Members
Professor Alastair Buchan FMedSci, Director of the NIHR Biomedical Research Centre, University of Oxford
Professor Chris Day FMedSci, Pro-Vice Chancellor and Provost of Medical Science, Newcastle University
Professor Felicia Huppert, Professor of Psychology, University of Cambridge

Dr Eric Karran, Chief Scientific Officer for Neuroscience Research and Early Development, Johnson and Johnson
Professor Tom Kirkwood CBE FMedSci, Director of the Institute for Ageing and Health, Newcastle University
Professor Kay-Tee Khaw CBE FMedSci, Professor of Gerontology, University of Cambridge
Professor Simon Lovestone FMedSci, Professor of Old Age Psychiatry, Institute of Psychiatry, King's College London
Dr Ruth McKernan, Vice-President for External Research in Europe, Pfizer
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Professor Avan Aihie Sayer, MRC Clinical Scientist and Honorary Professor of Geriatric Medicine, University of Southampton
Professor Jonathan Seckl FRSE FMedSci, Professor of Molecular Medicine, University of Edinburgh
Professor Adam Sillito FMedSci, Professor of Visual Sciences, Institute of Ophthalmology University College London
Professor Raymond Tallis FMedSci, Emeritus Professor, University of Manchester
Professor Andrew Wyllie FRS FRSE FMedSci, Professor of Pathology and Head of the Department of Pathology, University of Cambridge