Welcome to the Spring CCACE e-bulletin featuring news & updates. Please visit our website at www.ccace.ed.ac.uk for more information.

New Alzheimer Scotland Dementia Research Centre

A new Dementia Research Centre led by CCACE Co-director Professor John Starr is due to open on 21 July 2011. The Centre, which will be established in a collaboration between Alzheimer Scotland and the University of Edinburgh, will receive funding for 5 years in the first instance. It aims to provide a high quality environment for dementia research, commission and develop a balanced portfolio of scientific and clinical research, attract external dementia research funding, and develop and maintain a Dementia Brain Tissue Bank.

Professor John Starr, the new Centre’s Director said:

“The new Alzheimer Scotland Dementia Research Centre will be like a ‘baby sister’ to CCACE, drawing on CCACE’s expertise and help of its core staff. The Centre will complement CCACE, with its focus on non-normative or pathological cognitive ageing contrasted with CCACE’s focus on normative or healthy cognitive ageing”.

CCACE Director, Professor Ian Deary will be co-Director of the Centre. The Alzheimer Scotland Dementia Research Centre will be situated on the ground floor of Psychology, 7 George Square, just off the concourse. Anyone interested in dementia research who would like to know more about the new centre is welcome to contact John Starr on 0131 537 5023 or e-mail jstarr@staffmail.ed.ac.uk.
International research group visits to CCACE

CCACE has recently hosted 2 visits from important cognitive ageing research teams that are developing collaborations and closer links with CCACE. The first with Professor Boo Johannson and fellow research academics, post doctoral workers and PhD students came from Gothenberg to visit the Lothian Birth Cohort team. They had a very busy day of introductions, meetings and research discussions.

Professor Tom Kirkwood, fellow Professors and other academics from the University of Newcastle’s 85+ study also visited in April for another busy day of shared research talks, discussions and plans for further collaborations. The complimentarity of cognitive and biomarker research between the Edinburgh and Newcastle groups, respectively, has made for particularly fertile further collaborations. These important and useful visits are good example of the platform that CCACE can provide for visibility and visits from cognate research teams.

CCACE was delighted to host Professor Timothy Salthouse from University of Virginia at Charlottesville during a few days in April. Professor Salthouse gave a very well received lecture on cognitive ageing and met with several research groups and CCACE members, including a very stimulating session with the PhD students in CCACE. Professor Salthouse – in a very short visit – was able to act as PhD external examiners for Dominika Dykiert with CCACE. Congratulations to Dominika passed her PhD with no changes!

CCACE Strengthens Links with Copenhagen Centre for Health Ageing

Centre member Dr Alan Gow has secured a guest professor collaboration with the Centre for Healthy Aging (CEHA) at the University of Copenhagen. The funding, with Professor Kirsten Avlund and Professor Erik Mortensen, is for Alan to spend 3 months in Copenhagen to work in the Life Course Perspective on Aging group within CEHA. He will be analysing data from the Danish 1914 Cohort. This longitudinal study spans 40 years and the data are ideally suited to asking questions regarding lifestyle and psychosocial factors as potential determinants of cognitive ability and ageing. The participants have completed key cognitive assessments from age 50 to 90, and have supplied detailed lifestyle information (activity, social support, exercise) at various stages across the course of the follow-up. Alan will commence the guest professorship in June this year. It is hoped this will be lead to stronger collaborative links between the research centres. CCACE Director Professor Ian Deary is on the CEHA Scientific Advisory Board.

CCACE Science Writing Competition

First Prize: £500 conference travel funding.
800 Word article for a general audience.
Open to Centre Members and PhD Students.
Closing Date: 30 June 2011.
Contact: robin.morton@ed.ac.uk or 650 8292.
CCACE researchers continue to engage practitioners and policy makers in the Centre’s research. Members of CCACE met with NHS Health Scotland in Glasgow on 18 April. Centre Director Ian Deary and colleagues met with Director of Public Health Science, NHS Health Scotland Dr Laurence Gruer OBE and about 30 of his team and some others to discuss the important issue of normal cognitive ageing. Ian, along with Professor John Starr, Dr Alan Gow, and Dr Lorna Lopez presented the background on the importance of cognitive ageing for the Scottish population. Over the 4 talks the epidemiology, clinical importance and determinants of the ageing of mental abilities was discussed.

NHS Health Scotland is the NHS’s policy and education wing in Scotland and it is an important conduit for research information to be spread to policy makers and the public alike. The talks and discussions were very well received and the enthusiastic response from the audience indicated that the Centre’s impact with this group continued to be strong. Last year, CCACE held a cognitive epidemiology session with NHS Scotland.

Speaking about the visit, Dr Gruer thanked the team, saying “You presented complex information in a highly accessible way, stimulating great interest in the subject... As a result of this and the previous meeting, cognitive epidemiology and ageing are now part of the thinking and debate in Health Scotland.”

CCACE Hosts Sell out Theatre Production Spotlighting Dementia

On 4th and 5th April 2011, CCACE hosted a theatre production on Dementia which attracted over 200 members of the public, researchers and health practitioners. The production, titled Dementia Diaries, was followed by a panel discussion about the piece and dementia in general.

Dementia Diaries tells the story of a Polish family affected by dementia, using five monologues; a mother and father with different types of dementia, the son and the daughter and the carer, each living with dementia and coping in their different ways. The production benefited from all the original cast, musicians and director Mark Hewitt. The writer also attended the performances and took part in the panel discussion along with CCACE member Dr Tom Russ and Henry Simmons, CEO of Alzheimer Scotland. One of the many highlights was hearing from a Polish Carer who could directly relate to the work, emphasising the impact of dementia on families as much as sufferers.

CCACE were delighted to be able to work with a group of researchers from across the University to put together a bid for funding to bring the production to Edinburgh. The collaboration included researchers from the Centre for Research in Families and Relationships and the Public Policy Network. We are grateful for funding from the Medical Research Council, University of Edinburgh KE Fund, the Scottish Dementia Clinical Research Network and the Consulate General of the Republic of Poland in Edinburgh.
Dementia Research Network Recruits over 1,000 Participants

The Scottish Dementia Clinical Research Network (SDCRN) has now recruited over 1,000 people with dementia and their carers to their research register, five months ahead of target. The SDCRN has been recruiting volunteers who are willing to take part in clinical research into dementia. SDCRN collects names, contact details, and medical information from volunteers, collates this information in a national register and matches participants to clinical studies when requested by researchers.

The SDCRN had its first conference in March at Stirling Management Centre. It was attended by researchers, charities, nurses and pharmacists: 130 delegates in total. CCACE Member Dr Karen Horsburgh spoke about current dementia research, Professor Alison Bowes (University of Stirling) updated delegates on current social research and Cameron Stark (NHS Highland) spoke about the public health side of dementia. Emma Law (Manager, SDCRN) stressed the importance of involving patients and carers in dementia research and described a recent survey summarised below.

The Scottish National Dementia Strategy pledges to “continue to support world class research into both medical treatments for dementia and the delivery of care for people with dementia”. To find out the views of people with dementia and their carers, the SDCRN distributed a questionnaire to all people on the Scottish Dementia Research Interest Register, the SDCRN website and more widely by Alzheimer’s Scotland and CCACE.

Views were sought on the priority of 15 different types of clinical research topic; who should be the focus of research; what were the preferred outcomes from research and what kind of interventions people would like to see researched.

A total of 514 responses were received including 161 from the research register.

There was no difference between the top four research priorities (see left) of register respondents, newsletter respondents or internet respondents.

The survey found that people in Scotland want a focus on research in those pre-diagnosis (see below) and recently diagnosed and those mainly those living at home.

There is less agreement about what measures should be used in research such as activities of daily living, changes in physical symptoms, changes in behaviours or memory changes.

Respondents supported a wide variety of types of research, though people on the research register wish to see more pharmaceutical trials.

Further work is needed to increase awareness of the types of studies undertaken by dementia researchers and prioritised by those involved in clinical research.

300 respondents not currently recruited to a research project who would, or possibly would, agree to take part in research.
Five Minutes With... Andrea Zammit

CCACE promotes postgraduate training in Cognitive Ageing and Cognitive Epidemiology. We are interviewing CCACE postgraduate students about their career, their research and their hopes for the future. Here we speak to second year PhD student Andrea Zammit (Left), who joined the Centre PhD cohort as an associated student in the Human Cognitive Ageing group. Research into Ageing awarded her a studentship for years 2 and 3 of her PhD studies. Andrea is supervised by Professor Ian Deary and Professor John Starr.

What did you do before coming to CCACE?

After completing my undergraduate degree in psychology at the University of Malta, I volunteered at a Rehabilitation Geriatrics Hospital for a year. During that time I also taught psychology at the Malta College for Arts, Science and Technology, and worked in a social agency supporting children in unstable families. I then did a postgrad in Geriatrics and Gerontology and eventually came to Edinburgh to do my MSc in Human Cognitive Neuropsychology, where I decided to continue further in research.

Why did you become interested in Science?

I loved science at school, especially when I started studying biology. I was fascinated by how the human body works, and was really interested in learning more about the brain. I’ve always been interested in clinical psychology and brain pathology, especially old age disorders. On a more academic level, I was attracted to the whole methodical process of carrying out research.

What excites you about your research (or what preoccupies your mind most)?

For my particular study, I find it amazing how creative a dataset has the potential to be. I work with the LBC1936 data, and have been learning to use new statistical techniques to explore the data in different ways. It’s always exciting to get new results after figuring out how to run a new program, producing piles of analyses, reading through them and eventually presenting the findings.

What are your hopes for your research?

I hope that my research makes important and exciting findings in the field of cognitive ageing. I hope that it would contribute to health care and policy. And I hope that it gets published. In the long term I would love to continue doing research and travel.

How would you describe your research to a member of your family?

I’m studying how people age in physical, mental, and social terms to find out what makes ageing successful, and if this process is the same for everyone. I’m trying to answer three questions; whether some individuals decline more than others, and if so, what causes their decline; what relationship exists between physical, mental, and social factors and the rate of decline; and if successful ageing is still possible if one of these factors shows a pattern of ageing that is outside the normal range of that group.

What do you like to do when you are not doing research?

I go to the gym, cycle, and do yoga. See live music, go to the cinema, check out new things going on in Edinburgh, and visit family and friends here and there.
Lothian Birth Cohorts: LBC1921 and LBC1936 Enter a New Phase

The Lothian Birth Cohort 1936 (LBC1936) study has now completed the first wave of Magnetic Resonance Imaging (MRI) on 700 LBC1936 subjects, and will start imaging the second wave in the next couple of months. Primary analyses of the first wave data is now complete. This has included measures of brain atrophy and lesions in the white matter, quantitative structural brain volume measurements and metrics of white matter integrity from tractography and magnetization transfer MRI. Martha Whiteman has returned to the LBC team as LBC1936 Study Coordinator.

The Lothian Birth Cohort 1921 (LBC1921) study has begun retesting of 100 at 90, 100 research participants at the age of 90 and hope to complete later this year.

LBC1936 and Disconnected Mind Imaging Publications


A new paper by Holland et al. describes white matter imaging in a mouse model of hypoperfusion (reduction in blood flow) that may be relevant to white matter lesion formation. The methods used in this paper have been developed from human imaging experience, giving an example of reverse translation. Holland, Bastin, Jansen, Merrifield, Coltman, Scott, Nowers, Khallout, Marshall, Wardlaw, Deary, McCulloch, Horsburgh. (In press, 2011). ‘MRI is a sensitive marker of subtle white matter pathology in hypoperfused mice.’ Neurobiology of Aging.

Scottish Imaging Network Annual Meeting and Online Courses

SINAPSE is highlighting the latest medical imaging research both from its centres and the UK at the SINAPSE Annual Scientific Meeting 2011 on the 16 June 2011 at Bonar Hall, University of Dundee. The invited speakers are: Professor Klaus Ebmeier, University of Oxford; Professor John Pickard, University of Cambridge and Dr Adrian Carpenter, Cambridge Neuroscience. To register for see www.sinapse.ac.uk/media/events/asm_register.asp

SINAPSE is developing continuing professional development courses, both online and face to face. The development of these courses is funded by the Scottish Funding Council and the grant is called SPRING, Dr Janet De Wilde is the PI. It is planned that the online courses will start in October 2011 and the first face to face workshops will be:

Analysis of Preclinical Neuro Images (APNI) on 22 June 2011 at the University of Edinburgh Library Meeting Suite, George Square, Edinburgh. See www.sinapse.ac.uk/media/events/apni_info.asp

MRI Safety Course on 7 September 2011 at the Library Meeting Suite, George Square, Edinburgh. See www.sinapse.ac.uk/media/events/mri_2011.asp.
In the second of our student interviews, we speak to PhD student Alixe Kilgour (Left), who is supervised by Professor John Starr and Professor Joanna Wardlaw.

**What did you do before coming to CCACE?**

I was working in NHS Lothian as a Medical Registrar in Elderly Care. I went to medical school at Newcastle University and worked in Newcastle as a junior doctor before moving to Edinburgh in 2007. I started working within CCACE in 2009 when I was appointed the CCACE Clinical Lecturer.

**Why did you become interested in Science?**

I have always been a logical thinker and I think that this drew me to science from a young age. I like the idea of testing sequential ideas to discover an underlying truth.

**What excites you about your research (or what preoccupies your mind most)?**

I am interested in whether the changes seen with ageing occur throughout the organs of the body at the same rate and if so what it is that determines this rate. My research is focused on sarcopenia, the decline in muscle structure and function seen with age, and age-related cognitive decline. Sarcopenia starts in your thirties and accelerates in your late sixties, it accounts for a substantial amount of morbidity and mortality in the elderly. I feel lucky to be studying something whilst it is just starting to receive international research attention.

**What are your hopes for your research?**

I sincerely hope that my research will have practical and translational consequences. It would be fantastic if it could lead on to generate robust health promotion advice or new drug treatments. Next month I am attending my first international conference to present the results of a study funded by a CCACE imaging pilot grant. I am also in the process of organising a clinical study. This will be an entirely new type of project for me and I am looking forward to the challenge.

**How would you describe your research to a member of your family?**

I am looking at why people age at different rates. We know that there are physiological changes which occur with age but that they appear to proceed at different rates within individuals of the same age with matched degrees of comorbidity and that we don’t know why that is. My research is trying to identify possible reasons why these changes occur at different speeds between individuals, particularly in relation to ageing muscle. This explanation is almost inevitably followed by a list from the question bearer of theories which they feel already answer my PhD without the need for me to carry on with the research. However some seem more scientifically sound than others…

**What do you like to do when you are not doing research?**

I love to cook. A perfect evening for me would involve good food, good friends and good banter.

**What do you wish I’d asked you?**

How can we increase the number of women entering academic medicine? Unfortunately women are still underrepresented in academic medicine particularly at the professorial level. I think having good role models is important to ensure that female doctors see a career in academic medicine as a viable option.
CACCE Systematic Reviews and Meta-analysis Workshop

On 2nd March CCACE held its first workshop on Systematic Reviews and Meta-analysis. This was attended by a diverse group of 19 members of CCACE; from PhD students to tenured staff, all with interests in cognitive ageing in humans and/or animals and with expertise including genetics, brain imaging, genetics, and statistics.

Susan Shenkin (CCACE member and Geriatrician) provided an introduction to Systematic Reviews, which “collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question”. She discussed the rigorous design and reporting structure required and introduced a wide range of resources.

Sheila Fisken (Liaison Librarian) gave a very practical demonstration of electronic search strategies. She provided many useful tips including selecting which databases to search, using Cited Reference Searches, and how to access ‘grey’ literature.

Geoff Der (CCACE member and Statistician) provided an overview of Meta-analysis: “the use of statistical methods to summarise the results of independent studies”. He shed light on the methods used to aggregate effect sizes and assess e.g. heterogeneity and publication bias.

Systematic Reviews and Meta-analysis allow the best possible summary of the evidence to date to establish both what is already known in subjects relating to CCACE, and where further research is required. The programme was coordinated, and the Workshop organised, by Catherine Calvin, and the feedback has been excellent. We are converting the presentations to an on-line format to allow them to be more widely accessible.

Non-specialist guides to cognition, cognitive ageing and cognitive epidemiology!

Professor Ian Deary, Director of CCACE, and several CCACE members have completed a series of three non-specialist guides to: cognitive ability (intelligence), cognitive ageing, and cognitive epidemiology.

Ian and his team and collaborators decided that it was important to provide information about the Centre’s key research topics to give an easy to follow update if the areas without reading masses of individual research papers. The resulting 3 review articles which have been written to be understood by as wide a range of scientists, practitioners, and interested lay people as possible.

In the first of the 3 articles Ian, Dr Lars Penke and Dr Wendy Johnson describe how scientists measure and study people’s differences in intelligence. The second paper summarises what is known about the causes of people’s differences in the ageing of their thinking skills. In the third, with Prof David Batty and Dr Alex Weiss, Ian has written a large paper on how individual differences in intelligence and personality are being studied in relation to health, illnesses, and death.

Ian said, “It is always a thought to set aside time to summarise a research field. However, I think it is important that the Centre gets out some accessible, summary accounts of its research themes. I’ve got great co-authors on these papers and we enjoyed composing them. I know it is a jargon term, but we all think that these are good contributions to ‘knowledge exchange’. In non-jargon terms, we want to inform as many people as we can about the topics that motivate us.”

Further detail, including full references can be found in the CCACE website at http://tinyurl.com/cogguides
Congratulations to CCACE Science Manager Beverly Roberts and her husband David on the birth of their son Deacon. Beverly will be returning to CCACE later this year.

Congratulations to CCACE Group Leader Prof Joanna Wardlaw, who has been elected Fellow of the Royal Society of Edinburgh.

CCACE member Dr Maria Valdez-Hernandez has been promoted to Row Fogo Lecturer in Medical Image Analysis at BRIC. Dr Michelle Luciano has been promoted to Senior Research Fellow and appointed a Lectureship in the Department of Psychology.

Congratulations to Ms Joanna Brooks (Human Cognitive Ageing) on being awarded the 2011 Royal Society of Edinburgh Beltane Innovators Award for Public Engagement. Jo won the Brain section of 'I'm a Scientist get me out of here' last year and is currently developing a new project, called 'Make me a Scientist'.

Funding News

CCACE member Professor Richard Morris, has secured a European Research Council 3 million Euro Advanced Investigator award, jointly with Donders Institute for Neuromaging, Holland. This work on learning & memory, incorporates ideas about the role of prior-knowledge & schema.

Dr Karen Horsburgh has received funding from Alzheimer's Research UK to investigate how small reductions in blood flow could bring on dementia. It is hoped that the project will further the understanding of Alzheimer's disease and vascular disease but could also result in the development of alternative therapeutic strategies.

Generation Scotland (GS) has received core funding from the Chief Scientist Office to support access to its samples and data. CCACE pilot funds are supporting a study to look for evidence of cognitive trait marker segregation by genome wide linkage analysis in GS families. To find out more about the rich resource of over 30,000 research participants, visit www.generationscotland.org.
Lower Parental IQ may Increase Risk of Conduct, Emotional & Attention Problems

CCACE group leader Professor David Batty has led a study that has concluded that children whose parents score poorly on IQ tests may have an increased risk of conduct, emotional and attention problems. Home environment, parental malaise, and child’s own IQ may have a role in explaining these associations. The study analysed data from 2,202 members of 1958 National Child Development Study and their offspring. Among children aged 7+, there was strong evidence from age- and sex-adjusted models to support a decrease in conduct, emotional and attention problems in those whose parents had higher IQ scores. These associations were linear across the full IQ range. Individual adjustments for socioeconomic status and child’s own IQ had limited.

Whitley, Gale, Deary, Kivimaki and Batty (In Press, 2011). Archives of General Psychiatry

Dates for Your Diary

8th June 2011, 5pm. Rescheduled St Andrew’s Day Lecture 2011.
Professor Seth Grant, Sanger Institute, University of Cambridge. ‘Cognition and the Genome’
Room F21, 7 George Square.· Open to all.

6 September 2011, 1.00 pm - 5.00 pm. 4th Annual Research Day.
Keynote Lecture: 1.30 pm. Professor Ulman Lindenberger, Max Planck Institute.
‘Older brains are not all alike: heterogeneity in cognitive ageing’.
Room F21, 7 George Square, Edinburgh EH8 9JZ (followed by wine reception). Open to all.

30 November 2011. 5.00 pm, St Andrew’s Day Lecture 2011. Professor Carol Brayne, University of Cambridge. ‘Striving for science and policy relevant research for our ageing populations’. Room F21, 7 George Square, Edinburgh EH8 9JZ. This seminar is open to all and will be followed by a wine reception.

Using the CCACE Core Staff

If you have a project or grant application that would benefit from the skills offered by any of the CCACE core staff please contact them directly or e-mail ccace@ed.ac.uk.

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