Dementia Research Strengths across Kent and Medway HEIs

An Overview of Research at the University of Kent, Canterbury Christ Church University and the University of Greenwich
**Summary:** The Universities across Kent and Medway have significant strengths in dementia research that can be applied to meet the challenge of providing better quality of care in a cost-effective manner. This digest outlines areas of leading dementia research strengths at the University of Kent (UoK), the University of Greenwich (UoG) and Canterbury Christ Church University (CCCU). For further information or to explore partnership opportunities in any of the research areas covered in this digest, please contact Professor Peter Jeffries, Director of KentHealth, at p.jeffries@kent.ac.uk.

**Understanding the Dementia Experience**

We are furthering our understanding of what it is like to be someone diagnosed with dementia and are developing strategies for improving dementia care based on the patient experience. Julia Twigg (UoK) has been conducting an ESRC-funded project on dementia and dress, which explores questions around embodiment, identity and the self, arguing that clothes are potentially relevant to the well-being and lives of people with dementia. Paul Newton (UoG) is interested in the perceptions and experiences of dementia and how older people can gain empowerment. Further research at the University of Greenwich includes interviewing young people with dementia about their experiences and the effect of spirituality on the quality of life for those with dementia. Tony Lavender (CCCU) is working with East Sussex Healthcare NHS Trusts to offer improved interventions for mental capacity assessment and care planning across the Trust as part of a 2-year action research project. CCCU staff have also worked with the same Trust to submit applications to the South Coast Dementia Care Challenge Fund in making acute care environments more dementia-friendly and in setting up a re-enablement team to assist discharge and transition back into the community for people with dementia. The same team has worked together to set up a centre for excellent care for older people living with dementia at the Conquest Hospital, Hastings.

**Early diagnosis of dementia**

In addition to understanding the experience of living with dementia, we are researching how GPs and carers respond to the dementia diagnosis. Alisoun Milne (UoK) has raised awareness and conducted pivotal research into the early diagnosis of dementia amongst GPs as well as looking into dementia screening. Milne and Kate Hamilton-West (UoK) found that GPs now more widely support the early diagnosis of dementia and see it as facilitating a number of practical and therapeutic benefits for users and carers, such as preventive treatment and future planning. Kate Hamilton-West & Milne have also looked at the attitudes of undergraduate students towards dementia.

**Strengthening Social Bonds and Intergenerational Relationships**

The University of Kent is collaborating with East Kent Hospitals University NHS Foundation Trust (EKHUFT) to develop personalised responsive care environments for people with dementia. This work concentrates on social dynamics and the interaction of patients with...
remote telecare devices and the human-computer interface. While inter-personal communication enhancement in this sort of environment can be achieved by judicious adoption and greater targeted optimisation of traditional technologies such as email transactions and interaction via social networking methods, we are also beginning to identify more powerful structures that can better integrate and organise different service components to optimise information flow among those involved in different ways in patient care within a designated community. The UoK research includes analysing existing systems to better understand the underlying design concepts as well as the patients’ motivation, perception and interaction with the systems. This multidisciplinary approach to engineering and design involves collaboration with experts from various disciplines, ranging from psychology and sociology to art and design.

David Shemmings (UoK) investigates psychosocial processes involved in electronic assistive technology, especially the use of robots, ‘avatars’ and virtual environment technology. This involves systematic studies of human behaviour in a virtual environment and computer-mediated social interaction. He has recently begun some work to evaluate how communications between patients, families and carers can be better implemented and managed in a typical care environment, particularly in the light of fast-moving developments in the technology of inter-personal communications. This research could have additional benefits in helping to promote more independent living and in improving quality of life for those concerned. Mike Forrester (UoK) utilises conversation analysis to understand the interactional skills and competencies of older people. His research flags any abnormal decrease in competency or social skills in older adults, which could help identify dementia in its early stages. He currently has a project student conducting a small study using Interpretative Phenomenological Analysis to understand people’s experience of dementia and the experiences of carers of someone with dementia.

**Unlocking Memories and New Learning through Art-based Interventions and Personalised Repositories**

Within the Department of Applied Psychology (CCCU) and in association with the Sidney DeHaan Arts and Health Research Centre (CCCU), Paul Camic (CCCU) has recently completed a pilot project on singing and dementia, which will be expanded into a RfPB bid for a RTC study. Other published work includes a feasibility study examining the impact of art galleries on episodic memory and verbal fluency, which led to a recently completed pilot study comparing traditional and contemporary art viewing on social and cognitive domains with Victoria Tischler at Nottingham University Medical School. The plan is to expand this work to look at the impact of gallery/museum programmes on social inclusion, wellbeing and health among older adults. Paul Camic (CCCU), partnering with the Beaney Art Museum in Canterbury, the Tunbridge Wells Museum and Gallery and UCL researcher Helen Chatterjee, is developing a project to look at the psychological, social and somatosensory aspects of
object handling. Michael Herron (CCCU) and Paul Camic (CCCU) are developing a computer-based application involving art images from partner museums (British Museum, Dulwich Picture Gallery, Hunterian Museum at the Royal College of Surgeons) as a tool to enhance communication and verbal fluency for people with a dementia and their carers. Tim Strangleman (UoK) is also interested in the use of nostalgia to unlock memories in older adults.

Work within the School of Engineering & Digital Arts (UoK) has focused on the design and implementation of a distributed, intelligent and flexible repository of personalised information for use by people with dementia living in long term care. The aim is to design a user-friendly tool that can easily be personalised to present material about an individual’s life history, biography and character. This personalised electronic repository will draw upon a range of media as sources (e.g. photographs) to create a biographical “memory bank” and system of “prompts” tailored to an individual’s history, health issues, tastes, characteristics, family and social networks, habits and routines and likes/dislikes. The project intends to enhance the user’s engagement with their environment and promote a better quality of life by stimulating and facilitating meaningful conversation and social interactions with care staff, family members and other residents.

**Improving Privacy and Dignity in Care Practice**

The University of Kent hosts part of two five-year policy research units funded through the Department of Health’s policy research programme. Each is worth a total of £5 million shared between the partners. PSSRU is taking the lead on the research unit in Quality and Outcomes of Person-Centred Care (QORU), which also involves colleagues at the Tizard Centre (UoK), the University of Oxford and the London School of Economics. The aim of this unit is to improve the quality of health and social care of people with long-term conditions through generating high-quality evidence about need, quality and outcomes of person-centred care. Its activities will fall under six themes: engagement (which is about improving the evidence available, particularly about hard-to-engage groups) identification and measurement of needs, quality and outcomes, application and use of such measures, and service delivery in person-centred care. The second of the two new units, the Economics of Social and Health Care Research Unit (ESHCRU), is led by the Centre for Health Economics at the University of York, and includes PSSRU at UoK and the London School of Economics. It will undertake: research into the funding and organisation of social and health care; design and evaluation of regulations, incentives, and reimbursement policies; and measurement of quality, outcomes, productivity and efficiency.

Mike Calnan (UoK) has recently finished an NIHR-funded ethnographic study on dignity in practice and the care of older people in four NHS acute Trusts in England and Wales and made recommendations for how to improve the dignity and privacy of care for those with
dementia. Kim Manley and Carrie Jackson (CCCU) are interested in the improvement of person-centred care for people with dementia admitted to acute hospital wards. The objective of their current study is to develop a means by which the quality of person-centred care and outcomes experienced by people with dementia can be improved on acute hospital wards. Milne (UoK) has also raised awareness about and extended the understanding of the experiences of older people with dementia living in long term care and the roles and experiences of their relatives. This body of work has mainly focused on reviewing research evidence for publication and local and national conference presentations. It has also led to the publication of a co-edited book entitled ‘Mental Health and Care Homes’ and contributed to Milne’s appointment to the National Health and Clinical Excellence Quality Standards Topic Expert Group (TEG) on Care of people with dementia (2011/12).

**The Cost of Services – Health and Social Care Economics**

The Personal Social Services Research Unit (PSSRU) at the University of Kent has played a key role in the collaborative and influential evaluation of the Individual Budget pilots, the follow-on evaluation of the impact of Individual Budgets on carers, the National Evaluation of the Partnerships for Older People Projects (POPP) and the prospective longitudinal study of Home Care Re-ablement Services, including information on the costs of re-ablement services for older people. Previous work has included studying the quality of life in care settings and the care standards by which that quality can be measured as well as costs and outcomes in health and social care. PSSRU has experience with studies in care homes and has carried out work for the Department of Health and other public and private sector bodies. At the University of Kent, the work undertaken for the 2009 Green Paper *Shaping the Future of Care Together* has been cited extensively, and continues to be built on in work undertaken for the Dilnot review. The Housing and Care programme at PSSRU aims to improve the evidence base in the field of housing and care by examining what ‘works best for whom and at what cost’. In addition to undertaking specific research projects, the programme aims to improve dissemination of research findings, and share experiences of methods through regular feedback days and the establishment of the Housing and Care research network. The primary focus of activity has been the rapidly developing field of extra care housing, where the main focus of the work was a large-scale longitudinal evaluation of extra care housing schemes. Sue Holltum (CCCU) specialises in personal health budgets for those with mental health difficulties.

**Design and Evaluation of Integrated Care Models to Support Dementia Care**

Simon Coulton (UoK) is involved in CAREDEM, a multi-phase study to design and evaluate an integrated care model for the management of dementia in primary care. The study, which is funded by funded by the NIHR Health Technology Assessment programme, aims to develop an evidence-based multi-disciplinary model for managing dementia in primary care. The
study will conduct a pilot and full multi-centre randomised controlled trial to evaluate the clinical and cost-effectiveness of integrated care for the management of dementia.

Jenny Billings (UoK) has also developed care planning guidelines for people with dementia. She has been awarded EU funding to evaluate European health systems in relation to integrated care models. Her subject areas include: ageism in clinical practice, developing indicators of best health promotion practice for older people, integrated health and social care services, standard setting in continence services, and privacy and dignity. Billings recently published *Design of a methodology to evaluate the effectiveness of integrated commissioning arrangements and their outcomes*, which was commissioned by Kent County Council.

Iain Carpenter (UoK) is involved with the three-year EU SHELTER (Services and Health for Elderly in Long Term Care) project evaluating services and health for older people in long-term nursing home care in eight European countries. Their methodology included comparing the condition, needs and levels of dependency of each resident and characteristics of their facility. The study resulted in the largest dataset ever constructed of older people’s wellbeing in nursing homes. By collecting the same highly detailed data on individual nursing home residents in each of the eight countries, they could make direct comparisons in a way that has not previously been possible in nursing homes. Robin Darton (UoK) researches health and social services provision for older people and methodological issues relating to the design and analysis of studies of health and social care. He has been involved in several large-scale surveys of care homes and their residents from 1980 to the present, and is currently involved in an evaluative study of extra care housing, which is intended to provide an alternative model of housing and care by retaining tenancy/ownership rights. He is also contributing to a study that makes projections of the demand for long-term care.

**Sharing Best Practice and Building Dementia Friendly Communities**

The Kent Surrey Sussex Dementia Centre Innovation Hub (DCIH), is evolving to replace the previously established Dementia Services Development Centre at Canterbury Christ Church University with a core theme of ‘Building Dementia Friendly Communities’. This new virtual hub will provide a portal to Dementia resources, and has evolved directly in response to stakeholders expressed needs to serve the counties of Kent, Sussex and Surrey. In addition to providing resources for stakeholders, Jan Dewing and Kim Manley are developing bids in relation to using technology to support GP diagnosis of dementia, and undertaking NIHR funded research which explores appropriate observation methods and tools for assessing people with dementia in hospital settings (in partnership with Bradford University and in association with EKHFUFT). Links are being made with other academics at UoG and UoK to support future joint working. The DCIH academics are working with the Faculty of Health and Social Care staff, contributing to the delivery of training and education within the
portfolio of dementia focused CPD activity to support those working with dementia in the health and social care sector, from Foundation Degree to Postgraduate study. Jan Dewing is supporting three PhD students exploring dementia related topics. New from Sept 2013, is the Masters in Practice Development which will support the alteration, improvement and development of practice across health and social care settings to benefit those suffering from dementia or supporting individuals with dementia.

Ann Netten and Julie Beadle-Brown (UoK) ave received funding from Skills for Care and Development to conduct a feasibility study of developing an evaluation model for measuring the impact of workforce development in care homes. A recent report Kent Health and Lifestyle Survey was conducted by the Centre for Health Services Studies (CHSS) and commissioned by Kent County Council. This report offers a review of the epidemiology and characteristics and needs of family carers in Kent to provide: a general profile of carers in Kent, levels and types of caregiving, carers’ health including the impact of caring, and support from formal and informal sources. It also offers analysis of data around specific groups of carers including mid life carers, older carers and co-resident carers.

Alisoun Milne (UoK) is part of the G8 (Gerontological social work special interest group). This group is comprised of 8 academics from 7 universities who are doing a range of things that intersects with people with dementia and their carers. They are currently working on a report to highlight the role and effectiveness of social work with older people. This also serves to highlight that social work with older people is being squeezed out of practice, research and education. Milne has also contributed to a range of service development projects in the older people’s mental health field. This includes evaluating a Home Treatment Service for Older People with dementia, and a multi-component intervention for carers of people with dementia. Additionally Milne has conducted an evaluation of a psychosocial group for relatives with an early diagnosis of dementia.

End-of-Life Care
Andrew Thorns (Hon UoK) co-ordinates the Kent & Medway CLRN supportive and palliative care local priority research group. The mission of this group is to promote specialist education, quality care and research in supportive and palliative care throughout Kent and they work within local specialist palliative care providers, Ellenor Lions Hospice, Heart of Kent Hospice, Hospice in the Weald, Pilgrims Hospices in East Kent and Wisdom Hospice (Medway Community Healthcare). David Oliver (Hon UoK) has been investigating the place of care and death and the factors affecting these decisions and Thorns has researched the end-of-life decision making process with a particular focus on the ethics of such decisions, the use of sedation at the end of life and professional's communication skills when dealing with end of life issues. The group are supported by a research nurse and facilitator and have contributed to a number of portfolio studies.
At CCCU, Dr Steve O’Connor and Matt Hart, both end-of-life specialists, have been commissioned by West Kent CCG and the Hospice in the Weald, to upskill nursing and health care staff within a series of care homes in the Maidstone area, to enhance end-of-life care for residents, many of whom would be in the early stages of dementia. The approach used aims to promote effective symptom control, reduce hospital admission for end of life care and to allow death within the ‘normal’ environment, which is particularly pertinent to those with any neurological impairment. Jan Dewing (CCCU) is a member of the National Advisory Group for the EVIDEM project on end-of-life care in care homes and has been invited by Kings College and McMillan to join an expert group exploring consent and research at the end-of-life for people with dementia.

**Neuroimaging Analysis, Assessment and Monitoring of Neurological Deficits**

The University of Kent’s cross-disciplinary expertise in medical imaging has been applied to the analysis of dementia. The Centre for Cognitive Neuroscience and Cognitive Systems (CNCS) at the University of Kent aims to harness the potential for cross-disciplinary research at the junction of Cognitive Psychology and the Computational Sciences. CNCS applies neuro-imaging techniques, such as electrophysiological methods (EEG and ERP), to relate brain activity to cognitive function. Alan Colchester (Hon UoK) is working on an EKHUFT-funded project on structural and computer analysis in clinical MRI scans to distinguish types of dementia, where sporadic CJD, variant CJD and non-variant dementia can be distinguished with high specificity and sensitivity. He also has an MRC-funded studentship on the development of improved segmentation methods for structural analysis of imaging changes in dementia. Hojjat’s project aims to develop reliable tracking algorithms to visualize fibertracts in the brain to facilitate investigation of neurological diseases. Stella Tsermentsei (UoG) also combines classical neuropsychological techniques with state-of-the-art neuroimaging methods to study cognitive impairment in developmental disorders and neurodegenerative disease.

**Pain Management and Elderly Drug Use**

Pat Schofield (UoG) is currently involved in three major programmes of research investigating pain in older adults with relevance to dementia patients. The first is funded by a consortium led by the Medical Research Council entitled *Engaging with Older Adults in Designing and Developing Strategies for the Self Management of Chronic Pain (EOPIC)*. The second programme is *New technologies to support older people at home: maximising personal and social interaction* funded by dot.rural, and the third programme is an EU funded programme *Pain Assessment in Patients with Impaired Cognition, especially Dementia*. Schofield currently leads the guideline development group supported by the
BPS/BGS developing guidelines for the management of pain in older adults. She is also the chair of the British Pain Society – Pain in Older Adults, Special Interest Group and chair of IASP Subcommittee on Education (Pain in Older Adults SIG). Schofield and Conway have recently completed a survey of pain in care homes across Kent and will be taking this work forward. Schofield & Newton have recently completed a study looking at the impact of education of staff around pain and dementia. Trevor Thompson (UoG) also researches pain perception and management in older adults.

**Medicines Optimisation**

An important element of care for patients with dementia is the appropriate prescribing of medicines to maximise benefit and minimise harm. Medway School of Pharmacy is undertaking research to support the national drive to reduce the prescribing of antipsychotic drugs to patients with the behavioural and psychological symptoms in dementia as these are estimated to result annually in 1,800 deaths and 1,620 cerebro-vascular adverse effects. Shivaun Gammie has a KentHealth scholarship to investigate how alternatives to antipsychotic medicines work in practice to manage challenging behaviours in dementia in patients in care homes. During the development of the research, five aspects of holistic care have been identified as key components of managing challenging behaviour (nursing staff, non-pharmacological methods of managing challenging behaviour, pharmacological methods of managing challenging behaviour, the care environment and restrictive practices). The impact that these components have on challenging behaviour will be measured using a variety of predominantly qualitative methodologies.

Beryl Navti (UoK), working with Buge Apampa (UoK), is focusing on Pharmaceutical Care in Dementia and aims to systematically identify the unmet pharmaceutical care needs of people with dementia living in care homes. Utilizing a multi-disciplinary approach, she will develop and test a model of care that integrates medication reviews and other medicine optimisation considerations with healthy life-style approaches and educational interventions. The project ultimately aims to improve understanding of therapeutic strategies in dementia amongst care home service providers and increase knowledge of the role of medication in person-centred care delivery for dementia patients, ultimately decreasing stress and anxiety for patients and their families.

**Treatments for Anxiety and Delirium in Dementia Patients**

Simon Coulton (UoK) is working on a double-blind, placebo-controlled randomised controlled trial of Memantine in the management of agitation in patients diagnosed with Alzheimer’s dementia funded by Lundbeck and is about to start a collaborative NIHR programme grant exploring the management of delirium in dementia patients following hip fracture. Pat Chung (CCCU) is interested in evaluating an intervention to prevent delirium in dementia occurring following hip fractures.
Evaluating the Effect of Treatments on Cognitive Function
Simon Coulton (UoK) is also undertaking an evaluation of the impact of anti-cholinergic medication on cognitive function of patients with mild to moderate dementia over time. He is interested in medication management for patient with mild to moderate dementia prescribed psychotropic medication in care homes.

Researchers at School of Engineering and Digital Arts at the University of Kent have pioneered a method of reliably monitoring and assessing certain types of neurological conditions based on the capture and automated processing of handwriting and drawing activity. They are currently extending their work to aspects of monitoring Alzheimer’s patients. Although originally developed as an in-clinic procedure, their approach is now being developed for remote use, with a focus on screening and remote diagnostics.

Remote Tracking and Monitoring of those with Dementia
John Batchelor (UoK) has developed a temporary transfer tattoo capable of sending wireless signals to an external receiver with a project in collaboration with Great Ormond Street Hospital and the University of Manchester. This work aimed to ensure that the assessment and monitoring features could anticipate problems and increase the efficiency in delivering specific interventions. The University of Kent’s expertise in antenna systems and wireless networks has implications for the development of remote sensors, including wearable antennas.

Following increasing public concern about the extent of abuse against vulnerable adults in England, arising in part from a series of high profile scandals, adult protection has become a key focus of national and local government policy. To support the development of best practice, Julie Beadle-Brown, Paul Cambridge, and Alisoun Milne (all UoK) have conducted research looking at the processes and outcomes of adult protection referrals and patterns of risk, as well as the protection of people with intellectual disability.

Embedding Security and Identification Technologies in Telecare Applications
Telecare currently enables remote monitoring and alerting of client incidents to carers so that sound responses to events can be made on a 24/7 basis. It also often involves the electronic transmission of highly personal health or welfare information, which raises important issues about client confidentiality and safety. David Chadwick (UoK) supports security aspects of telecare technology including personal data security, and also contributes to work on setting up sensors around a home for the elderly to detect their movements and stop those with dementia from leaving the house, and sending alerts if they pick up dangerous tagged items in the house.

An area of primary importance when dealing with vulnerable individuals, especially in applications built around remote management and monitoring of their care, is to ensure the
security of those who are being monitored. A key element in this type of scenario is to protect the client from unauthorised intrusion, either by means of physical access to a geographical location, or by means of “virtual” access via, for example, the Internet. Biometrics - using unique physiological or behavioural characteristics of an individual as a means of establishing or verifying their identity - now offers a technology sufficiently mature to provide reliable and robust approaches to identification.

The University of Kent’s researchers have an established record in developing novel and robust pattern recognition techniques to identify individuals from a range of biometric measurements. Working in partnership with InMezzo, Michael Fairhurst (UoK) is leading a project exploring user-friendly ways in which recognition of individuals from their face and voice characteristics can enable a wide range of patients and vulnerable individuals to gain easier access to telecare systems and applications, using the audio visual functions of the healthcare delivery platform SmartCare. They are developing a door entry system which recognises faces and voices of authorised carers and other visitors. Dr Farzin Deravi (UoK) has received funding from EKHUFT to assess the feasibility of developing automatic facial gesture recognition techniques as an input device to electronic assistive technologies for severely impaired patients. We are extending our work on the identification of individuals to harness its potential for application in monitoring and securing care environments (the home, communal care homes, hospital environments, etc). The University of Kent is developing techniques which can monitor and interpret environment-based information about the status, mood and state of individuals either as a supplement to their individual identification or as a separate exercise. Sandhiran Patchay (UoG) is also investigating facial recognition techniques. He is currently looking into the ability to reach and grasp items, which could help us understand the loss of this ability in some elderly dementia patients.

Copy also available at: http://www.kent.ac.uk/health/research/current.html

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