University of BRISTOL
Elizabeth Blackwell Institute for Health Research

Bristol Neuroscience Newsletter

December 2017 - January 2018

bristol neuroscience

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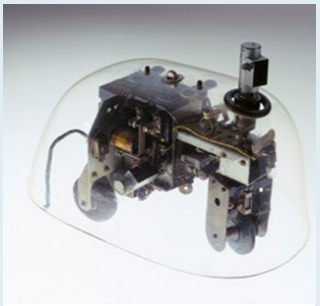


Grey Walter Prize

In July 2017 Bristol Neuroscience launched its inaugural prize for best published paper by a current or former PhD student who completed their degree here at UoB– the Grey Walter Prize.

The judging panel, which consisted of the Bristol Neuroscience steering group, took several factors into consideration when scoring:

- Level of impact
- Ingenuity and commitment in the development of their research project
- Authorship of paper

We received ten submissions in all from: Biological Sciences; Physics; Biochemistry; Physiology, Pharmacology and Neuroscience; and the Bristol Medical School.

William Grey Walter (1910-1977) conducted basic and applied neurophysiological research over a career spanning 35 years, the majority of which was spent at the Burden Neurological Institute in Bristol. He is best known for constructing some of the first electronic autonomous robots. These three-wheeled vehicles had a light sensor, touch sensor, propulsion motor, steering motor, and a two-vacuum tube analog computer. He wanted to prove that rich connections between a small number of brain cells could give rise to very complex behaviours. He called his creation *Machina Speculatrix* after their speculative tendency to explore their environment. The first robots, named Elmer and Elsie (ELectro MEchanical Robots, Light Sensitive), were constructed between 1948 and 1949, and were capable of phototaxis, by which they could find their way to a recharging station when they ran low on battery power. His robots were unique because they didn't have a fixed behaviour. The robots had reflexes which, when combined with their environment, caused them to never exactly repeat the same actions twice.

Bristol Neuroscience named the prize in memory of Grey Walter's contribution to the field of neuroscience.

Grey Walter Prize 2017 Winner

Dr **Emily Henderson**
(under supervisor Prof Yoav Ben-Shlomo)
Bristol Medical School
Population Health Sciences
graduated 2016

Image shows Emily in front of 10 Downing Street– *see story on page 6*

Paper:

Henderson EJ, Lord SR, Brodie MA, Gaunt DM, Lawrence AD, Close JCT, Whone AL, Ben-Shlomo Y (2016). Rivastigmine for gait stability in patients with Parkinson's disease (ReSPonD): a randomised, double-blind, placebo-controlled, phase 2 trial. *Lancet Neurology*, 15: pp249–58.

Abstract

Background: Falls are a frequent and serious complication of Parkinson's disease and are related to an underlying cholinergic deficit that contributes to gait and cognitive dysfunction. Gait dysfunction can lead to an increased variability of gait from one step to another, increasing the likelihood of falls. In the ReSPonD trial we aimed to assess whether ameliorating this cholinergic deficit with the acetylcholinesterase inhibitor rivastigmine would reduce gait variability.

Methods: We did this randomised, double-blind, placebo-controlled, phase 2 trial at the North Bristol NHS Trust Hospital, Bristol, UK, in patients with Parkinson's disease recruited from community and hospital settings in the UK. We included patients who had fallen at least once in the year before enrolment, were able to walk 18 m without an aid, had no previous exposure to an acetylcholinesterase inhibitor, and did not have dementia. Our clinical trials unit randomly assigned (1:1) patients to oral rivastigmine or placebo capsules (both taken twice a day) using a computer generated randomisation sequence and web-based allocation. Rivastigmine was uptitrated from 3 mg per day to the target dose of 12 mg per day over 12 weeks. Both the trial team and patients were masked to treatment allocation. Masking was achieved with matched placebo capsules and a dummy uptitration schedule. The primary endpoint was difference in step time variability between the two groups at 32 weeks, adjusted for baseline age, cognition, step time variability, and number of falls in the previous year. We measured step time variability with a triaxial accelerometer during an 18 m walking task in three conditions: normal walking, simple dual task with phonemic verbal fluency (walking while naming words beginning with a single letter), and complex dual task switching with phonemic verbal fluency (walking while naming words, alternating between two letters of the alphabet). Analysis was by modified intention to treat; we excluded from the primary analysis patients who withdrew, died, or did not attend the 32 week assessment. This trial is registered with ISRCTN, number 19880883.

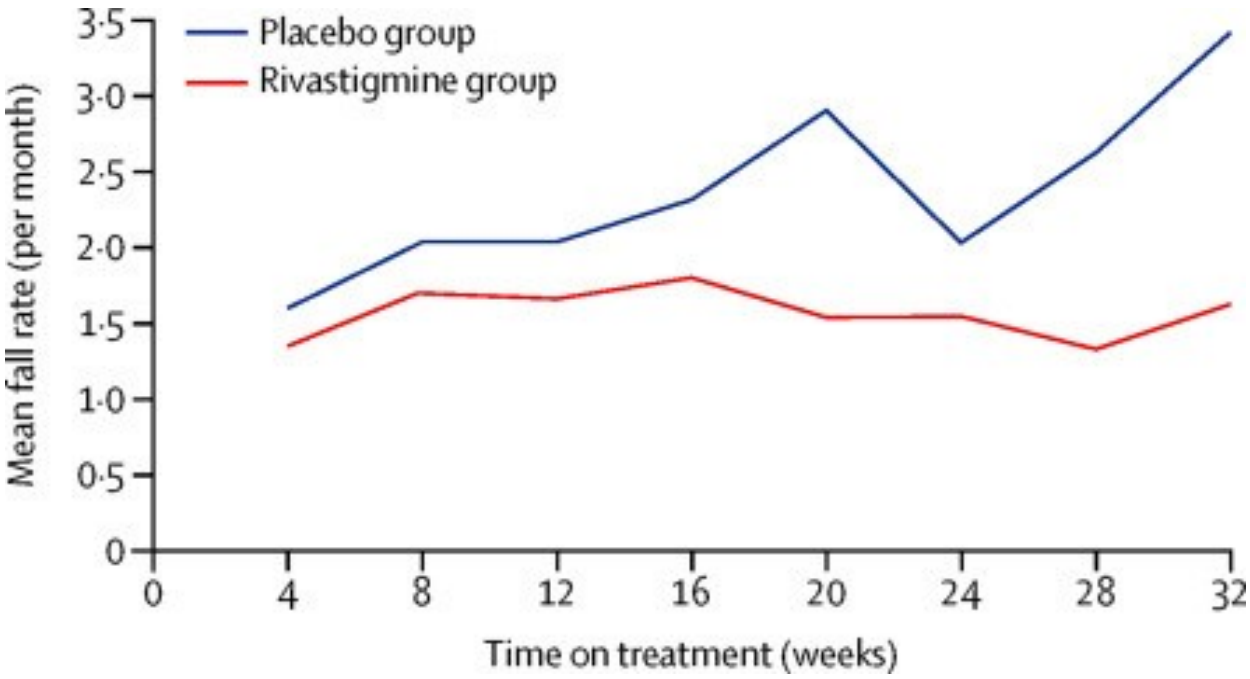


Image: falls per month

Findings: Between Oct 4, 2012 and March 28, 2013, we enrolled 130 patients and randomly assigned 65 to the rivastigmine group and 65 to the placebo group. At week 32, compared with patients assigned to placebo (59 assessed), those assigned to rivastigmine (55 assessed) had improved step time variability for normal walking (ratio of geometric means 0·72, 95% CI 0·58–0·88; p=0·002) and the simple dual task (0·79; 0·62–0·99; p=0·045). Improvements in step time variability for the complex dual task did not differ between groups (0·81, 0·60–1·09; p=0·17). Gastrointestinal side-effects were more common in the rivastigmine group than in the placebo group (p<0·0001); 20 (31%) patients in the rivastigmine group versus three (5%) in the placebo group had nausea and 15 (17%) versus three (5%) had vomiting.

Interpretation: Rivastigmine can improve gait stability and might reduce the frequency of falls. A phase 3 study is needed to confirm these findings and show cost-effectiveness of rivastigmine treatment.

Supporting statement

Background: In everyday life, we multitask activities such as driving a car whilst listening to the radio or chatting whilst crossing a road. So called 'dual tasking' competes for attentional cognitive resource and challenges the brain to prioritise this resource appropriately. When execution of multiple tasks overwhelms the availability of attentional resource, performance on one or both tasks suffers. When one task is walking, falls occur when attentional resource is insufficient as a result of cognitive impairment or the execution of multiple complex tasks that challenge different cognitive domains.

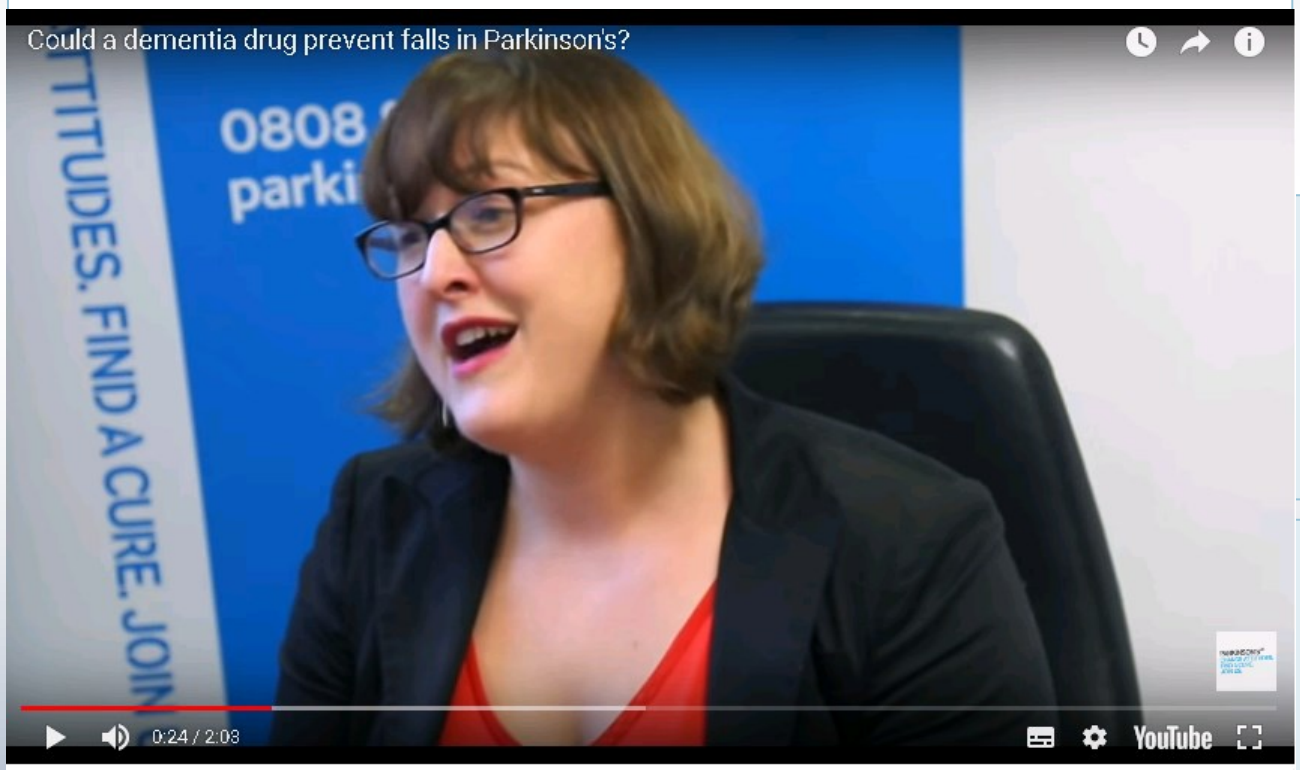
I was fascinated by this interplay of cognition and gait which confers an increased risk of falls in Parkinson's. Dopaminergic driven loss of gait automaticity necessitates that an individual pays more attention to walking in order to maintain a safe, upright posture. Prominent executive dysfunction, seen even early in the disease, limits the extent to which this mechanism can compensate. Neuroimaging and animal models established that an underlying cholinergic deficit in the nucleus Basalis of Meynert and the pedunculopontine nucleus, negatively impact cognition and gait respectively.

My hypothesis was that ameliorating the underlying cholinergic deficit with an anti-cholinesterase inhibitor would enhance compensation for the inherent gait instability and attenuate the propensity of people with Parkinson's to fall.

Contribution: I was competitively awarded an Association of British Neurologists / Parkinson's UK fellowship to set up and lead this phase II, double blind randomised control trial as my doctorate. This is the largest trial of cholinesterase inhibitors on gait and falls in Parkinson's, to date. I wrote the study protocol, Standard Operating Procedures and database and managed a budget of £250,000. I negotiated contracts between 4 organisations, obtained REC, MHRA and NHS approvals and coordinated the research team. I recruited all 130 participants to time and target (in under 6 months) and performed the testing on both clinic visits. My successful recruitment strategy was championed in the Association of Medical Research Charities report 'Our Vision for Research in the NHS'. I cleaned and analysed the data which demonstrated that treatment with cholinesterase inhibitors improved gait speed, variability and balance. Critically, this translated to a 45% reduction in falls.

Potential impact: Coverage of the results included the Daily Mail, The Australian Daily Telegraph, USNews.com and more than 40 local and regional UK newspapers. Watch this (*click on the image for the link*) and other research videos on falls and Parkinson's for more from Dr Emily Henderson and people affected by Parkinson's who've taken part in drug trials.

Emily was awarded £100 in shopping vouchers. *Congratulations!!*



Thanks are extended to everyone who submitted; the quality of research being published by our postgraduate community made for an intense judging process…

EVENTS

From top: Gil McVean and Jo Bangoura

Mapping the genetic architecture of common human diseases from routine healthcare data

18 December 2017, 13.00 - 14.00. Prof Gil McVean (University of Oxford), OS6 Oakfield House

Building an 'evidence and evaluation' culture

19 December 2017, 12.00 - 12.40. Jo Bangoura (Evaluation & Commissioning Liaison Manager, Improvement Lead, West of England Academic Health Science Network), Boardroom, South Plaza, Marlborough Street, Bristol, BS1 3NX

Decision Making and Artificial Intelligence reading group

20 December 2017, 15.00 - 16.30. Philosophy Department Library, Cotham House

NHS Digital and MRC Researcher Roadshow

8 January 2018, 9.30 - 16.30, TBC in Bristol

Complex systems workshop: "How stable are democracies?"

Bristol Brain Research: Showcase and Networking Day 2018

11 April 2018, 8.30 - 20.00, Chemistry Building

Deadline for submission of abstracts: 31 January 2018

Registration fee: £10 ONLY (includes refreshments breaks, buffet lunch, drinks reception)

REGISTER NOW

The Bristol Neuroscience Research Network presents a one-day conference to bring together our research community, organised by a cross-disciplinary organising committee. The Bristol Brain Research: Showcase and Networking Day is specially designed by and for members of the wider community to learn about all the different research facets and resources at UoB.
This one-day event offers the opportunity for researchers across Schools and Units to discuss best practice, share experiences, cross-fertilise, source expertise and engage across the whole spectrum of neuroscience from cellular work to epidemiology to clinical applications, and everything in between.
The day will include talks and poster sessions focusing on a wide range of topics,
with a chance to win prizes.

- ***Hear about current research & technology from across the faculties***
- ***Present and discuss novel findings with colleagues with diverse expertise***
- ***Foster interdisciplinary collaboration and build networks across the University***
- ***Put grant and fellowship ideas to our panel of experts***

For more information and to download the abstract submission form, go to the **event website**

11 - 12 January 2018

Famous for 3 minutes
18 January 2018, 11.00 - 14.00, Stephenson Room, Richmond Building

Rewriting Psychosis: CRAZYWISE
20 January 2018, 14.00 - 16.00, The Station, Silver Street, Bristol, BS1 2AG

JSPS-Academy of Medical Sciences, Japan-UK Collaborative Symposium: Medical Imaging and Artificial Intelligence
23 January 2018, 9.00 - 16.00, Academy of Medical Sciences, London

Health: The design, planning and politics of how and where we live conference
25 - 26 January 2018, PMUWE Bristol, Frenchay Campus

Introduction to Research Governance
1 - 2 February 2018. Course tutors: Profs Yoav Ben-Shlomo & Rona Campbell

NIHR Bristol Biomedical Research Centre Launch Symposium
1 February 2018, 10.00 - 17.30, We The Curious

Public lecture and debate: Can surgical research improve health?
1 February 2018, 18.00 - 19.30. Gianni Angelini (British Heart Foundation Professor of Cardiac Surgery), Prof Debbie Lawlor CBE & Prof Jane Blazeby (Professor of Surgery), We The Curious

How ethics and values impact upon being the Chair of the RCGP
8 February 2018, 15.30 - 16.30. Prof Helen Stokes-Lampard (RCGP), Canynge Hall, G:12

Gender-sensitised weight management programmes for men: are they needed and do they work?
8 February 2018, 17.30 - 19.00, Prof Kate Hunt (University of Stirling), LT2D3, Social Sciences Complex

Understanding suicidal behaviour and self-harm
20 February 2018, 12.30 - 13.30. Prof Rory O'Connor (University of Glasgow) OS6 Oakfield House

Royal Society open presentation
28 February 2018, 11.00 - 12.30, Reception Room, Wills Memorial Building

South West Fly meeting
7 March 2018, 13.30 - 17.30, Biomedical Sciences Building

Building Global Partnerships for Global Challenges: SAVE THE DATE
11 - 13 April 2018






From top: Gianni Angelini, Debbie Lawlor, Jane Blazeby, Helen Stokes-Lampard, Kate Hunt, Rory O'Conor

FULL EVENTS LISTINGS ARE AVILABLE ON THE BN WEBSITE

NEWS

Downing Street visit for Parkinson's researcher

Dr Emily Henderson, a University of Bristol Honorary Consultant Senior Lecturer, and Consultant at the Royal United Hospitals in Bath, met the Prime Minister Theresa May at a Downing Street reception yesterday [30 October] in recognition of her research into Parkinson's, and to mark the 200-year anniversary since James Parkinson first described the condition.

Parkinson's affects 127,000 people in the UK and approximately seven million worldwide. Sixty per cent of people with Parkinson's will fall at least once a year, with over a third experiencing falls repeatedly, resulting in fractures, broken bones and hospital admissions.

Research by Dr Henderson and her team, published in *The Lancet Neurology*, found that a commonly prescribed dementia drug could hold the key to helping prevent debilitating falls for people with Parkinson's. This was one of the University's top 6 discoveries in 2016.

The team studied 130 people with Parkinson's who had fallen in the past year. Half the group were given rivastigmine capsules and the other half a placebo for an eight-month period.
The findings showed people with Parkinson's who were given the oral drug rivastigmine were 45 per cent less likely to fall and were considerably steadier when walking, compared to those on the placebo.

Funding successes: Part 1

To Prof Harry Mellor (Biochemistry), a **British Heart Foundation** studentship for *Mechanisms of neovascularization: Signalling from VEGFR1 to the cytoskeleton through Rho*. £107,413 awarded; start date 01/11/2017 for three years.

To Prof Richard Apps (PPN), a renewal of the **Wellcome Trust** 4-Year *PhD Programme in Neural Dynamics: from synapses to systems in health and disease*. £88,756; start date 18/09/2017 for four years.

To Prof Jack Mellor (PPN), from the **BBSRC** for *Neural adaptation to sensory stimuli by regulation of dendritic spikes and synaptic plasticity,* £844,819. Start date 01/01/201, ending 01/07/2021.

Lifting the lid on nursery interactions

The Secret Life of 4 and 5 Year Olds has won plaudits for its insights into what goes on when parents drop their little ones at the nursery gates. The second series kicked off on Channel 4 on 7 November 2017.

Prof Paul Howard-Jones, a leading educational neuroscientist, is one of the experts on hand to analyse and comment on the children's behaviour and development. The shows are filmed in a specially rigged school in North East London, where a new batch of four and five-year-olds from up and down the UK attend the all-new Secret Life nursery.
As each of the new children meet one another for the first time, experts observe how they interact, play together – sometimes harmoniously, sometimes less so – and learn essential skills that they will continue to develop through to adulthood.

Kicking off the series with the four-year-olds, the show explores how the age group learn to recognise and deal with emotions. The second episode uncovers how friendship and romance develop in the playground and what happens when four-year-olds fall out. Later in the series, the spotlight moves onto the five-year-olds, showing how personalities develop at this age, as children establish their identity within the group. It also looks at how five-year-olds learn to deal with risk, uncovering how they overcome fear and display bravery.

Image credit: Channel 4

Funding successes: Part 2

To Dr Emma Hart (PPN) from the **British Heart Foundation** for *Sex differences in the role of sympathetic nerve activity in the development of hypertension in humans*, £107,372. Start date 10/02/2018 for four years.

To Dr John Pooley (BMS/THS) from the **British Society for Neuroendocrinology** for *Detecting MR-GR interactions in brain tissue with proximity ligation assay*, £5,000. Start date 01/10/2017 for two months.

To Amberly Brigden (BMS/PHS) from the **NIHR –DRF** for *EXPLORER: EXPLORing treatments for youngER children with CFS/ME (5-11years)*, £207,740. Start date 01/10/2017 for four years.

To Prof Neil Scolding (BMS/THS) from **The Burden Trust**, a *Pilot Research Grant*, £19,999. Start date 01/09/2017 ending 01/03/2018. This is a pilot study relating to bone marrow mesenchymal stem cells. Our ongoing MS stem cell trial ACTiMuS gives us unique access to bone marrow mesenchymal stem cells (MSCs) from patients with MS. We know that such cells have a variety of properties that can help combat disease processes in MS, and can also stimulate and enhance repair in the brain and spinal cord - hence the clinical trial. However, we have now shown that MSCs from patients with MS differ from healthy control MSCs : their repair properties are reduced. In fact, their molecular characteristics imply that they most closely resemble prematurely aged or senile cells.* This funding will allow us to pursue these findings in more detail and to begin exploring whether they might be reversible.

*Redondo J et al. (2017). Reduced cellularity of bone marrow in multiple sclerosis with decreased MSC expansion potential and premature ageing *in vitro*. *Multiple Sclerosis Journal*. Epub ahead of print.

New app launched

A new app to help people who are considering self-harm or having suicidal thoughts is now available to download from the Apple App Store and Google Play. The distrACT app which has been designed by doctors with young adults and University of Bristol researchers to provide easy, quick and discreet access to general health information and advice about self-harm.

Nationally, there are around 200,000 hospital emergency department cases of self-harm reported every year. The number of people who self-harm in Bristol alone is around 25,000. It is the highest predictor of suicide, with self-harm patients 35 times more likely to end their own lives. Through distrACT, people will find reliable answers to their questions in plain language – anywhere, anytime, in private. It was developed by Expert Self Care Ltd, a social enterprise certified by the NHS England Information Standard as a provider of reliable health information. It is led by practising NHS doctors, and aims to give people at different stages in their lives access to reliable, clear and useful health information.

The app has been created by doctors together with young adults and experts in self-harm and suicide prevention, including Bristol Health Partners and the Improving Care in Self-Harm Health Integration Team (STITCH HIT), University of Bristol and University Hospitals Bristol NHS Foundation Trust, as well as other local and national organisations. Self-Injury Support and Self-Injury Self Help helped involve young people with experience of self-harm in the design.

Read more

Funding successes: Part 3

To Dr Mark Bond (BMS/THS) from the **British Heart Foundation**, a project grant: *Nuclear Actin Dynamics and Vascular Smooth Muscle Behaviour*. £190,161 starting 01/01/2018 for three years.

To Dr Lindsey Sinclair (BMS/PHS) from **BRACE** for *The relationship between later life depression and dementia: bystander or participant?* £15,747 starting 01/10/2017 for two years.

To Prof Barnaby Reeves (BMS/THS) from the **NIHR-HTA**, *OAFI: Monitoring for neovascular AMD Reactivation at Home: the MONARCH study*. £534,522 starting 01/10/2017 and ending 01/04/2021.

To Dr Olivia Maynard (ExpPsych– image right) from the **ESRC** for *Smoking kills, but you can quit: Threat and efficacy messaging to prevent tobacco smoking among adults and adolescents*. £232,034 starting 01/10/2017 for two years.

To Ilse Daly (BiolSci) from the **International Society for Neuroethology** for *Monocular stereopsis in stomatopods: an investigation into the neural underpinning of depth perception*. £1,866 starting 01/09/2017 for eight months.

To Dr David Wilby (BiolSci) from the **International Society for Neuroethology**, a Konishi Neuroethology Research Award. £1,953 starting 22/08/2017 for one year.

Primary care is key

Healthcare systems across the world are under immense pressure to deal with ageing populations alongside increasing numbers of patients with chronic diseases and multimorbidity. With finite resources, and an increasing recognition of the potential harms to patients of over diagnoses and overtreatment, it is essential that resources are used optimally.

Researchers from the Bristol Medical School highlight how NHS reforms can increase or decrease value and optimality in primary care. For example, reforms which aim to increase seven-day working in primary care may have knock-on effects on continuity of care, which has been shown to be associated with reduced hospital admissions. While population level reductions in risk factors for cardiovascular disease led to large improvements in cardiovascular mortality, expanding indications for treatment to include low risk people with mild hypertension takes us beyond the point of optimality. Reforms also require adequate investment. For example, developing new multi-professional roles such as physician assistants requires senior mentoring and support and can take several years to reach full potential.

A study recommends that policy changes are evidence-based and trialled or piloted before implementation.

Read more

Neuroscience nonsense in classroom

The explosion of interest in neuroscience has led to a 'corresponding increase of neuro-nonsense' in relation to education. Teachers should be wary of using neuroscience to inform their teaching as there are no genuine links that can be made between it and education.

Bruce Hood, Professor of Developmental Psychology, said scientists are just beginning to understand the brain, and nothing can be said yet about how this research should impact on education.

Speaking at the Girls' Schools Association (GSA) annual conference in Manchester on 20 November 2017, he said: "There is no one discovery from brain science that changes the way education works."

He added: “There has been a real explosion of interest in neuroscience. There has also been a corresponding increase of neuro-nonsense, neuro-myths or neuro-bollocks.

“They are using this to propagate all sorts of practices which I think are potentially dangerous.

"The link between education and neuroscience is a bridge too far and a dangerous bridge."

Speaking to delegates at the conference today, he asked: "What can neuroscience tell us as educationalists? And I have to say, hand on my heart – nothing.

"We don't really know anything yet,” he said – pointing out that we are still just beginning to understand how the brain works. Neuroscience, he added, can't say anything with "any meaningfulness to something as complex as education”.

Taken from Eleanor Busby’s blog on *tes*

ELIZABETH BLACKWELL FUNDING

EBI Clinical Primer Scheme

This scheme is aimed at exceptionally motivated clinically qualified medical, veterinary and dental trainees who are at an early stage of their career and is designed to give them the chance to experience a world-class research environment for the first time.

Closing date: 8 January 2018

EBI Early Career Fellowships

The Elizabeth Blackwell Institute is delighted to be supporting one of the University of Bristol Vice-Chancellor's Fellowships in 2017. In addition to this they will be launching their own competitive EBI Early Career Fellowship scheme in early 2018.

Find a Sponsor deadline: Friday 15th December 2017

EBI Identifying Candidates for Wellcome Trust Investigator Awards

This scheme is designed to support a small number of permanent academic staff at UoB within the first five years of their appointment, who are planning to apply for an Investigator Award from the Wellcome Trust. Applications will be accepted on a rolling basis.

Heads of Schools are asked to nominate members of staff who can be eligible for this scheme by emailing ebi-health@bristol.ac.uk

EBI Workshops Funding

Support interdisciplinary workshops in health research at new or emerging interface between two or more disciplines. Applications reviewed all year.

Returning Carers Scheme

To support academic staff across all faculties in re-establishing their independent research careers on return from extended leave (16 weeks or more) for reasons connected to caring (e.g. maternity leave, adoption leave, additional paternity leave, leave to care for a dependant.).

The deadline for applications is 30 April and 31 October each year.

EBI Bridging Funds for Senior Fellows

This scheme is designed to support a small number of academic staff at the University of Bristol who currently hold an externally funded research fellowship. Applications accepted on a **rolling** basis.

University of BRISTOL
Elizabeth Blackwell Institute for Health Research

FUNDING OPPORTUNITIES

Would you like to receive timely, tailored funding opps information?
Do you want to know what funding opportunities come up in your research area?
Get tailored funding alerts?

Research Professional provides access to an extensive database of funding opportunities, and can send out tailored alerts based on keywords that you input, ensuring that the funding alerts you receive are the ones you want to hear about. UoB staff and students have **FREE** online access to the database from any device – once you've registered then you can view upcoming funding opportunities from home or away, not just while on the University network.

You can search for funding information by discipline, sponsor, database searches, by recent calls or by upcoming deadlines. If you register for the site and log in, you'll be able to:

- **Set up automated funding opportunity email alerts** - **tailored according to your discipline and research interests**, an easy process that will take just a few minutes to set up through the use of keywords
- **Save searches and bookmarks** - store items of interest for future reference, download and email to colleagues
- **Sign up for higher education news bulletins** – want to hear about what is going on in the broader HE environment? Latest news on the REF, setting up of UKRI etc? Sign up for the 8am playbook or the Research Fortnight news publications and stay up to date with the latest news.

Alternatively, a full calendar of funding opportunities for neuroscience research has already been set up and is available online. Subscribing to the calendar will place the entries in your own calendar, which will automatically update according to pre-specified search criteria. Find out more about **Research Professional** on the RED website. Note that some calls may have an internal process; do always remember to check the major bids webpage here to see if there is an internal process.

The following listings represent a *brief selection* of available funding for the Bristol Neuroscience community. **Full listings of opportunities** are sent out via Faculty Research Directors and/or School Research Directors, and **are available on the Research Development website**.

Federation of European Neuroscience Societies
Brain conferences stipends

Closing date: 20-Jan-18 Award amount: €1,000
These assist international students or early-career scientists to attend the Federation of European Neuroscience Societies biannual conference.

A-T Children's Project
Grants

Closing date: 01-Feb-18 Award amount: USD 75,000

This supports translational and clinical research projects, particularly those projects focused on the neurological problems faced by all patients with ataxia-telangiectasia.

A-T Children's Project
Postdoctoral fellowship

Closing date: 01-Feb-18 Award amount: USD 80,000

This supports a postdoctoral investigator in the field of ataxia-telangiectasia research.

Department of Health including NIHR
Health technology assessment programme – commissioned workstream: 17/117

Closing date: 01-Feb-18 Award amount: not specified

This supports research into therapeutic interventions for self-harm in adolescents. There are no fixed limits on the duration of projects or funding.

National Institute on Aging
Clarifying the relationship between delirium and Alzheimer's disease and related dementias (R01: clinical trial optional)

Closing date: 05-Feb-18 Award amount: USD not specified

This aims to clarify the relationship between delirium and Alzheimer's disease and related dementias. Application budgets are not limited but need to reflect the actual needs of the proposed project. The maximum project period is five years.

Stroke Association
Project Grant Award

Closing date: 05-Feb-18 Award amount: £210,000

Priorities for funding include research into the prevention, treatment, rehabilitation and long-term care of stroke patients. The majority of funded projects are patient-orientated.

National Institutes of Health
From genomic association to causation: a convergent neuroscience approach for integrating levels of analysis to delineate brain function in neuropsychiatry (collaborative U01)

Closing date: 05-Feb-18 Award amount: USD £12.5m

This aims to stimulate innovative convergent neuroscience approaches to establish causal or probabilistic linkages across contiguous levels of analysis in an explanatory model of psychopathology. Application budgets may not exceed USD 2.5 million direct cost per year for up to

five years.

National Institute on Aging
Improving quality of care and quality of life for persons with Alzheimer's disease and related dementias at the end of life (R01: clinical trial optional)

Closing date: 05-Feb-18 Award amount: USD not specified

This aims to address clinical and translational research gaps in the study of end-of-life care needs in order to improve quality of life at the end of life of people with Alzheimer's disease and related dementias and their families. Application budgets are not limited but need to reflect the actual needs of the proposed project. The maximum project period is five years.

National Institute of Neurological Disorders and Stroke
NINDS exploratory clinical trials (U01 clinical trial required)

Closing date: 05-Feb-18 Award amount: not specified

This supports investigator-initiated exploratory clinical trials within the mission and research interests of the National Institute of Neurological Disorders and Stroke. Application budgets are not limited but must reflect the actual needs of the project. The maximum project period is five years.

Wellcome Trust
Genomics of brain disorders conference bursaries

Closing date: 13-Feb-18 Award amount: 50% of registration fee

These enable PhD students to attend the genomics of brain disorders conference, to be held between 23 and 25 April 2018 in Cambridge.

Department of Health including NIHR
Health technology assessment programme – commissioned workstream: 17/139

Closing date: 19-Jul-18 Award amount: not specified

This supports research into reducing the risk of anxiety disorders in children of parents seeking help for their own anxiety. There are no fixed limits on the duration of projects or funding.

American Philosophical Society
Daland fellowships in clinical investigation

Closing date: 15-Sepl-18 Award amount: USD 80,000

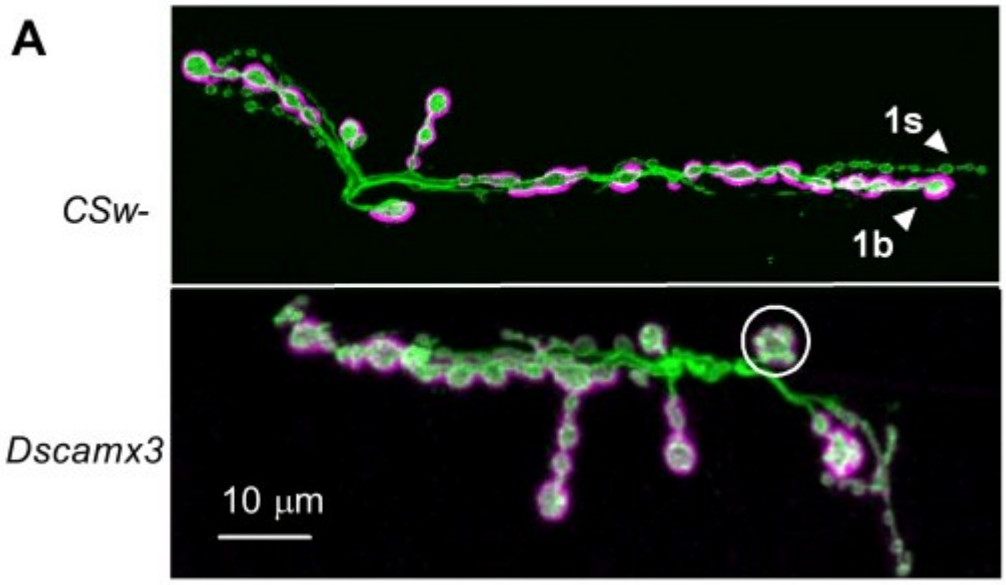
These support research on internal medicine, neurology, paediatrics, psychiatry and surgery. Fellowships are worth USD 40,000 each per year for up to two years.

SHOWCASED ARTICLE

A third copy of the Down syndrome cell adhesion molecule (*Dscam*) causes synaptic and locomotor dysfunction in *Drosophila*

Lowe SA, Hodge JJL and Usowicz MM (2017). *Neurobiology of Disease*.
Available online 28 November 2017

Down syndrome (DS) is caused by triplication of chromosome 21 (HSA21). It is characterised by intellectual disability and impaired motor coordination that arise from changes in brain volume, structure and function. However, the contribution of each HSA21 gene to these various phenotypes and to the causal alterations in neuronal and synaptic structure and function are largely unknown. Here we have investigated the effect of overexpression of the HSA21 gene *DSCAM* (Down syndrome cell adhesion molecule), on glutamatergic synaptic transmission and motor coordination, using *Drosophila* expressing three copies of *Dscam1*. Electrophysiological recordings of miniature and evoked excitatory junction potentials at the glutamatergic neuromuscular junction of *Drosophila* larvae showed that the extra copy of *Dscam1* changed the properties of spontaneous and electrically-evoked transmitter release and strengthened short-term synaptic depression during high-frequency firing of the motor nerve. Behavioural analyses uncovered impaired locomotor coordination despite preserved gross motor function. This work identifies *DSCAM* as a candidate causative gene in DS that is sufficient to modify synaptic transmission and synaptic plasticity and cause a DS behavioural phenotype.



Bouton number is unchanged at Dscamx3 larval NMJs. (A) Representative images of CSw- and Dscamx3larval NMJs at muscle 6/7 in abdominal section 2, stained for horseradish peroxidase (green) and Discs large (magenta). Arrowheads point to type 1 s (small) boutons (green) and type 1b (big) boutons (green and magenta). Circle indicates a satellite 1b bouton composed of a central bouton surrounded by multiple smaller boutons.

CONTACTS

Bristol Neuroscience is run by a Steering Group:

Director: Neil Scolding, Burden Professor of Clinical Neurosciences

- Richard Apps, Professor of Neuroscience
- Zaf Bashir, Professor of Cellular Neuroscience
- Yoav Ben-Shlomo, Professor of Clinical Epidemiology
- Catherine Brown, Network Administrator
- Kei Cho, Chair of Neuroscience (Royal Society Wolfson Research Merit Award Holder)
- Liz Coulthard, Consultant Senior Lecturer
- Jonathan Evans, Consultant Senior Lecturer
- Iain Gilchrist, Professor of Neuropsychology
- Wade Hammett, NeuroSoc President
- Matt Jones, Physiology & Pharmacology
- Kevin Kemp, Research Collaborator; Research Associate
- Mike Mendl, Professor of Animal Behaviour and Welfare
- Jacqui Oakley, Network Facilitator
- Tony Pickering, Wellcome Trust Reader in Neuroscience
- Hans Reul, Professor of Neuroscience
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