

Bristol Neuroscience Newsletter

June - August 2019



3D-printed brains reveal Alzheimer's secrets

The University of the West of England (UWE Bristol)'s Health Tech Hub has printed three 3D brain models that show the effects of dementia on the organ. Printed for Bristol based dementia charity [BRACE](#), the models each have a section missing, which offers views of the inside of the organ and how the disease has depleted its density.

Using brain scans and 3D imaging provided by clinical dementia research group [Re-MemBr Group](#), which BRACE part-funds, the Health Tech Hub was able to accurately produce two Alzheimer's diseased brain models and a healthy brain model exactly to scale, using a 3D printer. Each brain

took 72 hours to print and is made out of a resin material. The Health Tech Hub covered the full cost of production.

Alzheimer's disease causes progressive atrophy to the brain - a wasting away and shrinking of the brain tissue, which happens at a much faster speed than the old age-related shrinking that would be expected in a healthy brain.

The printing of these models will enable BRACE, the ReMemBr Group and the [South West Dementia Brain Bank](#) to use them as aids to teach and raise

awareness of dementia.

Dr Elizabeth Coulthard of the ReMemBr Group said:

By printing from real brain scans, we can clearly see which areas of the brain are affected by dementia diseases such as Alzheimer's disease. The areas of brain that shrink are different in different dementias.

The memory area, called the hippocampus, shrinks early on in Alzheimer's disease. In contrast, the front of the brain shrinks first in behavioural variant frontotemporal dementia (Pick's disease).



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EVENTS

Neurotechnology Special Interest Group

11 July 2019, 10.00 - 16.30, Hallam Conference Centre, 44 Hallam Street, London, W1W 6JJ

From tadpoles to the clinic: Purines as biomarkers of brain injury

12 July 2019, 13.30 - 14.30, Prof Bruno Frenguelli (University of Warwick), Dorothy Hodgkin Building, Lecture Theatre B



Acceptance of genomic medicine – does knowledge make a difference?

12 July 2019, 15:00 - 16:00, Helena Davies (Bristol Medical School), School of Psychological Sciences common room (2D17), 12a Priory Road, BS8 1TU

Soapbox Science Bristol

13 July 2019, 12.00 - 15.00, Broadmead, Bristol, between the rainbow orb bollards outside Marks & Spencer

Workshops: Above and Beyond (A&B) and Research Capability Funding (RCF) grants

16 July 2019, 8.00 - 9.00, Research & Innovation, Education & Research Centre, Interview Room, Level 4



GW4 NanoMedicine workshop

16 July 2019, Reed Hall, University of Exeter



Translation toolkit: Deal breaker! Why is the Industrial Strategy so important to funders, the University and my career?

16 July 2019, 14.00 - 15.00, John Halliwell (Knowledge Exchange Associate, RED) and Sandra Spencer (Research Development Associate, RED), F40 Biomedical Sciences Building

Mendelian Randomization Conference 2019

17 - 19 July 2019, School of Chemistry, Cantock's Close

Jump start your business plan

17 July 2019, 10.00 - 17.00, Greville Commins (Entrepreneur-in-Residence, SETsquared Bristol), Barton Hill Settlement, 43 Ducie Road, BS5 0AX



Mind the Gaps: Interdisciplinary Mindfulness Research

18 - 19 July 2019, Doctoral Academy, Cardiff University, Greyfriars Road, Cardiff, CF10 3AE

What's new in dementia research?

18 July 2019, 19.00 - 20.30, BAWA Health and Leisure Centre, 589 Southmead Road, BS34 7RG

Re-thinking warning labels on tobacco products: can the inclusion of efficacy messages enhance the effectiveness of confronting communication?

19 July 2019, 15.00 - 16.00, Lillian Brinken (University of Tasmania), School of Psychological Sciences

es common room (2D17), 12a Priory Road, BS8 1TU

Human Brain Anatomy Course

23 - 25 July 2019, Course director: Dr Paul Johns. King's College London, Guy's campus

Statistics Clinic

24 July 2019, 14.00 - 15.30

Versatile roles of Piezo2 in touch and pain

26 July 2019, 13.00 - 14.00, Marcin Szczot (NIH/NCCIH, Bethesda, USA), C42 Biomedical Sciences Building



ChemBioX 2019

30 - 31 July 2019, Keynotes: Prof Michelle Chang (Berkeley, US), Prof Thomas Carell (LMU Munich, Germany) & Dr Chun-Wa Chung (Director of Biophysical Studies, GSK), Worcester College, Oxford

Workshops: Above and Beyond (A&B) and Research Capability Funding (RCF) grants

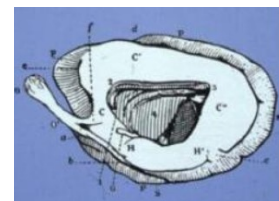
6 August 2019, 12.00 - 13.00, Research & Innovation, Education & Research Centre, Interview Room, Level 4

Clinical Research Network Open day

8 August 2019, 13.00 - 16.00, Level 5, Whitefriars Centre, Lewins Mead, BS1 2NT

Limbic Brain Anatomy Course: Neuroanatomy for psychiatry, neurology, neurosurgery and neuroscience

19 - 20 August 2019, Course Director: Dr Paul Johns, New Hunt's House, Guy's Campus, King's College London



Science Policy: Improving the Uptake of Research into UK Policy

19 - 21 August 2019, Wellcome Genome Campus

Workshops: Above and Beyond (A&B) and Research Capability Funding (RCF) grants

20 August 2019, 12.00 - 13.00, Research & Innovation, Education & Research Centre, Interview Room, Level 4

STARS School 2019: Embedding the Industrial Perspective

8 - 13 September 2019, Darlington

Summer School in Computational and Theoretical Models in Neuroscience

9 - 14 September 2019, Palazzo Morelli, University Ca' Foscari, Venice, Italy

Bristol Neuroscience Strategy Launch

13 September 2019, 12.30 - 17.00

Pugsley Lecture Theatre, Queen's Building

University Walk, BS8 1TR

NEWS

Alzheimer's drug trial at Southmead Hospital

[ReMemBr Group](#), a joint University of Bristol and North Bristol NHS Trust research group based at Southmead Hospital, is one of 250 study sites around the world taking part in the Generation Program, a multinational trial of two new drugs which may be able to prevent or delay the symptoms of Alzheimer's.

Currently there are 850,000 people living with dementia in the UK which will increase to over one million by 2025 and over two million by

2050.

The aim of the five-to-eight-year research is to trial two new drugs that may delay or prevent symptoms of Alzheimer's dementia in healthy people who have a genotype which indicates they are at higher risk of developing the disease.

The researchers are looking for people with the e4 type of the ApoE gene which is a genetic risk factor for Alzheimer's disease. People with one or two copies of this genotype are at

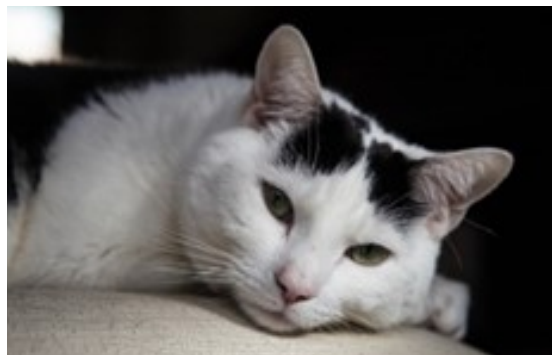
higher risk for developing the disease.

The [Generation Program](#) is made up of two clinical trials: Generation Study 1 and Generation Study 2. Each trial will last for 5 – 8 years and will be testing to see if investigational treatments are effective against Alzheimer's.



Clever Cats have Selective Hearing

Dr [John Bradshaw](#) (Bristol Veterinary School) commented for an article backing findings that cats recognise their own names, but unlike dogs are not as keen to show their intelligence to their owners. The story was covered in over 100 national and international publications including the [The Huffington Post](#), [Guardian](#), [Times](#), [India Times](#), and [The Australian](#). The experiment involved measuring whether cats reacted to their names when they were spoken. The results showed that cats rarely did more than twitch an ear or move their heads in response to the voices, with very few so



much as moving their tail, let alone meowing. Nonetheless the team said the results, based on a four-point scale of how much each cat responded, showed cats could tell their name apart from other words.

Dr Atsuko Saito, first author of the research from Sophia University in Japan, said "Cats understand human cues better

than many people think", although she added that did not mean they would respond as their owners might hope. John, an expert on dog and cat behaviour, was less enthusiastic. He said:

"In my view, the study doesn't tell us much about

the cat-human relationship, merely that cats are capable of learning the significance of particular sounds, something that most cat owners will know already.

"For example, many use the rattle of the cat-biscuit box to persuade their cat to come indoors. It certainly doesn't demonstrate that cats can understand human language."

Stress in early life could lead to depression

Researchers have found that early life adversity could make an individual more at risk of developing negative thinking, which could lead to major depressive disorder (MDD). The study, using a rodent model of early life adversity, has shown that offspring are much more sensitive to negative biases in their cognition when treated with the stress hormone, corticosterone. The team showed a dose of corticosterone had no effect in normal rats but caused a

negative bias in the early life adversity animals. They also found that the early life adversity rats were less likely to anticipate positive events and failed to properly learn about reward value. These impairments in reward-related cognition are particularly interesting as one of the main features of depression is a loss of interest in previously enjoyable activities. The results support the idea that those at risk of developing mood disorders may have impairments in the way they learn about and use

their memories about how rewarding an experience has been to then guide and motivate them to repeat the activity. Findings suggest that these neuropsychological effects might explain why early life adversity can make people more likely to develop depression.

Stuart SA *et al.* (2019). [Evidence that neuropsychological deficits following early life adversity may underlie vulnerability to depression](#). *Neuropsychopharmacology*.

External engagements: Part 1

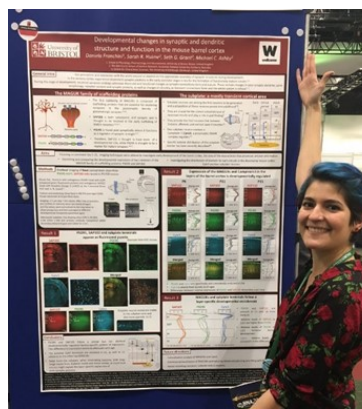
Prof [Mike Mendl](#) (Bristol Veterinary School) gave the keynote lecture at the Tecniplast-sponsored Australia and New Zealand Laboratory Animal Association Animal Welfare Symposium in Canberra, followed by talks in Melbourne to the University of Melbourne Animal Welfare Science Centre and to staff at Melbourne Zoo (one of whom is shown below training a



tiger to present their flank for injection).

The University of Melbourne recorded a [podcast](#) with Mike called "How can we tell if animals are depressed?", relating to his research in developing new ways of assessing animal welfare that work to improve the wellbeing and conditions of all animals.

PhD student [Daniella Franchini](#) (Biochemistry) won a prize at the British Neuroscience Association festival, 14-17 April



2019, in Dublin. The editor of Brain and Neuroscience Advances (an open access BNA society journal) also invited her to submit her work for inclusion in a future issue.

Also present at the conference were [Esther Saunders-Jennings](#) (MSc, Bristol Medical School) with her poster *Long-term memory as a predictor of cognitive decline in patients with amnesic mild cognitive impairment*, Volkan Nurdal (BSc and MSc Bristol, now at University of Bath) and [Alfie Wearn](#) (PhD student, Wellcome Trust Neural Dynamics Programme) with his poster *The time-course of human memory consolidation in pre-clinical Alzheimer's disease*.

Funding successes: Part 1

Molly Davidson has been awarded a studentship under the **SWBio Doctoral Training Programme** funded by the Biotechnology and Biological Sciences Research Council. Entitled *Animal emotion and welfare: a decision-making and computational approach*, the project will explore exactly how affective states alter decision-making, by combining operant studies of laboratory rodent decision-making behaviour with computational modelling of the resulting data. She will be su-

pervised by Profs Mike Mendl (Bristol Veterinary School) and Iain Gilchrist (Psychological Science), with Liz Paul, John Fennell and Peter Dayan (Max-Planck Tuebingen) as collaborators.



The **Bristol Orthopaedic Trust** has awarded £5,240 to Dr [Katie Whale](#) (Bristol Medical School: Translational Health Sciences) for *Exploring sleep experiences and patterns of sleep behaviour in patients undergoing total knee replace-*

ment surgery which will run for 17 months (until March 2020).

To Prof [Robert Piechocki](#) (Department of Electrical & Electronic Engineering) from **Toshiba Research Europe Ltd**, a studentship for *Deep Learning Techniques for Passive Sensing and Indoor Localisation* for four years. His domain expertise is wireless sensing for eHealth and leads wireless connectivity and sensing research activities for [SPHERE](#) (winner of 2016 World Technology Award).

Peer-led drug prevention

Researchers at Bristol and Cardiff universities are running the largest ever trial of a peer-led drug prevention programme in schools across the West of England and South Wales. **FRANK Friends** will run over three years, across 48 schools, and involve around 5,655 students. It will evaluate the effectiveness and cost-effectiveness of a peer-led programme in preventing drug use among young people. Year 9 students (aged 13-14) will be asked to nominate other students who they think are influential and those in the top 17.5% of nominations will be asked to become peer supporters.

After two days of training, the selected students will be asked to have conversations about the potential harms of drug use with their peers over a ten-



week period.

Dr James White, study lead and Chief Investigator of the Centre for Trials Research (Cardiff): "There is limited evidence that drug prevention interventions are effective. The latest UK da-

ta indicate that 37% of 15-year-olds have tried an illicit drug and more than 13,000 11 to 18-year-olds accessed drug treatment in the UK. Schools provide a systematic and efficient way of reaching a large number of people every year. This randomised controlled trial is the best way to determine if the **FRANK friends** intervention prevents drug use among young people."

The trial builds on a successful pilot study where an effective school-based peer-led smoking prevention programme (**ASSIST**) was adapted to deliver information from the UK national [drug education website](#).

External engagements: Part 2

Dr [Olivia Maynard](#) (Psychological Science) became one of the 21 new Economic and Social Research Council (ESRC) Strategic Advisory Network members. ESRC is the UK's largest organisation for funding research on economic and social issues.

They support independent, high quality research that has an impact on business, the public sector and civil society.



Marianne Thoresen, Professor of Neonatal Neuroscience, has been named as one of the [Nation's Lifesavers](#) for her life-changing research on cooling therapy for new-born babies. The Universities UK's [MadeAtUni campaign](#) brings to life the impact of universities on everyday lives.

The treatment is recommended by the National Institute of Clinical Excellence, the health watchdog, and the International Liaison Committee on Resuscitation, and since 2010, cooling has become the recommended way to treat lack of oxygen at

birth throughout the developed world.

This approach already saves 1,500 babies from death and disability each year.

Proteins in the brain that detect cannabis

The electrical 'firing' of a nerve cell releases neurotransmitters from the presynaptic terminals of its axon. These cross the synapse and pass on the signal by binding to receptors at postsynaptic sites on the dendrites of the next nerve cell. CB1Rs help control information flow in the brain by binding endocannabinoids, which influence brain functions such as pain, appetite, mood and memory. Unusually, endocannabinoid signalling goes in the reverse direction compared to most other neurotransmitters. The 'receiving' CB1Rs are located at presynaptic sites on axons, whereas the release sites are at postsynaptic

sites on dendrites. This retrograde signalling that activates presynaptic CB1Rs 'dampens down' presynaptic release of other neurotransmitters resulting in a slowing of brain activity. The active components of cannabis bind to CB1Rs in a similar manner to endocannabinoids, resulting in the 'mellow' sensation caused by the recreational use of cannabis.

For CB1Rs to regulate brain function properly, they must target the right place on the surface of the axon; however, little is known about the process. A Bristol team showed that a specific part of the CB1R protein plays a key role in the getting CB1R into axons; they tracked newly made

CB1Rs in nerve cells grown in a dish and found that a short region of CB1R is crucial for sending it to the axon and preventing it from going to the dendrites. They also discovered that this region stabilises CB1R at the surface of the axon, making it more available to receive signals from endocannabinoids. It is becoming increasingly apparent that activation of CB1Rs could be therapeutically useful for a wide range of diseases such as chronic pain, epilepsy, or multiple sclerosis.

Fletcher-Jones A *et al.* (2019). [The C-terminal Helix 9 motif in rat cannabinoid receptor type 1 regulates axonal trafficking and surface expression.](#) *eLife*.

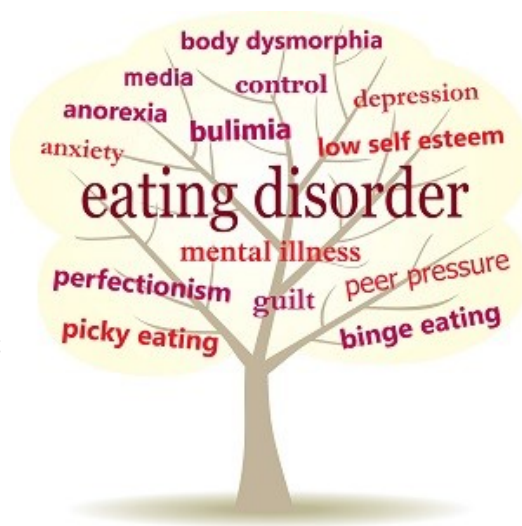
Childhood risks for self-harm or eating disorders

Dr [Helen Bould](#) (Bristol Medical School: Population Health Sciences) has received £248,683 from the **Medical Research Council** for *Emotional dysregulation, self-harm and eating disorders: a mechanistic investigation*. The fund will allow for complex modelling and analysis of Bristol's [Children of the 90s](#) questionnaires and clinic data, to further our understanding of factors leading to self harm and

eating disorders in children and teenagers. The research aims to uncover whether possible risk factors, such as difficulty in managing emotions,

are the same for both eating disorders and self-harm, and if there are links with difficulties in understanding social situations, reading facial expressions or being bullied.

Collaborators include Paul Moran, David Gunnell, Jon Heron, Becky Mars, Anne Stewart, Marcus Munafò, Ian Penton-Voak, Andy Skinner and Lucy Biddle. The project will start in Autumn 2019 and will run for two years.



Funding successes: Part 2

Dr [Denize Atan](#) (Bristol Medical School: Translational Health Sciences) was awarded £14,852 from **Fight for Sight** for *Is there a causal association between primary open angle glaucoma and Alzheimer's disease?*

BRACE has awarded a three-year CASE studentship to Prof [Yoav Ben-Shlomo](#) (Bristol Medical School: Population Health Sciences) for *Continuous behavioural Biomarkers of Cognitive Impairment (CUBOid) behavioural analysis through multisensory data fusion at home*.

To Dr [Marc Holderied](#) (Biological Sciences),

£4,366 from **Primate Conservation, Inc.** for *Spatial and behavioural responses of nocturnal lemurs (Cheirogaleidae and Lepilemuridae) to habitat fragmentation in north western Madagascar and their implications for conservation action*.

A **Wellcome Trust Seed Award** will support Dr [Michele Bellesi](#) (School of Physiology, Pharmacology and Neuroscience), working under Prof Matt Jones from February 2019 for two years. The goal is to understand the mechanisms and functions of sleep by assessing the consequences of sleep disruption and enhancement in health and disease.

From the **Royal Society** for *Neurogenic gene networks in the sea urchin embryo*, awarded to Dr [Roberto Feuda](#) (Earth Sciences). Starting March 2019 for one year.

Does being bilingual work wonders for your brain? has been funded by the **Leverhulme Trust** to Prof [Markus Damian](#) (Psychological Science) £264,135 from May 2019 for three years.

To Prof [Ian Penton-Voak](#) (Psychological Science) from the **Medical Research Council** for *fMRI investigation of the effects of Emotional Cognitive Bias Modification as an adjunct therapy in depressed patients*. £504,133 from October 2019 for three years.

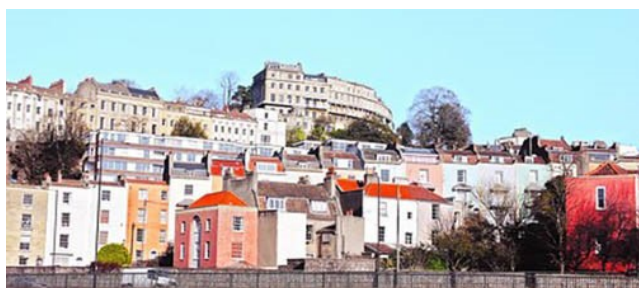
Non-communicable disease prevention

The University of Bristol, in partnership with the Universities of Bath, West of England, Manchester, Reading and Cardiff and Bristol City Council and Greater Manchester Combined Authority, has been awarded £6.6 million by the UK Prevention Research Partnership (UKPRP) to tackle unhealthy urban planning and development linked to non-communicable diseases (NCDs) such as heart disease, obesity, poor mental health, cancer and diabetes.

The funding is part of a £25 million UKPRP investment awarded to eight projects that aim to address the bigger picture factors behind the prevention of NCDs which make up the vast majority of illnesses in the UK and account for an estimated 89% of all deaths. The projects aim to deliver real changes that reduce the burden of these diseases on our health and social care systems and enable people to live longer, healthier lives.

cial determinants of health (i.e. the approaches used by commercial producers of tobacco, alcohol and food to promote products, influence policy and people's choices, which in turn impacts on our health as a population); school food systems and their effects on the quality of children's diets; improving the life chances of children in deprived areas in the UK; embedding health considerations in urban planning and decision-making processes; and developing new economic methods for judging the effectiveness and costs and benefits in policy areas such as economic growth and housing.

[Read more](#)



The projects cover a wide variety of issues, including; investigating the commer-

CBE for award-winning neuroscientist

Graeme Collingridge, Professor of Neuroscience (Physiology, Pharmacology & Neuroscience) has been awarded a CBE for his services to neuroscience research. Graeme has made major advances in our understanding of the cellular basis of memory and learning through research studying the brain mechanisms that control the strength of brain cell connections, and how this fundamental property affects brain function. In 2016 he was one of three

neuroscientists who won The Brain Prize, regarded as the world's most prestigious neuroscience award, for their outstanding work on the mechanisms of memory. His work on a brain process known as long-term potentiation (LTP) which underpins the life-long plasticity of the brain and is behind how memories are formed, retained and lost was recognised as an outstanding contribution to the field.



He is a Fellow of the Royal Society and previously been awarded the Gaddam Memorial Prize, the Santiago Grisolia Prize and the Feldberg Prize. Graeme is Director of the Tanz Centre for Research in Neurodegenerative Diseases at the University of Toronto, Senior Investigator at the Lunenfeld-Tanenbaum Research Institute at Toronto's Mount Sinai Hospital and President of the Canadian Physiological Society.

Funding successes: Part 3 and other awards

Dr [Georgina Hazell](#) (Bristol Medical School: Translational Health Sciences) has been awarded a part-time **Royal Society of Edinburgh / Biotechnology and Biological Sciences Research Council** Enterprise Fellowship. The fellowship has made her the URHYTHM Entrepreneurial lead for ICURe, Innovation to commercialisation of university research, delivered by the SETsquared Partnership.

The **Avon and Wiltshire Mental Health NHS Partnership** has awarded Dr [Sophie Turnbull](#) (Psychological Science) £1,980 for *A quali-*

tative study exploring the experiences of primary care clinicians treating people with depression.

Dr [Rita Patel](#) (Bristol Medical School: Population Health Sciences) and researcher at CLAHRC West (National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care West), was awarded the **Senior Research Award** on 29 March 2-19 at the **British Journal of General Practice** (BJGP) Research Conference 2019 at Royal College of General Practitioners. She won the award for her presentation 'Variation in tests for

people with type 2 diabetes, hypertension, or chronic kidney disease in UK primary care'. The award was presented by Prof Roger Jones, Editor of the British Journal of General Practice.



PReCePT shortlisted for HSJ Patient Safety Awards

PReCePT (Prevention of Cerebral Palsy in PreTerm Labour), a quality improvement programme led by clinicians at [University Hospitals Bristol NHS Foundation Trust](#) and at the [West of England Academic Health Science Network \(AHSN\)](#), has been shortlisted for a [Health Service Journal \(HSJ\) Patient Safety Award](#) in the Maternity and Midwifery Services Initiative of the Year category. The Patient Safety Awards recognise, reward and thank the hard-working teams and individuals who are improving healthcare outcomes

for patients across the NHS. PReCePT was originally developed in 2014 by Dr [Karen Luyt](#), a neonatologist. Through PReCePT, women going into early labour under 30 weeks are offered magnesium sulphate, which helps to protect their babies' brains. As a result, fewer babies are likely to develop cerebral palsy, improving quality of life for both preterm babies and their families. A dose of magnesium sulphate costs from just £1. Since the initial project, PReCePT has been selected by NHS England as one of the AHSN Network's seven

national adoption and spread programmes for 2018-2020. PReCePT is also running in tandem with the PReCePT Study, a research trial nested within the wider national programme, funded by the Health Foundation and in partnership with the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care West, which aims to study aims to assess the effectiveness of two different quality improvement approaches in implementing the project across a subset of maternity units.



Older men: 'excluded, overlooked and cut-off'

A two-year study in collaboration with [Age UK](#) highlights the issues faced by older men, many of whom describe feeling socially excluded, overlooked, cut-off and feeling 'left out of things' - all of which have a range of negative impacts on day-to-day life. These feelings were triggered by a variety of life events, including loss of a partner, retirement or relocation.

To combat the problem,

researchers at UoB are calling for changes to the focus of adult social care services – urging for greater priority to be given to the running of groups rather than focusing primarily on care and support for individuals. There should also be more inclusive, tailored groups for older men in marginalised groups.

It follows [a report from Age UK](#) which shows the number of over 50s suffering from loneliness is set to reach two

million by 2025/6 due to a rising number of older people. This compares to around 1.4 million in 2016/7 – a 49 per cent increase in 10 years. Unfortunately, older men who live alone are more likely to be socially isolated than their female counterparts, having less regular contact with family and friends, and this can exacerbate feelings of loneliness. The circumstances and experiences that increase the risk of loneliness and isolation appears to rise with age, and among those with long-term health problems and/or disability.

Policy Report 51: April 2019
[Addressing older men's experiences of loneliness and social isolation \(PDF, 344kB\)](#)



Happiness Professors unite to give talk

Having been the first in the UK to pioneer the exceptionally popular 'Science of Happiness' course, Prof [Bruce Hood](#) (Psychological Science) was joined by Prof Laurie Santos (Yale University) on 10 May 2019 for a public lecture called *Science of Happiness and The Good Life*. The duo explored science-based strategies for maintaining wellbeing and living a more fulfilling life, offering a rare chance for the public to benefit in a

personal way from the insight of academics at the cutting edge of research in their field. The talk marked the end of Bristol Student Union's [Mind Your Head](#) campaign and kick-started [Mental Health Awareness Week](#).

Most people think that the path to happiness is success in jobs, salaries, material possessions, and relationships

Ultimately, the aim is to give a greater understanding of what happiness is and how

the human mind often sabotages happiness. Greater awareness equips people to pre-empt and improve the mental health of themselves and others.

Bruce Hood



Health Integration Team (HIT) highlights 2018-19

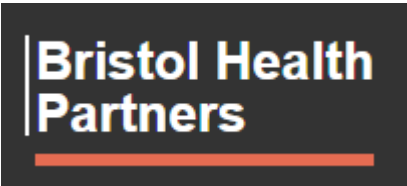
Psychological Therapies in Primary Care HIT (InPsyTe HIT)

This year's main focus has been to continue work on improving patient access and engagement with the local Improving Access to Psychological Therapies (IAPT) service. One IAPT project is an evaluation of an online therapist supported package, *SilverCloud*, which was piloted in 2018. The initial analysis was encouraging, so the pilot is continuing with therapists offering *SilverCloud* to suitable clients. Data has been collected on 342 people and outcomes are being compared to 2,607 clients who received conventional low intensity cognitive behavioural therapy (CBT). The second project is an initiative to reach out to members of Black and minority ethnic communities, who are seriously under-represented in psychological services.

Integrated Pain Management HIT (IPM HIT)

Work on the revision and redesign of the chronic pain patient pathway has continued as part of the wider redesign of musculoskeletal services by Healthier Together, the Bristol, North Somerset and South Gloucestershire Sustainabil-

ity and Transformation Partnership (BNSSG STP). The first stage is now complete, with full support for and broad stakeholder agreement on delivering appropriate services locally in the community and as early as possible in the pathway. Topics covered by recent publications include: shame and embarrassment in chronic health conditions, experiences of women treated for breast cancer with radiotherapy, and pain acceptance in adolescents. Two large externally-funded grants were received in 2018 for studies that involve people living with complex regional pain syndrome (CRPS).



Bristol Health Partners

Eating Disorders HIT (EDHIT)

In February our patient and public involvement (PPI) group mounted an exhibition of photography at the Watershed, featuring work by people with personal experience of eating disorders. The event also covered the launch of FREED, the local eating disorder service's new early intervention service model developed by the Maudsley. The adult eating disorder service STEPS will be one of the sites nationally adopting FREED, partly funded by NHS Innova-

tion. We are involved in a project investigating experiences of primary care services for people with an eating disorder and two projects developing eating disorders prevention. Over the next three years, we plan to develop an app and one-stop website for people with lived experience of an eating disorder, carers and health care professionals. We will work with Dr Knut Schroeder, who, with STITCH (see below), has produced an app to help people who self-harm. Getting the perspectives and ideas of people with lived experience will be key to its success.

Improving Care in Self-Harm HIT (STITCH HIT)

A rolling programme of Emergency Department training at University Hospitals Bristol NHS Foundation Trust continues, with input from people with lived experience of self-harm. We have trained 60 GPs in self-harm and suicide awareness and 'top tips' for supporting suicidal patients have been evaluated. Bristol Self Harm Surveillance Register data shows that the rate of psychosocial assessment continues to improve. The efficacy of the HOPE project, which evaluates debt advice and counselling for people for whom financial difficulty was a contributory factor to their self-harm episode, was published in November 2018.

Health Integration Team highlights 2018-19 con't

The 'increment prescription' pilot project continues in the University of Bristol Student Health Clinic; this aims to ensure antidepressants are subscribed in safe instalments to people who are at risk of suicide, rather than in larger batches that could be used to overdose. In July 2018, STITCH presented to parliament with the aim of changing the law on these prescriptions. Over the year we have presented to the Bristol schools mental health lead forums for both primary and secondary schools. This has been followed up with three-hour training sessions presented by HIT Directors alongside a Child and Adolescent Mental Health Services (CAMHS) Consultant Psychiatrist, to help teachers recognise and support young people who self-harm or contemplate suicide.

Drug and Alcohol HIT

Thara Raj, Public Health Consultant from Bristol City Council, has joined the leadership team. Colleagues' work on [alcohol labelling and messaging](#) has been reaching new audiences; work is under way to include materials from the labelling and messaging studies in local campaigns.

At a national level, the outputs from the research are being considered by the Government's Behavioural Insights Unit. We've had promising outcomes from our pilot of a service for opioid painkiller dependent patients with chronic pain. There were indicative signs of improved wellbeing, improved quality of life and reduced opioid dose. South Gloucestershire Council is continuing to scope the feasibility of developing a service for this group of patients in line with needs assessments



and available funding. The [low dead space injecting equipment project](#) encourages the use of safer injecting equipment; a range of materials, developed with people who inject drugs, have now been published and are available for needle and syringe programmes across the UK.

Stroke HIT

The Nov 2019 launch event welcomed over 80 delegates including clinicians, academics, local authority staff, charity organisations and those affected by stroke. The event

culminated in an inspirational performance, Stroke Odysseys by [Rosetta Life's](#) Stroke Ambassadors. This showcased the HIT as a vehicle advocating for life after stroke and innovation in stroke rehabilitation and support. We secured funds from Southmead Hospital Charity to bring the Stroke Ambassador project there; are collaborating with Rosetta Life, Bristol After Stroke and the [APPHLE HIT](#) to fund similar community workshops.

An application has gone in to National Institute for Health Research (NIHR) for funding to implement an occupational therapy approach to rehabilitation of visual field loss after stroke; work on experiences of stroke after-care in the Bristol Afro-Caribbean community continues; and an outline evaluation plan and evidence review for the planned regional stroke pathway reconfiguration is progressing.

Dementia HIT

In July and August 2018 our BME working group delivered [education sessions at GP practices](#) with a high proportion of patients from black, Asian and other minority ethnic backgrounds. Supported through a grant from Alzheimer's Society, the sessions aimed to raise awareness

Health Integration Team highlights 2018-19 con't

amongst healthcare staff about risk factors for dementia. HIT members organised and attended public events, workshops, Memory Cafés and other groups and have increased our pool of volunteers involved in research, including through collaboration with the local Alzheimer's Research UK Bristol and Bath Network of local researchers. We supported a Channel 4 TV series filmed in Bristol, [‘The Restaurant that Makes Mistakes’](#), to help combat stigma and negative attitudes towards people living with dementia. We formed a new Join Dementia Research (JDR) planning board, together with the National Institute for Health Research (NIHR) West of England Clinical Research Network. We have also supported research groups at the Universities of Bristol and the West of England in gaining valuable feedback on their ideas from people with experience of dementia. Our [survey of attitudes to dementia](#) gained around 10,000 responses from September 2018 to March 2019. We were awarded £10,000 in funding from Health Education England, for evaluation of the ‘Real Life with Dementia’ training course for carers.

Active Older People (APPHLE) HIT

Considerable progress has been made to increase levels of physical activity amongst older people (55+). The 2017 Bristol City Quality of Life survey data showed that over half the city's older population now report that they do 150 mins activity or 75 mins of vigorous activity per week, but there are still significant geographical differences across the city. We worked



with the social prescribing leads in North Bristol to raise awareness of the benefits of physical activity for older people and developed a clinical champion training session for social prescribers and primary care teams. Social prescribing hubs now include referral pathways to: strength and balance classes; exposure to outdoors; water-based activities; conservation and horticulture. Working with St Monica Trust, the ACE Neighbours project completed three reducing isolation matches in Hartcliffe, buddying these people and accompanying them to local activities. The project also started in

Keynsham in June 2018 and currently has five matches there. The Hartcliffe-Keynsham project will continue until Nov 2019. In Sept 2018 a worker was recruited to implement the project for two years in Filwood and Lawrence Hill. The team attracted £40,000 from a range of funders, to support community-based physical activities.

Improving Perinatal Mental Health (IMPROVE) HIT

The specialist perinatal mental health service has secured its second wave of funding and is now up to full complement of staff. So far, the evaluation has focused on service staff and evaluating the service set-up and process, as well as on mechanisms to support self-evaluation into the specialist team. The second part of the evaluation will now focus on service users and their experience of the service. We have begun to look at the pathways in place for women experiencing less severe mental health problems, with a focus on depression and anxiety. Colleagues at Bristol, North Somerset and South Gloucestershire Clinical Commissioning Group are working on this. Our work to increase women's engagement with Children's Centres has been successful, with a system up and

Health Integration Team highlights - con't

running to register all women during their pregnancy. We are looking to assess the impact of this on perinatal mental health. It's been a productive year in terms of funding with Iryna Culpin leading a three-year project to study the role of fathers in the context of postnatal depression; European Research Council funding of €1.3million to Rebecca Pearson for a project on mental health intergenerational transmission; and an award of £250k to Jonathan

Evans from the NIHR to compare psychological treatments for prenatal depression.



Dr Kyla Thomas has been jointly awarded the Society for the Study of Addiction (SSA) Fred Yates prize for researcher of the year 2019.

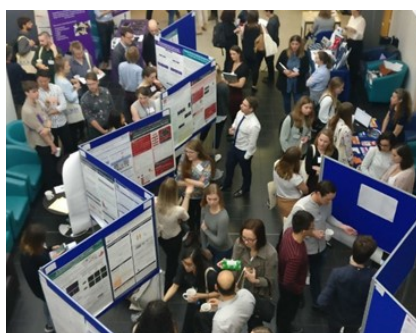
The prize recognises early or mid-career researchers who have made a significant and

specific contribution to the addictions field. Her work was praised for its focus on being topical, complex and tackling a neglected area, and for its impact on the policy of regulators and NICE. Kyla is a co-Director of the [Drug and Alcohol HIT](#), as well as being a Consultant Senior Lecturer in Public Health Medicine at the University of Bristol, Clinical Director for NIHR Clinical Research Network West of England and a Public Health Consultant at South Gloucestershire Council. She shares the award with [Dr Hamid Noori](#).

GW4 Early Career Neuroscientists' Day - debrief

The GW4 Early Career Neuroscientist Day (ECND) returned this year offering researchers from Bath, Bristol, Cardiff and Exeter the opportunity to discuss best practice, share experiences and hear directly from experts in their field. The event is specially designed by and for those in the early stages of their neuroscience career, with talks and breakout sessions focusing on a wide range of topics from scientific techniques to alternative careers and cognitive neuroscience to the future of neuroscience. This year nearly 100 delegates attended the event, including speakers and exhibitors, held at the University of Exeter on 17 June

2019. Plenary lectures were delivered by Prof Emma Robinson (Bristol) exploring neuropsychological mechanisms of

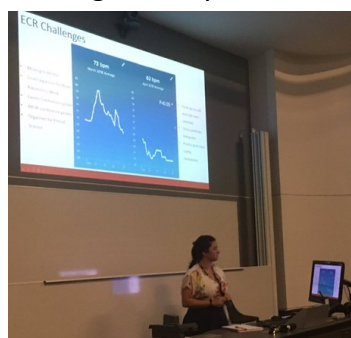


antidepressant drug action using a novel rodent model; Prof Anthony Isles (Cardiff) who spoke about Genomic imprinting; and Prof Katie Lunnon, recipient of the Alzheimer's Research UK Young Investigator of the Year Award (Exeter), who spoke about the Epigenetics of Alzheimer's dis-

ease. Prof Isles said: "The GW4 ECND 2019 was an excellent day of neuroscience, with a range of talks and opportunities for early career neuroscientists to present their work and interact with colleagues. It is amazing to think the whole day was organised by the students themselves – long may it continue!". The event highlighted some of the excellent facets of research occurring across GW4 and provided an exciting forum to promote collaboration in the neuroscience research sphere. Dr Sarah Perkins, GW4 Director said: "This is a great example of what can be achieved by GW4 students working together and a model we would like to see replicated in other areas."

External engagements

Soraya Meftah (PhD student in Physiology, Pharmacology and Neuroscience) was one of the presenters at the Alzheimer's Research UK Regional Scientific Network meeting held on 18 June 2019 in Exeter, where she talked about the challenges of being an Early Career Re-



searcher. Also in attendance were [Alfie Wearn](#), [Liz Coulthard](#) and [George Stothart](#).



Prof [Marcus Munafò](#) spoke at Pint of Science on *Why do people smoke?* The event on 22 May 2019 was sold out, but you can [watch the video](#).

Prof [Pat Kehoe](#) represented

Bristol as part of a UK delegation to the 1st UK-Israel Dementia Prevention Meeting held in Tel Aviv 17-19 June 2019. The meeting focused on prevention, neurodegeneration and neuroinflammation.

Bristol's [The Restaurant That Makes Mistakes](#) is now a series aired on Channel 4; it follows chefs and waiters of various ages who have been diagnosed with early onset dementia.

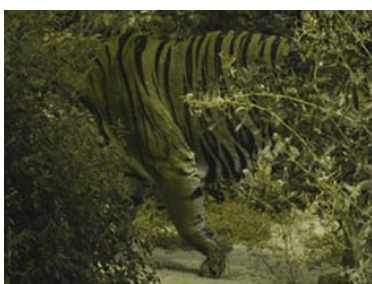


Best and worse colours for camouflage

Avoiding detection can provide significant survival advantages for prey, predators, or the military. For the first time, scientists from Bristol's Camo Lab have identified a new method to find the optimal colour to minimise or maximise detectability of a target.

Establishing which colours provide the best concealment or highest visibility in a natural environment is complex and challenging. This is partly because of a range of factors such as size, viewing distance, height above the ground, lighting, occlusion, the nature and variability of the environment, as well as the

characteristics of the visual system of the observer. Researchers from Bristol's [Camo Lab](#) aimed to establish a method to determine how



to optimise camouflage and visibility in two different desert and forest environments. Using residual deep neural networks and image processing to embed targets into the two different environments together with psychophysics to estimate detectability, the team were able to

identify the optimal colour that would either minimise or maximise visibility of the target.

Deep learning could become an invaluable tool to biologists to rapidly test a large number of camouflage patterns and provide further insight why animals look the way they do relative to their environment.

Drs Laszlo Talas & John Fennell, EPSRC Innovation Fellows (School of Psychological Science)

Fennell JG *et al.* (2019). [Optimizing colour for camouflage and visibility using deep learning: the effects of the environment and the observer's visual system](#). *Royal Society Interface*.

The effectiveness of tiger colouring as seen by other animals with dichromat vision systems

How to communicate with dementia sufferers

Sandie Read and her friends Roy James and Harry Davis met at the [Forget Me Not Centre](#) in Swindon, a service run by Avon and Wiltshire Mental Health Partnership for people with early onset dementia. They formed a research group and have been working with the University of Bristol to create a [series of videos](#) to help train both support workers and

those they interact with regularly. This is the first time people with dementia have been co-researchers on a project like this, with their insights, published in the *Journal of Dementia Care*, potentially helping to improve the lives of over 850,000 people in the UK living with dementia. From communicating diagnosis to subsequent everyday communications, researchers wanted

to learn more about how support workers, practitioners or volunteers and friends talk with people with dementia, and what works best so that both people can have a good conversation. The research team collected and analysed almost 10 hours of video-recorded interactions, with over 70 people with dementia, alongside 14 interviews.

[Creating videos together](#) by Joseph Webb, Val Williams, Sandie Read, Roy James and Harry Davis. *Journal of Dementia Care*. [The videos produced as part of this research are available to watch and download on the project's website.](#)



to learn more about how support workers, practi-

Learning Disabilities Mortality Review (LeDeR)

In this [third annual report of the LeDeR programme](#), between 1 July 2016 and 31 December 2018, 4,302 deaths were notified. These are some of the report's key findings:

- By 31 December 2018, 25% (1,081) of deaths notified had been reviewed by local areas in England.
- Adults with learning disabilities from Black, Asian and Minority Ethnic (BAME) groups appear to be under-represented in notifications of deaths.
- Just under half of the reviews completed in 2018 reported that the person had

received care which met, or exceeded, good practice.

- One in ten (11%) of reviews completed in 2018 reported that concerns had been raised about the circumstances leading to a person's death.
- 71 adults (8%) were reported to have received care that fell so far below expected good practice that it either significantly impacted on their well-being, or directly contributed to their death.
- Women with learning disabilities died 27 years earlier; men 23 years, when compared to the general population.
- Pneumonia, or aspiration

pneumonia, were identified as causes of death in 41% of reviews - conditions which are potentially treatable, if caught in time.

- There was evidence of bias in the care of people with learning disabilities, resulting in unequal treatment.

Of particular concern was the identification of diagnostic overshadowing – or misreading symptoms of illness as being due to a person having learning disabilities, rather than a treatable medical condition. This can be symptomatic of a lack of understanding, or a disregard for people with learning disabilities

Prof Pauline Heslop

Managing the risk of aggressive dog behaviour

Aggressive behaviour in pet dogs is a serious problem for dog owners across the world, with bite injuries representing a serious risk to both people and other dogs. New research has explored the factors that influence how owners manage aggressive behaviour in their dogs. The study found that clinical animal behaviourists should focus on helping dog owners to feel confident in the effectiveness of the behaviour modification techniques that they recommend and, in their ability, to

actually use them successfully. The aim of the study was to find out what influences an owner's decision to use out-dated punishment-based methods and what the barriers and drivers were to dog owners using positive reinforcement-based solutions. In particular, the researchers wanted to explore whether theoretical models and psychological concepts used in other contexts could help them to understand this issue. The research found owners' perceptions of how effective the behaviour modification

techniques are and how effectively they feel they can apply them are key factors predicting their current and future use. The work will be built on by designing and testing improved communications-based interventions that encourage engagement with positive reinforcement-based techniques.

Williams EJ & Blackwell E (2019). [Managing the risk of aggressive dog behavior: investigating the influence of owner threat and efficacy perceptions](#). *Risk Analysis*.

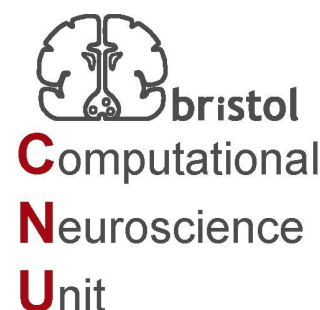
Bristol Computational Neuroscience Unit

The Bristol Computational Neuroscience Unit have launched a new website. BCNU is one of the leading computational neuroscience research units in the United Kingdom. Computational neuroscientists apply computational and mathematical approaches to the study of the brain and, in the other direction, seek to uncover insights into computation and mathematics by working with

experimental neuroscientists in trying to understanding how the brain works. Their work draws inspiration from a wide range of disciplines (e.g. neuroscience, mathematics, machine learning, statistics, computer science and physics).

[Check out their new website](#)

[Watch the video](#) with Conor Houghton and Rosalyn Moran on what Computational Neuroscience is



Dolphin friendships

When it comes to making friends, it appears dolphins are just like humans in that they form close friendships with other dolphins that have a common interest. Shark Bay (Western Australia) is home to a population of Indo-Pacific bottlenose dolphins, and the only place where dolphins have been observed using marine sponges as foraging tools. This learnt technique, passed down from generation to generation, helps certain dolphins, "spongers", find food in deeper water

channels. Using behavioural, genetic and photographic data collected from 124 male dolphins during the winter months over nine years [2007-2015], the team analysed a subset of 37 male dolphins, comprising 13 spongers and 24 non-spongers. Male spongers spend more time associ-

ating with other male spongers than they do non-spongers, these bonds being based on similar foraging techniques and not relatedness or other factors. The study provides new insight into homophilous behaviour in the social network of tool-using dolphins.



Bizzozzero M *et al.* (2019). [Tool use and social homophily among male bottlenose dolphins](#). *Proceedings of the Royal Society B*.

Measurable humans: how does our digital health look?

Will wearables really improve our wellbeing? We now use technology to track everything from steps to sleep, but how good does our digital health future really look - and does it look good for everyone? Four researchers, drawn from different disciplines, offered insights into the digital health sector as it stands, and where we might go next.

The discussion took place on 9 May 2019 at the Watershed as part of the Research without Borders festi-

val — an annual celebration of postgraduate research at the University of Bristol. The event was organised by the Bristol Doctoral College with the Elizabeth Blackwell Institute and

the EPSRC Centre for Doctoral Training in Digital Health and Care.

Speakers were:

- Alexis Bedolla Velazquez (Sociology)
- Michal Kozlowski (Electrical and Electronic Engineering)
- Steph Suddell (Psychology)
- Sophie Turnbull (Population Health Sciences)

[Listen to the talk](#)



When picky eaters grow up

Toddlers who are picky about their food are not deficient in essential nutrients compared to their peers when they are teenagers. However, the few children who were persistent picky eaters, those who were less able to change and adapt their eating habits, showed pronounced differences in food intake at the age of 13, including a higher intake of sugar. Researchers examined food questionnaires and records of children in

the [Children of the 90s](#) study to find out if those identified as picky eaters at three years old had differences in their diet by the time they were aged 10 and again at 13 years old, compared to non-picky eaters in the study. They found that at the age of 10

the diets of picky eaters had similar differences to their peers as they did when they were three years old. Generally they ate less fruit, vegetables and meat. By the time they were 13 years old there were still differences but they were less pronounced.



Taylor CM *et al.* (2019). [Diet at age 10 and 13 years in children identified as picky eaters at age 3 and in children who are persistent picky eaters in a longitudinal birth cohort study](#). *Nutrients*. 11(4): 807.

Sleep problems and associations with psychopathology

Young people with 22q11.2 deletion syndrome (22q11.2DS) are at high risk for neurodevelopmental disorders. Sleep problems may play a role in this risk but their prevalence, nature and links to psychopathology and cognitive function remain undescribed in this population. Sleep problems, psychopathology, developmental co-ordination and cognitive function were assessed in 140 young people with 22q11.2DS and 65 unaffected sibling controls. Primary carers completed questionnaires screening for the children's developmental co-ordination and autism spectrum disorder.

Sleep problems were identified in 60% of young people with 22q11.2DS compared to 23% of sibling controls. Two patterns best-described sleep problems in 22q11.2DS: restless sleep and insomnia. Restless sleep was linked to increased ADHD symptoms and impaired executive function. Both patterns were associated with elevated symptoms of anxiety disorder and developmental co-ordination disorder. The insomnia pattern was

also linked to elevated conduct disorder symptoms. Clinicians and carers should be aware that sleep problems are common in 22q11.2DS and index psychiatric risk, cognitive deficits and motor co-ordination problems. Future studies should explore the physiology of sleep and the links with the neurodevelopment in these young people.

Moulding HA, Bartsch U, Hall J & Jones MW (2019). [Sleep problems and associations with psychopathology and cognition in young people with 22q11.2 deletion syndrome \(22q11.2DS\)](#). *Psychological Medicine*. Published online 30 May 2019.



Putting mathematics into intensive care

Mathematicians and data scientists are collaborating with clinicians and health-care professionals in the intensive care unit (ICU) of Bristol Royal Infirmary (BRI) to turn the full force of machine learning onto the problems of patient management.

A Catalyst Fund award from the [Elizabeth Blackwell Institute](#) Engineering Mathematics Prof [Alan Champneys](#) assembled a cross-disciplinary team (Engineering Mathematics, Mathematics, and Psychological Science) to work

with Consultant Chris Bourdeaux and his team at the BRI. They built on earlier EBI Institute funded work by Dr Bourdeaux and Professor Iain Gilchrist who used a combination of data science and nudge behaviour to improve intensive care. This new study has now brought the full force of tools from artificial intelligence to the wider problem of patient planning.

The results show how machine learning techniques can be successfully applied retrospectively to routinely collected data to learn how to tackle problems in health care for

future patients. In particular, the work addresses how to identify patients who are ready to be safely discharged from ICUs.

McWilliams CJ *et al.* (2019). [Towards a decision support tool for intensive care discharge: machine learning algorithm development using electronic healthcare data from MIMIC-III and Bristol, UK.](#) *BMJ Open*. 9(3).



Non-suicidal self-harm support

A new study of non-suicidal self-harm in England suggests that rates grew from around 2% to 6% of the population between 2000 and 2014. At the same time, the study noted no evidence of an increase in treatment contact for this group. Non-suicidal self-harm (NSSH) is defined as self-inflicted harm without suicidal intent. The study found that it has become more common in both sexes and in people of all ages, but that the rate is highest in 16-24 year olds, particularly girls and women. The authors raise concerns that there could be lifelong im-

plications of NSSH, especially if the behaviours are adopted as a long-term coping strategy, and more must be done to help young people manage emotional stress. They note that their research does not study the reasons for increased distress in young people. Most people who self-harm do not go to hospital. While past studies report a rise in the number

of people presenting to hospital emergency departments after self-harming, it was not previously known whether the rise reflects an increase in the prevalence of self-harm in the wider community. The study showed a lifetime prevalence of NSSH in the English population rose from 2.4% in 2000, to 3.8% in 2007, and to 6.4% in 2014.

McManus S *et al.* (2019). [Prevalence of non-suicidal self-harm and service contact in England, 2000–14: repeated cross-sectional surveys of the general population.](#) *The Lancet Psychiatry*. Published 4 June 2019.



Co-operative behaviours in animals

Conflict between rival groups is common throughout the animal world, from ants to chimpanzees, but its consequences have been little studied. Using field experiments on a wild population of dwarf mongooses, a new study shows that the threat of conflict with outsiders can cause changes in a range of within-group behaviours. Much is known about the behaviour that occurs when groups of the same species actually interact with one

another; this study has shown that the threat of between-group battles can lead to increases in within-group cooperation, including greater grooming of groupmates and contributions to sentinel duty.

Experimental tests of the consequences of out-group con-

flict are extremely rare... By working with groups of dwarf mongooses habituated to our close presence, we could collect detailed observations and conduct experimental manipulations in natural conditions.

Andy Radford,

Prof of Behavioural Ecology



Morris-Drake A et al. (2019). [Experimental field evidence that out-group threats influence within-group behaviour](#). *Behavioral Ecology*. Published 20 June 2019.

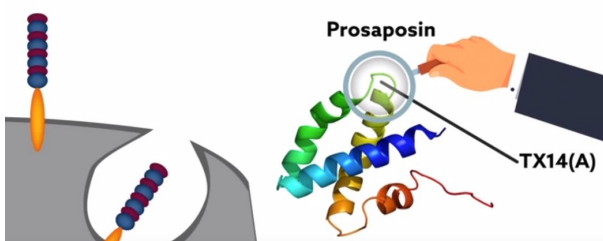
Prosaposin exerts neuroprotective effects

Discovery of neuroprotective pathways is one of the major priorities for neuroscience. Astrocytes are natural neuroprotectors and it is likely that brain resilience can be enhanced by mobilizing their protective potential. Among G-protein coupled receptors expressed by astrocytes, two highly related receptors, GPR37L1 and GPR37, are of particular interest. In this study a team demonstrated

that in their natural habitat, astrocytes, these receptors mediate a range of effects of TX14(A), including protection from oxidative stress. The Saposin C/GPR37L1/GPR37 pathway is also involved in the neuroprotective effect of astrocytes on neurons subjected to oxidative stress. The action of TX14(A) is at least partially mediated by Gi-proteins and the cAMP-PKA axis. On the other hand, when recombinant GPR37L1 or

plains unsuccessful attempts to confirm the ligand-receptor pairing. Therefore, this study identifies GPR37L1/GPR37 as the receptors for TX14(A), and, by extension of Saposin C, and paves the way for the development of neuroprotective therapeutics acting via these receptors.

Liu B et al. (2018). [Glio- and neuro-protection by prosaposin is mediated by orphan G-protein coupled receptors GPR37L1 and GPR37](#). *Glia*. 66 (11): pp2414-2426.



GPR37 are expressed in HEK293 cells, they are not functional and do not respond to TX14(A), which ex-

[Watch the recently produced video which explains these mechanisms](#)

Causal pathways to mental wellbeing

Tobacco and Alcohol Research Group (TARG) post-doctoral researchers, Drs [Robyn Wootton](#) and [Hannah Sallis](#) (both Psychological Science), have been awarded funding from the Elizabeth Blackwell Institute's (EBI) [Bioethics, Biolaw and Biosociety Research Strand](#). This strand focuses on research into the ethical, legal and social dimensions of health and the biosciences and aims to facilitate inter-disciplinary research. This funding scheme specifically funds multidisciplinary teams of three early career research-

ers. Along with Dr Wootton and Dr Sallis, the team is completed by Dr [Adele Wang](#), a post-doctoral researcher based in the School of Economics.

The project forms part of a larger funding bid aiming to understand causal pathways to mental wellbeing and will use a number of complemen-

tary, novel techniques to unpick the complex association between health behaviours and wellbeing. To start, Dr Wootton, Dr Sallis and Dr Wang will use the funds awarded by the EBI to arrange and host a networking meeting for a range of stakeholders and collaborators involved in the funding bid.



Wearable devices for mobility issues

The FREEHAB project will develop soft, wearable rehabilitative devices with a view to helping elderly and disabled people walk and move from sitting to a standing position in comfort and safety.

Led by University of Bristol Professor of Robotics [Jonathan Rossiter](#), FREEHAB builds on discoveries from his previous [Right Trousers project](#), which saw his team develop new soft materials that could be used like artificial muscles. Rehabilitation is vital for patients, but outcomes are hampered by a lack of easy-to-use dynamic

tools to help therapists accurately analyse mobility performance and devise effective programmes; and as rehabilitation increasingly takes place in patients' homes in the absence of a therapist, better ways to support in-home mobility and training are needed. The materials from which the artificial muscles are made include 3D-printable electroactive gel materials, and soft but strong pneumatic chains that change

shape when inflated and can exert considerable force. To develop the project, the researchers will work with physiotherapists in the NHS and private practice, and with people who have undergone physiotherapy for their mobility problems. Following research and development, the aim is to conduct clinical trials and then bring the devices into the supply chain once the project is over.



The three-year FREEHAB project (starting Sep 2019) has received £1,162,224 funding from the [Engineering and Physical Sciences Research Council \(EPSRC\)](#).

Nerve root blocks for diagnosing lower back pain

There is a lack of evidence for the effectiveness of a common test used to identify patients who would benefit from back surgery, a systematic review by NIHR CLAHRC West researchers has found. Selective nerve root blocks (SNRB) are already used in clinics to aid back pain diagnosis and identify patients that would benefit from surgery. But the reviewers found only a handful of studies – all low scientific quality – that investigate the accuracy of

this test. The evidence available shows that SNRB is not an accurate or reliable way to identify the patients who will benefit from back surgery. When patients have an uncertain diagnosis, doctors often use SNRB as an additional test to help decide whether surgery will be effective.

The team found six studies to include in the review. The results from each study varied; some concluded that SNRB was an accurate method, whereas others found the opposite. When pooling the re-

sults they found that SNRB correctly identified nine in 10 patients with a pinched nerve. However, SNRB was not accurate in excluding patients without pinched nerves; only half of the patients without pinched nerves were correctly identified.

Beynon R et al. (2019). [The utility of diagnostic selective nerve root blocks in the management of patients with lumbar radiculopathy: a systematic review](#). *BMJ Open*. 9 (4).

Male victims of domestic abuse

Men who experience domestic violence and abuse face significant barriers to getting help and access to specialist support services. A study led by the Centre for Academic Primary Care and Centre for Gender and Violence Research looked at what stops men in abusive relationships from seeking help and how services could be improved to make help-seeking easier. The researchers analysed interview-based studies of men in heterosexual and same-sex relationships and organised their findings into a series of themes. Fear of not being believed or being accused as the perpetrator, embarrassment at talking

about the abuse, and feeling 'less of a man' were found to be key reasons why men did not seek help. Men also worried about the welfare of their partner, damaging their relationship or losing contact with their children if they opened up to someone outside their personal network of family and friends. Others lacked the confidence to seek help as a result of the abuse. The study also found that men were often either not aware of specialist support services or felt they were not appropriate for male victims of abuse. When men did seek help, they did so usually when their situation had reached a crisis point. There were mixed views about how easy it was to

open up to health professionals, such as GPs, but men consistently expressed a preference for receiving help from a female professional.

We recommend...services (be) more inclusive and tailored to...address the needs of all genders, ethnic and socioeconomic backgrounds. They should offer ongoing support and be widely advertised. ... Specialised training is needed to address the specific needs of men and to foster greater levels of trust.

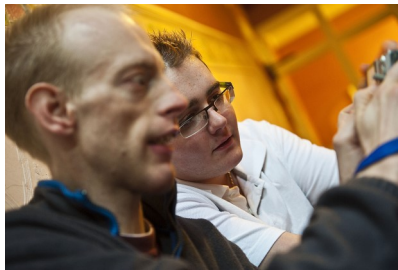
Gene Feder, Prof of Primary Care

Huntley A et al. (2019). [Help-seeking by male victims of domestic violence and abuse \(DVA\): a systematic review and qualitative evidence synthesis](#). *BMJ Open*. 9(6).

Co-designed technology for mental health service users

Mental health policies emphasise the importance of engaging service users in planning their care. However, service users often feel they're not fully involved and often don't have access to their own electronic mental health records. To address this, Otsuka Health Solutions co-designed an electronic care pathway tool with service users and staff at Avon and Wiltshire Mental Health NHS Partnership, to support joint working on care and crisis plans. Staff used the tool with service users on a touchscreen tablet.

This NIHR Collaboration for Leadership in Applied Health Research and Care (CLAHRC) West study investigated staff experiences of using the tool with service users, when they first started using it in their everyday working practice. Researchers asked staff what it was like to introduce the technology to service users, and whether it made a difference to their communications



with service users and broader working practices. The study shows how interactive technology offers new opportunities for staff and service users to work together to plan care, but there were challenges with the different IT systems communicating with one another. The NHS is struggling with resource and capacity issues, which many hope technology will alleviate. Technology isn't always an immediate solution, but research has shown that, with careful development, tools like this can make a difference.

[Read more](#)

The importance of being Dad

Fathers are important. They can play a crucial role in a child's life. But fathers are often overlooked, especially when they have learning difficulties.

Parents with learning difficulties are over-represented in the child protection system, typically due to concerns regarding neglect by omission. In addition to having a learning difficulty, they often face a wide range of barriers to ensuring positive outcomes for their children.

The 'Fathers to Fathers' project aimed to

find out from fathers with learning difficulties what it meant to them to be a dad, what their experiences had been, and what advice they would give to other fathers with learning difficulties. A policy briefing produced by researchers in the School for Policy Studies highlights the need for services working with families to recognise and build on

the value of fathers as good male role models, and to support and work with them. This includes fathers who have learning difficulties.

Fathers reported feeling under constant observation and being intimidated by professional assessments. They also felt that they had even more to prove than mothers.



Policy Briefing 70: April 2019

[The importance of being Dad: supporting fathers with learning difficulties \(PDF, 258kB\)](#). Nadine Tilbury, Jon Symonds & Beth Tarleton.

ELIZABETH BLACKWELL FUNDING

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

Closing date: none

EBI Workshop Support

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

Closing date: none

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).

Closing date: 30 April and 31 October each year

EBI Bridging Funds for Research 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.

Closing date: none

EBI Seed Fund: Public Engagement with Health Research

Seed funding is available for health researchers who would like to deliver public engagement events and activities.

Closing date: none

The Elizabeth Blackwell Institute for Health Research is officially a member of Equality, Diversity and Inclusion in Science and Health, or EDIS, an initiative set up by the Wellcome Trust, the Crick Institute and GSK. [Find out more about EDIS](#)

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](#)**.

***Research Professional**

BRACE

[PhD studentships](#)

Closing date: 15-Aug-19

Award amount: £90,000

These support PhD students in undertaking medical scientific research into the different forms of dementia. There are four main areas of supported research:

- the way the brain works – understanding more clearly what has gone wrong in someone with dementia

- development of effective and accurate means of diagnosing the condition as early as possible
- finding new treatments and assessing their effectiveness in clinical trials
- the potential link between certain genes in our DNA and the chances of developing dementia.

Applications must be made by individual or joint supervisors based in the south west or South Wales.

Dunhill Medical Trust

[Research project grants](#)

Closing date: 30-Aug-19

Award amount: £300,000

These support research projects that are important to understanding the mechanisms of ageing, treating disease and frailty and identifying and developing new and effective ways to improve the lives of older people. Research topics include the following:

- bioscience underpinning the mechanisms of ageing
- improving the effectiveness and efficiency of health services and social care delivery for older people
- improving technology and the built environment to meet the needs of an ageing population
- behavioural research
- clinical and applied research
- health services research
- public health research

British Neuropathological Society

[Small grant scheme](#)

Closing date: 1-Sep-19

Award amount: £5,000

This aims to advance neuropathology by supporting both substantive and pilot projects, and projects related to education and training in the field of neuropathology.

Alzheimer's Society

[Senior fellowships](#)

Closing date: 27-Sep-19

Award amount: £400,000

These support postdoctoral or other successful researchers who wish to build on a number of successful years of dementia research, and who demonstrate ambition and potential to be independent investigators. Researchers may come from any discipline or health and care profession involved in dementia research.

Medical Research Council

[Research grants – neurosciences and mental health](#)

Closing date: 2-Oct-19

Award amount: £1 million

Suitable for focused research projects that may be short- or long-term in nature or may be used to support method development and continuation of research facilities.

SHOWCASED ARTICLE

Investigating causal relationships between sleep traits and risk of breast cancer: a Mendelian randomization study

Richmond RC, Anderson EL, Dashti HS, Jones SE, Lane JM, Strand LB, Brumpton B, Rutter M, Wood AR, Relton CL, Munafò M, Frayling TM, Martin RM *et al.* (2019). *BMJ*. 365:l2327.

Objective To examine whether sleep traits have a causal effect on risk of breast cancer

Design Mendelian randomisation study

Setting UK Biobank prospective cohort study and Breast Cancer Association Consortium (BCAC) case-control genome-wide association study

Participants 156 848 women in the multivariable regression and one sample mendelian randomisation (MR) analysis in UK Biobank (7784 with a breast cancer diagnosis) and 122 977 breast cancer cases and 105 974 controls from BCAC in the two sample MR analysis.

Exposures Self reported chronotype (morning or evening preference), insomnia symptoms, and sleep duration in multivariable regression, and genetic variants robustly associated with these sleep traits.

Main outcome Measure Breast cancer diagnosis.

Results In multivariable regression analysis using UK Biobank data on breast cancer incidence, morning preference was inversely associated with breast cancer (hazard ratio 0.95, 95% confidence interval 0.93 to 0.98 per category increase), whereas there was little evidence for an association between sleep duration and insomnia symptoms. Using 341 single nucleotide polymorphisms (SNPs) associated with chronotype, 91 SNPs associated with sleep duration, and 57 SNPs associated with insomnia symptoms, one sample MR analysis in UK Biobank provided some supportive evidence for a protective effect of morning preference on breast cancer risk (0.85, 0.70, 1.03 per category increase) but imprecise estimates for sleep duration and insomnia symptoms. Two sample MR using data from BCAC supported findings for a protective effect of morning preference (inverse variance weighted odds ratio 0.88, 95% confidence interval 0.82 to 0.93 per category increase) and adverse effect of increased sleep duration (1.19, 1.02 to 1.39 per hour increase) on breast cancer risk (both oestrogen receptor positive and oestrogen receptor negative), whereas evidence for insomnia symptoms was inconsistent. Results were largely robust to sensitivity analyses accounting for horizontal pleiotropy.

Conclusions Findings showed consistent evidence for a protective effect of morning preference and suggestive evidence for an adverse effect of increased sleep duration on breast cancer risk.



CONTACTS



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