

I&I NETWORK NEWSLETTER



Elizabeth Blackwell Institute
for Health Research

JULY – SEPTEMBER 2019

Antibiotic Guardian Awards

A project to tackle antimicrobial resistance (AMR) on English dairy farms has won at this year's Antibiotic Guardian Awards held in Birmingham on 27 June 2019. The Bristol Veterinary School PhD project, *Farmer Action Groups*, was a winner in the Research category. The fourth inaugu-

ral awards were hosted by the Chief Veterinary Officer, Christine Middlemiss. The University of Bristol co-ordinated **Farmer** Action Groups were joint winners with the University of Birmingham. Set up to recognise the ongoing work on AMR research, this category had five shortlisted entries with the London School of Hygiene and Tropical Medicine receiving Highly Commended. The Farmer Action Groups were award-

ed the top prize for their innovative farmer-led approach to reducing antimicrobial use on English dairy farms. Eight farmer representatives from the project and the team who co-ordinated the project, Drs Lisa Morgans and Kristen Reyher, attended the event.

[Read more](#)



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INFECTION
&
IMMUNITY



UoBRISTOL EVENTS

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



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

CCPBioSim Conference - Frontiers in Biomolecular Simulation

4 - 6 September 2019, School of Chemistry, Cantock's Close, Bristol, BS8 1TS

4th Annual Meeting of the Animal Welfare Research Network

16 - 17 September 2019, Priory Road Complex, University of Bristol, 12 Priory Road, BS8 1TU

Writing for a lay audience

17 September 2019, 10.00 - 12.00



Bristol Endothelial meeting 2019

19 September 2019, 9.00 - 17.30. Keynotes: Dr Alessandra Granata (Cambridge), Dr Anjali Kusumbe (Oxford), The FOUNDATION, Lower Ground Floor, St George's Road, Bristol, BS1 5BE

Research IT drop-in session

19 September 2019, 11.00 - 13.00, Room 2.10, 31 Great George Street



GW4 BBSRC Mock Board Meeting as an Early Career Researcher Training Opportunity

20 September 2019, 10.00 - 14.00

Infection and Immunity Annual Early Career Researchers' Symposium

10 January 2020, 9.30 - 14.00

G13-14 Life Sciences Building

Call for abstracts now open

Research ethics committees - here to help, not hinder

24 September 2019, 12.00 - 13.00, Chris Foy (Senior Adviser, Research Design Service South West and HRA Research Ethics Committee Chair), Tutorial Room 1, Education & Research Centre, Upper Maudlin Street, Bristol BS2 8AE

Translation toolkit: Spin-out or licencing your research - pro's and con's of both

26 September 2019, 14.00 - 15.00, Martin Challand (Zentraxa) and Laura Newell (licensing and

UoB EVENTS

commercialisation team, RED)

FUTURES - European Researchers' Night, 27-28 September 2019

27 - 28 September 2019, various venues around Bristol

FUTURES:
EUROPEAN
RESEARCHERS'
NIGHT

Translation toolkit: Stand and Deliver: Making Effective Presentations

8 October 2019, 9.00 - 16.00, Vox Coaching, Room G.02, 1 Cathedral Square

Elizabeth Blackwell Institute Annual Public Lecture: Working at mental health and wellbeing

21 October 2019, 18.30 - 20.00, Professor Dame Carol Black, The Wills Memorial Building, Queen's Road, Bristol BS8 1RL



OTHER EVENTS

ChemBioX 2019

30 July 2019, 9.00 - 17.00. Keynotes: Prof Michelle Chang (Berkeley), Prof Thomas Carell (LMU Munich), Dr Chun-Wa Chung (GSK), Worcester College, Oxford

Science Policy: Improving the Uptake of Research into UK Policy

19 - 21 August 2019, Wellcome Genome Campus

International Veterinary Immunology Symposium

13 - 16 August 2019, Renaissance Seattle Hotel, 515 Madison Street, Seattle, Washington, USA

EDIS Symposium 2019: Inclusive Research and Experimental Design

9 September 2019, 9.30 - 16.30, Keynote: Professor Londa Schiebinger (Director of the EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment project, Stanford University), Francis Crick Institute, 1 Midland Road, London, NW1 1ST



New Directions in Immuno-Oncology Conference

10 - 12 September 2019, Bush House East Wing, King's College London, Bush House, 30 Aldwych, London, WC2B 4BG

Parliament for Researchers

11 September 2019, 10.30 - 15.30, Bath Spa University

STARS School 2019: Embedding the Industrial Perspective

8 - 13 September 2019, Darlington

20th Cambridge Immunology Forum: Primary Immunodeficiencies

13 September 2019, 9.00 - 20.00, Queens' College Cambridge

NEWS

Drug discovery for atopic dermatitis and psoriasis

The lives of patients affected by atopic dermatitis and psoriasis could be improved thanks to the start of an EU-funded research project BIOMAP (Biomarkers in Atopic Dermatitis and Psoriasis). The five-year project will address key unmet needs in treating these common inflammatory skin conditions by analysing data from more than 50 000 patients to improve disease understanding, patient care and future therapies.

The collaborative team involves 26 universities, includ-

ing the University of Bristol, five industry partners as well as five patient organisations. The [European Innovative Medicines Initiative \(IMI\)](#) and the participating pharma companies provided €20.8 million funding for the first IMI project in the field of dermatology. The clinicians and scientists of BIOMAP will examine the causes and mechanisms of

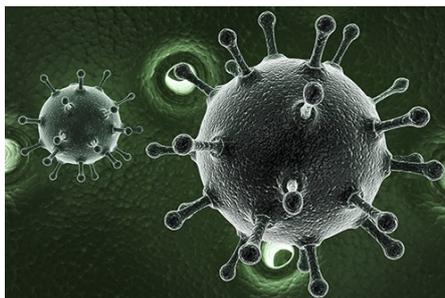


these conditions. By analysing patient data and performing advanced molecular investigations at the single cell level and in the tissue context, they aim at identifying biomarkers for variations in disease outcome. Taking advantage of recent technical developments in translational medicine, the project will drive drug discovery and improve direct disease management by combining clinical, genetic and epidemiological expertise with modern molecular analysis techniques and newly-developed tools in bioinformatics. [Read more](#)

Hepatitis C prevention

Stepping up efforts to prevent transmission of hepatitis C among people who inject drugs could reduce future infections by 43%, according to a recent study. It is estimated that over 70 million people are infected with the hepatitis C virus worldwide and that around 400,000 people with hepatitis C die each year due to related conditions such as cirrhosis of the liver and liver cancer. People who inject drugs are at high risk of becoming in-

fectured with the virus through the sharing of needles, syringes and other injecting drug equipment. While the percentage of people with hepatitis C is estimated to be less than one per cent in most countries, the percentage of people who inject drugs with hepatitis C tends to be over



30%. Mathematical modellers estimated that, if hepatitis C transmission due to the risk associated with injecting drug use was removed, around 43% of all infections up to 2030 would be prevented globally.

Trickey A *et al.* (2019). [The contribution of injecting drug use as a risk factor for hepatitis C virus transmission globally, regionally, and at country level: a modelling study](#). *Lancet Gastroenterology and Hepatology*. 4(6), pp435-444.

Funding successes: Part 1

Drs [Katy Turner](#) (Bristol Veterinary School), [Martin Homer](#) (Engineering) and [Katharine Looker](#) (Bristol Medical School) have been awarded £19,700 for a **World Health Organisation** funded project on gonococcal resistance modelling.

A **National Institute for Health Research** Policy Research Programme, £21 749 for a two-year award to Prof [Adam Finn](#) (Cellular and Molecular Medicine) for *Evaluating the effect of immunisa-*

tion with group B meningococcal vaccines on meningococcal carriage.

Dr [Angela Nobbs](#) (Bristol Dental School) has been awarded a studentship by the **Society for Applied Microbiology** for *Host response to microbial co-infection of epithelial cells.*

From the **Biotechnology and Biological Sciences/Natural Environment Research Councils and Conicet** to Dr [Kristen Rehyer](#), Dr [Maria Es-](#)

[cobar-Tello](#) (both Bristol Veterinary School) and Prof [Matthew Avison](#) (Cellular and Molecular Medicine), £988,000 for *FARMS-SAFE: Future-proofing Antibacterial resistance Risk Management Surveillance and Stewardship in the Argentinian Farming Environment.*

To [John Henderson](#) (Bristol Medical School) from the **Medical Research Council**, a UNICORN (Unified Cohorts Research Network) grant for disaggregating asthma.

Infection and Immunity Annual Symposium: debrief

This year's I&I symposium took place in the Life Sciences Building on 24 April 2019. We welcomed over 60 delegates guests who came to hear nine invited speakers talk about their work on the microbiome, in humans and animals, from the mouth to the gut. We also hosted nine poster presenters, three of whom won prizes (pictured with Ruth Massey, I&I co-Lead):

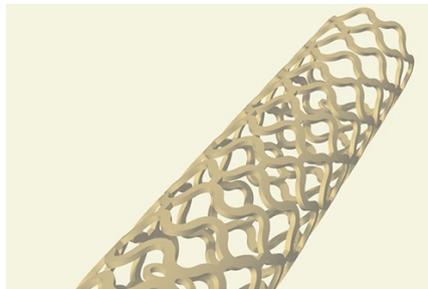
- 1st place: [Alaa Alnahari](#) (PhD student, Cellular and Molecular Medicine) for *A novel Staphylococcus aureus membrane protein MasA, that affects toxin secretion* (on the right)
 - 2nd place: Dr [Séana Duggan](#) (Research Associate, Cellular and Molecular Medicine) for *MasA is required for Staphylococcus aureus Virulence* (middle)
 - 3rd place: [David Coe](#) (Research Associate, Cellular and Molecular Medicine) for *Augmenting Adoptive Cell Therapy with Active Membrane Binding Proteins* (left)
- The other image shows Dr [Nihal Bandara](#) (Bristol Dental School) giving his talk on *Microbial signalling and antimicrobial resistance.*



Biodegradable stents

A £1.1 million project to develop biodegradable stents for patients with severe vascular disease, which affects around one million people in the UK, has started thanks to Innovate UK funding. The unique project, a collaboration between the UK-based medical device company Arterius and the Translational Biomedical Research Centre (TBRC) at the University of Bristol, will develop a new type of bioresorbable stent that prevents the complications associated with metal stents. Current treatment for the condition relies on per-

manent metal stents being inserted through a needle over a wire into the blocked artery to open up the blockage. However, these metal stents are associated with early blood clots and long-term chronic inflammation at the stented site. This triggers recurrence of blockages within one to two years (also known as in-stent restenosis)



leading to readmissions, repeated revascularisation and huge hospital costs. Together, the team will join strengths and expertise to refine existing Arterius's technology to develop smart peripheral bioresorbable stents with novel mechanical and biocompatible properties able to treat the blockages and then dissolve between 18 to 24 months. The new device aims to prevent the life-long presence in the treated arteries of a metal stent and the associated chronic inflammation/restenosis and complications. [Read more](#)

Funding successes: Part 2

Prof [Matt Hickman](#) (Bristol Medical School) was awarded ~£6.46 million by the **UK Prevention Research Partnership** (UKPRP) Consortium for Tackling Root Causes Upstream of Unhealthy Urban Development (TRU3D). TRU3D is a partnership between the Universities of Bristol (Faculties of Health, Social Science and Law, and Engineering), West of England, Bath, Cardiff and Reading, plus Bristol City Council and Greater Manchester Combined Authority.

Dr [Rachael Hughes](#) (Research Fellow in Medical Statistics,

Bristol Medical School) has been awarded a **Wellcome Trust** Sir Henry Dale Fellowship.

Dr [Ben Faber](#) (NIHR Academic Clinical Fellow, Musculoskeletal Research Unit, Bristol Medical School), was awarded a **Medical Research Council** Clinical Research Training Fellowship.

Dr [Pippa Bailey](#) (Bristol Medical School) was awarded a **Wellcome Trust** Clinical Research Career Development Fellowship, £531 000 for *The development and feasibility trial of a complex intervention*

to improve AccesS to living-donor Kidney transplantation: the ASK trial. This is the first award the University has received for this relatively new scheme. Pippa will have the opportunity to apply for a further 4 years of funding at the end of this award.

To Drs [Emi Barker](#), [Emily Blackwell](#), [Chris Helps](#) and Prof [Severine Tasker](#) (all Bristol Veterinary School) from **Petsavers**, £3 900 for a Clinical Research Project *Prevalence of common respiratory infections within a normal population of owned cats*.

Funding successes: Part 3

Dr [Helen Weavers](#) (Biochemistry), who has just set up her lab as a Wellcome Henry Dale Fellow, has been awarded a prestigious **Sir Jules Thorn** PhD studentship for Jack Holcomb. Jack will start his PhD with Helen in September. Helen's research focusses on understanding the cell biology of tissue resilience during development, inflammation and wound repair.

Dr [Melanie Hezzell](#) (Bristol Veterinary School) has re-

ceived a **University Research Fellowship** award from 1 August 2019 (£10,000).

Kidney Research UK has awarded Dr [Gavin Welsh](#) (Bristol Medical School) £135 591 for two years for *Role of the podocin/CDCP1 interaction in the pathogenesis of Nephrotic Syndrome*.

Dr [Joanna Thorn](#) (Bristol Medical School) has received a **National Institute for Health** - Research for Patient Benefit award for *Fatigue -*

Reducing its Effects through individualised support Episodes in Inflammatory Arthritis (FREE-IA): A Feasibility Study for a Randomised Controlled Trial.

Versus Arthritis has awarded £204 792 for four years to Dr [Celia Gregson](#) (Bristol Medical School) for *Functional validation of causal genes that underpin osteoporosis pathogenesis; identifying novel therapeutic targets*.

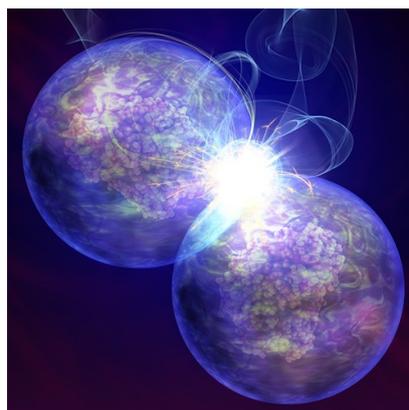
Welding with stem cells for next-generation surgical glues

A research team led by Dr [Adam Perriman](#) (Cellular and Molecular Medicine) have invented technology that could lead to the development of a new generation of smart surgical glues and dressings for chronic wounds. The method involves re-engineering the membranes of stem cells to effectively "weld" the cells together. Cell membrane re-engineering is emerging as a powerful tool for the development of next generation cell therapies, as it allows scientists to provide additional functions in the therapeutic cells, such as homing, adhesion or hypoxia (low oxygen) resistance. At the moment, there are few

examples where the cell membrane is re-engineered to display active enzymes that drive extracellular matrix production, which is an essential process in wound healing. Here, the team modified the membrane of human mesenchymal stem cells (hMSCs) with an enzyme, thrombin, which is involved in the wound healing process. When the modified

cells were placed in a solution containing the blood protein fibrinogen, they automatically welded together through the growth of a natural hydrogel from the surface of the cells. The researchers have also shown that the resulting 3D cellular structures could be used for tissue engineering.

Perriman A *et al.* (2019). [Artificial cell membrane binding thrombin constructs drive in situ fibrin hydrogel formation](#). *Nature Communications*. 10: 1887.



An artist's impression of Stem Cell Welding. The cell membrane-bound enzymes catalyse a hydrogelation event, which fuses two stem cells together. Credit: Warwick Bromley

Funding successes: Part 4

To Prof [Jonathan Sterne](#) (Bristol Medical School) from the **World Health Organisation**, £52 011 for *Effectiveness of ribavirin for the treatment of Lassa fever - Systematic review*.

To Prof [Ian Collinson](#) (Biochemistry) from the **Wellcome Trust** for *Development of a drug screen against the bacterial secretion machinery*, £84 932 for one year.

The **Royal Society** has awarded £49 666 to Prof [Mark Eisler](#) (Bristol Veterinary School) for *Development of a community based intervention for control of*

metacestode infections in small ruminants in Tanzania.

The **Engineering and Physical Sciences Research Council** has awarded £905 400 to Prof [Carmen Galan](#) (Chemistry) for a five-year project on *Bio-Inspired Fluorescent Carbon Dots as probes for rapid detection of bacteria in physiological samples*.

The **National Institute for Health** has awarded Health Technology Assessment funding to Prof [Andrew Dick](#) (Bristol Medical School) for *ASTUTE: Adalimumab vs placebo as add-on to Standard Therapy for autoimmune*

Uveitis: Tolerability, Effectiveness and cost-effectiveness. This will run from September 2019 for four years.

To Prof [Jan Frayne](#) (Biochemistry), £69 785 for *Developing human model cellular systems for studying beta thalassemia and as drug screening platforms* from the **Wellcome Trust** for a one year project.

Wellcome Trust have awarded £99 000 seed award in science to Dr Ellen Brooks-Pollock (Bristol Veterinary School) for *A Case for Investment in Zoonotic tuberculosis*.

Antimicrobial Resistance Partnership Hub launched in China

The University of Bristol along with Peking University and a consortium of partners has launched the 'UK-China AMR Partnership Program on strategies to reduce the burden of antibiotic resistance in China'. The program is a research and training programme that will bring together leading experts in to tackle AMR which will deliver key evidence required to enhance the success of antibiotic resistance reduction strategies in China. Three linked projects will investigate be-

havioural, economic and environmental aspects of antibiotic resistance. This will involve measuring human exposure to antibiotics (from environmental and livestock sources) and documenting patterns of antibiotic use in health care; designing a tailored intervention for China and produce evidence-based recommendations to modify

antibiotic prescribing behaviour, in order to reduce antibiotic consumption; and estimating the cost-effectiveness of different intervention strategies, as well as the economic burden of AMR to the country. Prof [Helen Lambert](#) (Medical Anthropology) at Bristol and Prof Bo Zheng, [Peking University](#) First Hospital, will lead the partnership and have designed the project to ensure it delivers an interdisciplinary approach that establishes sustainable partnerships.



Max Planck-Bristol Centre for Minimal Biology launched

Building stripped-down versions of life using protocells, genome delivery systems and synthetic cytoskeletons comprise some of the ground-breaking research due to take place at a new Centre launched at the University of Bristol on 27 March 2019. The Max Planck-Bristol Centre for Minimal Biology, a partnership between the University of Bristol and the Max Planck Society for the Advancement of Science (MPG) in Germany, aims to advance the future

of health and medicine by understanding the fundamental nature of life. Led by Bristol Profs [Imre Berger](#) (Biochemistry), [Stephen Mann](#) (Chemistry) and [Dek Woolfson](#) (Chemistry and Biochemistry), and Profs [Joachim Spatz](#) (Heidelberg), [Tanja Weil](#) (Mainz) and [Petra](#)

[Schwille](#) (Munich) at Max Planck Institutes in Germany, the Centre will be based in the [School of Chemistry](#) at the University of Bristol. A paramount objective is to train early career scientists in minimal biology and biodesign.

Max Planck Bristol Centre Directors, L to R: Professor Steven Mann (UoB), Professor Tanja Weil (Mainz), Professor Imre Berger (UoB), Professor Joachim Spatz (Heidelberg), Professor Petra Schwille (Munich). Professor Dek Woolfson (UoB) is also MBPC Director. Image ©Kate Kirkby



Risk factors identified for knee replacements

In the largest study of its kind, researchers from the Musculoskeletal Research Unit have identified the most important risk factors for developing severe infection after knee replacement. Patients who are under 60 years of age, males, those with chronic pulmonary disease, diabetes, liver disease, and a higher body mass index are at increased risk of having the joint replacement redone (known as revision) due to infection. The research, which follows their work on [hip replacement](#) published last year [20 November 2018], also showed that some patients are at higher risk of

early infection whilst others are more prone to late infection after knee replacement. The study analysed data from over 670,000 primary hip replacement patients, with 3,659 requiring revision for infection. This study showed the reason for surgery, the type of procedure performed and the type of prosthesis and its fixation, influenced the risk of needing revision surgery for infection. Unique-

ly, the research identified that these important factors have a different effect depending on the post-operative period, with liver diseases or inflammatory arthropathy increasing the risk of revision for infection in the long-term but patients receiving a patellofemoral, unicondylar or uncemented total knee replacement had a lower risk of late revision for infection.

Lenguerrand E *et al.* (2019). [Risk factors associated with revision for prosthetic joint infection \(PJI\) following knee replacement: an observational cohort study from the National Joint Registry for England, Wales, Northern Ireland and the Isle of Man](#). *The Lancet Infectious Diseases* . 19(6), pp589-600.



Health Integration Team (HIT) successes 2018-2019

Sexual Health Improvement for Population and Patients (SHIP) HIT

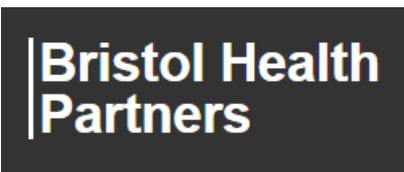
Focus has been on sexually transmitted infections (STIs) and anti-microbial resistance (AMR). We welcomed 50 experts to Bristol in Sep 2018 for a workshop on "Preparing sexual health services to meet the challenge of antimicrobial resistance", co-hosted by the British Association of Sexual Health and HIV. Following on from this we contributed written evidence to the UK Government Select Committee on Sexual Health.

[Paddy Horner](#) and [Katy Turner](#) were invited to contribute as experts to an MP round table meeting in March 2019. We are co-hosting a second workshop later this year with London School of Hygiene & Tropical Medicine's STIs Research Interest Group in London. Innovative service improvements have been moving ahead at Unity Sexual Health Clinic; a new system to enable the offer of same day STI testing and diagnosis implemented for men will be rolled out for women shortly. The Challenges and Opportunities of Pre-exposure prophylaxis for HIV ([CHOP](#)) study aims to explore a medicine for HIV negative people that, when taken as

instructed, can reduce the risk of acquiring HIV. Recruitment started in September 2018.

Chronic Kidney Disease HIT

In looking at safer prescribing in kidney disease, we have searched the literature for indicators of (un-)safe prescribing and plan to work with GPs to reach a consensus on safe prescribing in kidney disease. The aim is to produce a tool that can assess (un-)safe prescribing in routine health-care datasets. We are assessing the risk of acute kid-



ney injury (AKI) with certain blood pressure medication, using a large research-ready GP database to look at the risk of AKI in people starting renin angiotensin aldosterone system blockers. Although these drugs are protective for kidneys and hearts in the long term, there is a small risk of AKI. We are educating community healthcare professionals on the care needs of people at the end of life with kidney failure. This builds on the Bristol-led Prepare for Kidney Care randomised control trial of preparing for dialysis vs preparing for responsive man-

agement. With the national Kidney Quality Improvement Partnership, we are working to reduce delays in access to kidney transplant for people living in the South West. We also have several research projects underway: the ASK trial addresses socioeconomic inequity in living donor kidney transplant; and an analysis of UK Renal Registry data to explore inequalities in access to living kidney donor transplant in the UK Chinese population.

Proof of concept study for tele-clinics for kidney transplant patients

Udayaraj UP *et al.* (2019). [Establishing a tele-clinic service for kidney transplant recipients through a patient-codedigned quality improvement project.](#) *BMJ Open.*

The project used a Quality Improvement approach with iterative Plan-Do-Study-Act (PDSA) cycles to test the introduction of a tele-clinic service. The service was co-designed with patients and developed a prototype delivery model that was tested iteratively. Blood test quality for tele-clinics improved from 25% to 90.9%. Patient satisfaction was high at 97.9%. The tele-clinic saved 3,527 miles in travel, and provided an immediate saving of

Health Integration Team (HIT) successes 2018-2019 con't

£6,060 for commissioners. It has the potential to be rolled out to other renal centres.

Bristol Bones and Joints HIT

We are particularly interested in self-management. Health-care professionals and researchers can help with self-management by understanding what is important and what is helpful to patients. One example is fatigue, which patients identified as one of the most difficult symptoms to cope with. We have tested a group programme aimed at reducing the impact of fatigue on patients' daily lives. The results showed that patients found the group programme helpful, and we are now exploring ways of rolling it out across the region. We are also looking at the social and emotional support that is available in rheumatology, as patients have told us that this is an aspect of their care that is important but not always available. We have worked together with Bristol general practitioners (GPs) to develop shared referral protocols for early inflammatory arthritis for GPs. This should ensure that the patients in most need are prioritised and seen quickly in rheumatology departments across Bristol and Weston-super-Mare.

Monitoring of treatments for RA is shared between rheumatology departments and patients' GPs. We have developed shared care guidelines for GPs across Bristol about how to monitor their patients, such as appropriate blood tests and when to withhold or continue medications or contact their rheumatologists. This should help to support patients by having a common approach across primary and secondary care.



Bristol Immunisation Group (BIG) HIT

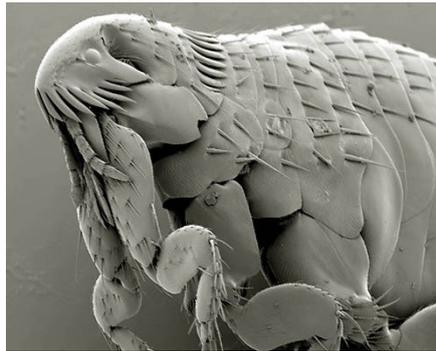
Nationally, there is an increasingly challenging landscape for immunisation. There is an ongoing downward trend for many immunisations, resulting in outbreaks of vaccine-preventable diseases. For a variety of reasons, the uptake for one dose of MMR by age two has been even lower in Bristol than the national average. We have addressed this collaboratively using innovative initiatives in primary care, education of children and teachers in schools, increasing communi-

cation with 'hard to reach' groups, and specialist clinics for those with specific concerns. In the third quarter of 2018/19, the percentage of children receiving two doses of MMR by age five was higher than the national average. This is a huge achievement for all involved. Addressing the lack of easy access to maternal immunisation continues to be a priority. Although structural service changes have already been made, we will continue to seek ways of improving access so that women are offered the opportunity to protect their babies are protected in early infancy. Our research work continues with the launch of the multi-centre commercial trial of meningococcal ACWY (MenACWY) conjugate vaccine in infants which is recruiting well; and the study in teenagers comparing the effects on carriage of two meningitis B vaccines continues. The National Institute for Health Research (NIHR) funded study looking at self-consent in teenagers has nearly completed the data collection phase. We have completed a year of surveillance of children hospitalised with varicella and continue recruiting to a study looking at the impact on quality of life during varicella.

Cats and dogs carry fleas with high levels of bacteria

As many as one in four cats and one in seven dogs are carrying fleas, and about 11% of these are infected with potentially pathogenic bacteria. Flea bites can be painful and can cause allergic reactions in cats and dogs which is why the Big Flea Project findings highlight the need to re-educate pet owners on flea prevention. The effects of flea blood-feeding and the pathogens they carry can result in clinical disease in cats and dogs, particularly

given the relatively high prevalence of *Bartonella spp.* Besides the direct effects resulting from blood-feeding, *Ctenocephalides* species are important as competent vectors for a wide range of path-



ogens, many of which are zoonotic. In particular, these fleas may be vectors of rickettsiae, such as *Yersinia pestis*, *Rickettsia typhi*, *Rickettsia felis*, *Rickettsia conorii* and *Bartonella henselae* and are the intermediate hosts for cysticercoid larvae of *Dypidilium caninum* tapeworms

Wall R *et al.* (2019). [Pathogens in fleas collected from cats and dogs: distribution and prevalence in the UK](#). *Parasites and Vectors*. 12(71).

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. Many aspects of the world around us influence our health, from the communities in which we live, to the design of our cities and transport systems, the quality of our housing and education. There is strong evidence to show that wider factors such as these, often called 'upstream determinants', can have a great influence on

how healthy our lives will be.

The projects cover a wide variety of issues, including; investigating the commercial 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); 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.

[Read more](#)

Recent BristolAMR-funded projects

The latest round of [Bristol-AMR Research Strand](#) funding resulted in a number of awards supporting interdisciplinary pump-priming projects, project development, translation of existing antimicrobial resistance (AMR) research and public engagement activities in AMR.

Dr [Catherine Kelly](#) (PI, School of Law, UoB), Dr Robert Burrell (Sheffield), Dr AM Viens (York, Canada), Dr [Patricia Neville](#) (Bristol Dental School): *Wicked Prizes? Incentivising Innovation in AMR through Alternatives to the Patent System.*

Prof [Helen Lambert](#) (PI) and

Dr AbouAli Vedadhir (both Bristol Medical School): *Socio-cultural and Political Studies of AMR: A Scoping Review.*

Dr [Ulrika Maude](#) (English). Dr Maude will receive funding to buy out some teaching time to enable her to undertake research and write a monograph to translate scientific ideas about microbes and antimicrobial resistance to the wider public.

Dr [Matthew Booker](#) (PI, Bristol Medical School) and Dr [Massimo Antognozzi](#) (Physics): *Development of a Sub-Cellular Fluctuation (SCFI) Antimicrobial Suscep-*

tibility Testing Device for use in Community Healthcare Settings.

Prof [Keith Syrett](#) (PI, Centre for Health, Law and Society), Prof [Helen Lambert](#) (PI) and Dr [Christie Cabral](#) (both Bristol Medical School): *Regulating Resistance: Developing Outcomes from a Collaborative Social Science-Led Network.*

Prof [Deborah Wilson](#), (Management), Dr [Patricia Lucas](#) (Policy Studies), [Lucy Parnall](#) and Dr [Jude Hill](#) (Research and Enterprise Development): *Funding to develop a UoB Social Sciences and Law network on AMR.*

Greyhound dental disease

Dental disease is the most common health issue facing pet greyhounds, according to the largest ever study of greyhounds treated in first opinion veterinary clinics. The research, led by the Royal Veterinary College's (RVC) VetCompass™ programme in collaboration with the University of Bristol Vet School, reveals that 39% of greyhounds suffer from dental problems, which is a far higher percentage than for any other dog

breed. As well as bad teeth, the research revealed that traumatic injuries, overgrown nails and osteoarthritis are also major concerns for pet greyhounds. The results will help breeders and regulators

prioritise activities to mitigate the worst of the harm to greyhounds from their racing careers, as well as help greyhound rehoming organisations advise adopters on optimal preventative care options.



O'Neill DG *et al.* (2019). [Greyhounds under general veterinary care in the UK during 2016: demography and common disorders.](#) *Canine Genetics and Epidemiology.* 6(4).

Differences in research funding for women scientists

A team led by University College London investigated funding awards to UK institutions for all infectious disease research from 1997 to 2010, across disease categories and along the research and development continuum. 6052 studies were included in the final analysis, comprising 4357 grants (72%) awarded to men and 1695 grants (28%) awarded to women, totalling £2.274 billion. Of this, men received £1.786 billion (78.5%) and

women £488 million (21.5%). The median value of award was greater for men (£179 389) than women (£125 556). Awards were greater for male principal investigators (PIs) across all infectious disease systems, excepting neurological infections and sexually transmitted infections. Their paper concluded that there are consistent differences in funding received by men and women PIs: women have fewer funded studies and receive less funding in

absolute and in relative terms; the median funding awarded to women is lower across most infectious disease areas, by funder, and type of science. These differences remain broadly unchanged over the 14-year study period.

Head MG *et al.* (2019). [Differences in research funding for women scientists: a systematic comparison of UK investments in global infectious disease research during 1997–2010. *BMJ Open*.](#)

Leaving school earlier could increase risk of heart disease

Although it has been known for a long time, that education, and socioeconomic position affect health, particularly in later life, there was limited knowledge as to why. New research has found that increased levels of BMI, blood pressure and smoking partly explain why people who left school at an earlier age could be at an increased risk of heart disease.

The study, led by the University of Bristol and Imperial College London, investigated the role of body mass index (BMI), systolic blood pressure (SBP) and smoking in European populations to explain the effect of education on the risk of cardiovascular disease,

which affects the heart or blood vessels and includes heart disease, heart attack and stroke. The team found consistent evidence that BMI, blood pressure and smoking relates up to 18%, 27% and 34% of the effect of education on heart disease, respectively. Considering all of these together explains around 40% of the effect of education on heart disease; understanding what other factors are driving the association will be important. Future interventions on these risk factors could lead to reductions in cardiovascular disease that has been caused by lower levels of education. Building on previous heart disease studies,

researchers looked at the effect of education on all combined coronary disease subtypes, heart attack and stroke. Using mediation analysis, which aims to identify the mechanism between an exposure and outcome, they investigated how much of the association between education and heart disease could be explained by BMI, blood pressure, smoking and all three factors together.

Carter AR *et al.* (2019). [Understanding the consequences of education inequality on cardiovascular disease: A Mendelian randomisation study. *BMJ*. 365: 1855.](#)

Measles: Experts call for compulsory vaccination

A BBC news article (17 May 2019) reported on Italian researchers' belief that voluntary measles vaccination programmes in the USA, Australia, Ireland and the UK will not be enough to curb outbreaks. Using computer modelling to predict how many measles cases could occur, they found that the number of cases in the UK could double in the coming decades; this led the researchers to call for compulsory vaccinations as has happened in Italy, where children need to be vaccinated to start school. In England, the proportion of children receiving both dos-

es of the measles, mumps and rubella (MMR) jab by their fifth birthday has fallen over the last four years to 87.2%. The UK was declared measles-free by the WHO in 2017, but in 2018 it experienced small outbreaks, and in March this year there was a sharp increase of cases across Greater Manchester. Dr Stefano Merler said that the UK and other countries would "strongly benefit" from compulsory vaccinations as it would help them reach herd immunity. Prof Adam Finn (Bristol Medical School) said there was no proof of this-
Mandatory immunisation is

one way to try and increase coverage, but it's far from clear how well it works...If the reasons the vaccine is not getting into children relate to easy access, vaccine supply or clarity of information available to parents, making it compulsory will do nothing to alleviate such obstacles. If there is widespread mistrust of authority or of the motivation behind any such requirements, it could actually make things worse.

Trentino F *et al.* (2019). [The introduction of 'No jab, No school' policy and the refinement of measles immunisation strategies in high-income countries.](#) *BMC General Medicine.*

More support needed to increase HIV testing in GP practices

One-off training sessions for GPs are not enough to increase rates of HIV testing in general practice and greater support is needed, according to researchers from the Centre for Academic Primary Care (CPAC) and National Institute for Health Research (NIHR) Health Protection Research Unit (HPRU) in Evaluation of Interventions. HIV-infected patients often present to their GP several times with signs, symptoms or a diagnosis more commonly found in those with HIV before being

diagnosed, but healthcare professionals often miss this opportunity to test for HIV. The researchers evaluated an education intervention designed to encourage GPs in practices with higher than average rates of HIV (more than two cases per 1,000 population) to undertake more routine HIV testing. Staff from 19 GP practices in Bristol, South Gloucestershire and North Somerset took part. The intervention consisted of a one-hour interactive training workshop delivered by a spe-

cialist sexual health clinician. Staff were positive about the intervention and reported that it increased their knowledge of HIV and skills in offering a HIV test. Organisational and structural barriers included severely limited resources available for delivering the intervention due to local authority budget restrictions.

Davies KJ *et al.* (2019). [Qualitative evaluation of a pilot educational intervention to increase primary care HIV-testing.](#) *BMC Family Practice.*

Health and Social Care Committee, UK Parliament

Prof [Matthew Hickman](#) (Bristol Medical School), co-director with Isabel Oliver (Public Health England) of the NIHR Health Protection Research Unit (HPRU) on Evaluation of Interventions, and a member and co-investigator of NIHR School of Public Health Research and DeCIPHER (UKCRC Public Health Centre of Excellence for the Development and Evaluation of Complex Interventions for Public Health Improvement), was one of

those giving evidence at the 11 June 2019 meeting of the UK government’s Health and Social Care Committee on the role of harm reduction in the

current drugs policy.

[Watch the meeting](#) on parliamentlive.tv.



Inflammatory marker tests to rule out serious conditions

Blood tests that detect inflammation are not sensitive enough to rule out serious underlying conditions and GPs should not use them for this purpose, according to Bristol’s Centre for Academic Primary Care, University of Exeter and the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care West (NIHR CLAHRC West). Many diseases cause inflammation in the body, including infections, autoimmune conditions and cancers. Millions of inflammatory marker tests are done each year and rates of testing are rising. Although many of these tests will be done ap-

propriately for different reasons, GPs are increasingly using them as a non-specific test to rule out serious underlying disease. Using data from the Clinical Practice Research Datalink, researchers analysed the records of 160,000 patients who had inflammatory marker tests in 2014 and compared these with the records of 40,000 patients who had not had the test. Overall, 15% of raised inflammatory markers were caused by disease: 6.3% the result of infections, 5.6% caused by autoim-

mune conditions, and 3.7% due to cancers. No relevant disease could be found in the remaining 85% of patients with ‘false positives’. The researchers calculated that, for every 1,000 inflammatory marker tests performed, there would be 236 false positives. They also calculated that these false positives would lead to 710 GP appointments, 229 blood test appointments and 24 referrals in the following six months. Half of patients with a relevant disease had normal test results, or a ‘false negative’, meaning that GPs should not rely on a normal test result as proof of good health or to ‘rule out’ disease. [Read more](#)



External engagements and awards

A paper by Dr [Katharine Looker](#) (Bristol Medical School) *et al.* was one of the most downloaded articles in the *Journal of the International AIDS Society* in 2018. [Evidence of synergistic relationships between HIV and Human Papillomavirus \(HPV\): systematic reviews and meta-analyses of longitudinal studies of HPV acquisition and clearance by HIV status, and of HIV acquisition by HPV status](#), published on 5 June 2018, details results that provide evidence for synergistic HIV and HPV interactions of clinical and public health relevance. HPV vaccination may

directly benefit PLHIV, and help control both HPV and HIV at the population level in high prevalence settings.

[Louis MacGregor](#) (PhD student, Bristol Medical School) won a prize for his presentation on *Reaching hepatitis C elimination targets among MSM in UK in the era of HIV pre-exposure prophylaxis* at the British Association for Sexual Health and HIV (BASHH) conference held 30 June - 2 July 2019 in Birmingham.

Dr [Rita Patel](#) (Bristol Medical School), researcher at CLAHRC West, was awarded

the Senior Research Award on 29 March 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 to Rita by Professor Roger Jones, Editor of the BJGP.



£9 million boost for health research

Health researchers in the west country have been awarded £9 million from the Department of Health and Social Care (DHSC) to tackle the area's most pressing problems. The funding will enable new research projects including forecasting demand in hospitals, increasing people's physical activity levels, supporting people who self-harm and improving outcomes for children in care. The investment will help develop better health and care through research that aims to address

the immediate issues facing the health and social care system. The money is part of a larger £135 million award over five years to 15 pioneering research teams across the country, known as NIHR Applied Research Collaborations (ARCs). These ARC teams build on the success of the NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), which the ARCs replace from 1 October 2019. The team in the West, [NIHR CLAHRC West](#) has a [strong track rec-](#)

[ord of producing impactful research with a range of collaborators](#). The CLAHRC West team has worked on diverse projects including evaluating patient safety tools and the roll out of an intervention to reduce cerebral palsy in premature babies, exploring the experiences of Somali families affected by autism, creating harm reduction materials with people who inject drugs and improving how healthcare professionals respond to signs of domestic violence and abuse.

New study aims to improve acne in women

Spironolactone is usually given to people for high blood pressure. It is also thought to lower hormones that trigger grease production by the skin. Doctors have prescribed spironolactone 'off-licence' for women with acne for over 30 years, without robust evidence that it works. If shown to be effective, spironolactone could replace antibiotics as a treatment for acne in women; rising rates of antibiotic resistance mean alternative

treatments are needed. Women taking part in the study, known as SAFA (Spironolactone for Adult Female Acne), will be randomly assigned to a group that will take either the spironolactone tablet or a matching placebo ('dummy' tablet) for six months. The Bristol Royal Infirmary (BRI) is one of five hospitals helping to recruit pa-



tients. The £1.7 million study was funded by the National Institute for Health Research; Drs Miriam Santer (Southampton) and Alison Layton (Harrogate and District NHS Foundation Trust) are leading the work, along with researchers at the Universities of Bristol (principal investigators: Drs [Matthew Ridd](#) and [Debbie Shipley](#)), Cardiff, East Anglia and Nottingham. The trial is being run by Southampton Clinical Trials Unit.

Genes could play a role in tooth decay and gum disease

Tooth decay and gum disease impact on illness and healthcare spending, yet the role of genetics in dental problems is largely unknown. New research led by an international team suggests hereditary traits and factors such as obesity, education and personality could play a role in tooth decay and gum disease. Tooth decay and periodontitis, also known as gum disease, are among the most common diseases around the world; researchers know that two people who eat the same things and take care of their mouth the same way may end up with a different number of cavities but have not been able to explain why un-

til now. The meta-analysis study involved scanning millions of strategic points in the genome to find genes with links to dental diseases. The researchers were able to identify 47 new genes with connections to tooth decay. The study also confirmed a previously known immune-related gene is linked to periodontitis. Among the genes that could be linked to tooth decay are those that help form teeth and the jawbone,



those with protective functions in saliva and those which affect the bacteria found on the teeth. The study also looked at the genetic link to cardiovascular and metabolic health factors such as smoking, obesity, education and personality to try and understand connections with dental health. Using Mendelian randomisation, it appears there may be more than correlation but also a causal link between decay and some cardiovascular-metabolic risk factors.

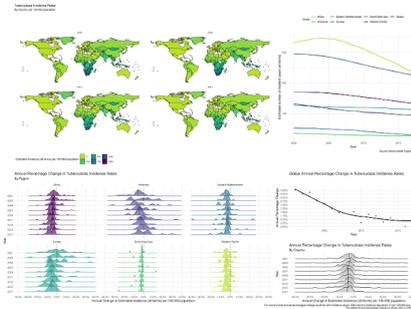
Shungin D *et al.* (2019). [Genome-wide analysis of dental caries and periodontitis combining clinical and self-reported data](#). *Nature Communications*. 10:2773.

Making global tuberculosis data more accessible

Tuberculosis is thought to infect over 1.7 billion people globally, of which 5-15% will develop symptomatic TB in their lifetime. Of this number, around 10% are likely to die from TB or TB-related causes and globally TB remains the leading cause of death from infectious disease. The World Health Organization (WHO) makes country-level TB data publicly available in an annual report, however exploring the data requires several repetitive steps that need to be repeated for each file and in order to generate usable summary statistics, data visualisations

and maps. [getTBinR](#) is an open-source R package that facilitates working with this data on the epidemiology of TB. The aim of [getTBinR](#) is to allow researchers, analysts, and other interested individuals, to quickly and easily gain access to a detailed TB data set and to start using it to derive key insights. It provides a consistent set of tools that can be used to

rapidly evaluate hypotheses on a widely used data set before they are explored further using more complex methods or more detailed data. The functions provided in the package were developed to have sensible defaults to allow those new to the field to quickly gain key insights but also allow sufficient customisation so that experienced users can rapidly prototype new ideas.



Abbott S (2019). [GetTBinR: An R Package for Accessing and Summarising the World Health Organisation Tuberculosis Data](#). *Journal of Open Source Software*. 4 (34).

Why GPs and patients need to talk more openly about death

Dealing with death is part of the job description for all doctors. For those working in general practice, this often means planning ahead, with GPs encouraged to keep a register of patients thought to be in the last year of their life. One reason for this is to identify which patients might benefit from palliative and supportive care - the kind of care which focuses on symptom control, rather than cure. At the moment, these registers appear to consist mainly of patients with cancer. Yet

most people (72%) in England don't actually die of cancer. So why aren't other dying patients being registered? the reality is that most of us will die in old age, with [40% of people in England now dying aged 85 and over](#). As we get older, we are more likely to die of a long-term condition, such as heart failure or Chronic Obstructive Pulmonary Disease (COPD) or, in advanced old age, of dementia and frailty. These scenarios are much less predictable. The dying process may take place over

many years, either by gradual decline interspersed by serious episodes of ill health, or "prolonged dwindling". Our research suggests that GPs find it much harder to recognise these patients as being at the end of life than patients who have cancer. As a result, they struggle to initiate conversations about dying and palliative care.

Pocock, Lucy (GP Career Progression Fellow, University of Bristol). [The Conversation](#). Published 15 May 2019.

Award for University's Research Commercialisation Team

The sale of a University of Bristol spin-out company working on technology to develop next-generation insulin has won a global award. [Ziyo](#) was bought by pharmaceutical firm [Novo Nordisk](#), who hope to develop the world's first glucose-responsive insulin and transform the treatment of diabetes for millions of people around the world. The deal won 'Exit of the Year' at the [Global University Venturing Awards](#), beating stiff

competition from Harvard University, UCL, John Hopkins University and the University of Twente.

Founded in 2014, Ziyo designed synthetic glucose-binding molecules that react



and adapt to glucose levels in the blood and thereby prevent hypoglycaemia. The deal also included the formation of a new spinout [Carbometrics](#), that has licensed back rights to help Novo Nordisk optimise glucose-binding molecules and to develop non-therapeutic applications, including continuous glucose monitoring products. It will remain at the [Unit DX](#) science incubator in Bristol and remains closely associated with the University.

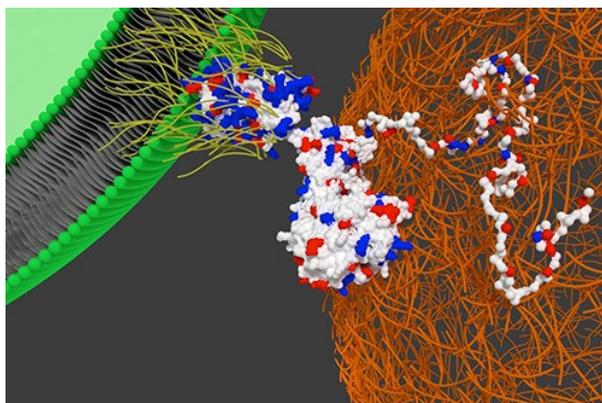
Scientists hijack bacteria's homing ability

In a world first, scientists have found a new way to direct stem cells to heart tissue. The findings, led by researchers at the University of Bristol, could radically improve the treatment for cardiovascular disease, which causes more than a quarter of all deaths in the UK. With regenerative cell therapies, where you are trying to treat someone after a heart attack, the cells rarely go to where you want them to go. The team's aim is to use this technology to re-engineer the membrane of cells, so that when they're injected, they'll home to specific tissues of our

choice. We know that some bacterial cells contain properties that enable them to detect and 'home' to diseased tissue. The team developed the technology by looking at how bacterial cells use a protein called an adhesin to 'home' to heart tissue. Using this theory, the researchers were able to produce an artificial cell membrane binding

version of the adhesin that could be 'painted' on the outside of the stem cells. In an animal model, the team were able to demonstrate that this new cell modification technique worked by directing stem cells to the heart in a mouse.

Perriman A *et al.* (2019). [Designer artificial membrane binding proteins to direct stem cells to the myocardium](#). *Chemical Science*.



Human mesenchymal stems exhibit green fluorescence after being 'painted' by the designer protein

Funding successes: Part 5 and other awards

Dr [Emma Le Roux](#) (Senior Clinical Research Fellow, Centre for Academic Primary Care), has been appointed **Clinical Champion for Dermatology** for the **Royal College of General Practitioners (RCGP)**. The role involves raising the profile and increasing awareness of dermatological conditions in primary care. Emma will work with the RCGP's Clinical Innovation and Research Centre (CIRC) to deliver practical resources, such as toolkits, to support GPs in their day-to-day work with patients.

Prof [Adam Perriman](#)

(Cellular and Molecular Medicine) has been named as one of the recipients of the **UK Research and Innovation's (UKRI)** new **Future Leaders Fellowships**. Adam will conduct pioneering research into modifying stem cells to allow them to 'home' and repair the damaged heart tissue that follows a heart attack (see p20).

Dr Benjamin Faber (Bristol Medical School) is in receipt of a **Medical Research Council Clinical Research Training Fellowship** for a PhD at University of Bristol with Profs Jonathan Tobias and George Davey Smith entitled *Use of*

Mendelian randomisation to examine the role of abnormal hip shape in the development of hip osteoarthritis. The £240 000 award begins in September 2019.

Prof [Varinder Aggarwal](#) (Chemistry) has been awarded the prestigious Davy **Medal** from the **Royal Society** for his outstanding contribution to the field of chemistry. A methodology he developed has been applied to the synthesis of a broad range of natural products and biologically active molecules possessing, for example, anti-cancer, antibacterial or anti-fungal properties.

Diseases monitoring could lead to unnecessary testing

Guidelines used by GPs to monitor chronic diseases are based on expert opinion rather than evidence, according to a review of the guidelines. The review looked at guidelines for chronic kidney disease, high blood pressure and type 2 diabetes, which are monitored through a range of tests in GP surgeries. Guidelines often didn't include recommendations on the frequency of testing, and where evidence was used, it did not address the fundamental question of whether the test

in question was necessary or beneficial. This lack of evidence for how often tests should be carried out means patients could be receiving tests unnecessarily. Over-testing can be a problem in healthcare, as it can lead to false positives, meaning further testing and stress for the patient, while wasting NHS staff time and resources. There is also a risk of false



negatives, giving patients false reassurance. Finding the right balance is important, as not testing enough could delay diagnosis and treatment. The review has shown a need to develop new, rigorous methods to enable evidence-based monitoring of chronic diseases in primary care.

Elwenspoek M *et al.* (2019). [Monitoring type 2 diabetes, chronic kidney disease and hypertension in primary care. Are the guidelines evidence based?. *BMJ*. 365: l2319.](#)

New dermatology toolkit

A new Royal College of General Practitioners (RCGP) dermatology toolkit has been launched to help primary care teams, including GPs and nurses, care for patients suffering from a range of skin problems. Developed for use by busy clinicians, [the toolkit](#) is an easy-to-navigate 'one stop shop' of evidence-based tools and resources to help the whole primary care team in their care of patients. It includes:

- clinical and learning re-

sources for general dermatology, as well as specific skills training in dermoscopy

- information to be shared with patients and carers
- information for commissioners
- quality improvement tools

The toolkit was developed by the RCGP's [Dermatology Spotlight](#) project team, led by Dr [Emma Le Roux](#), a Cheltenham-based GP and National Institute for Health Research

In Practice Fellow at the University of Bristol's Centre for Academic Primary Care. Dr Le Roux was appointed the RCGP's Clinical Champion for Dermatology in 2018 (see p21).



£100 million to drive 'tech for better futures'

A new £100 million institute, based in the centre of Bristol, is set to transform the way we create, utilise and evaluate new digital technologies to benefit our society now and in the future. In a unique collaboration, Bristol engineers will work with social scientists and with tech giants, corporations, local government and community partners to answer these big questions and create transformational technologies for the future. The [Bristol Digital Futures Institute \(BDFI\)](#) will be based at the University's new [Temple Quarter Enterprise Campus](#) in the heart of the City of Bristol's buzzing new Enterprise Zone.

This international leading research facility is being funded by a £29 million grant from the Research England UK Research Partnership Investment Fund (RPIF), which has received more than double that in £71 million of match funding (£16 million philanthropy and £55 million from 27 partners including organisations such as BT, Dyson, BBC, Airbus and Aardman).

The Institute will aim to generate 30 new collaborative projects per year. It will be jointly led by Profs Susan Halford, a social scientist and professor of sociology, and Dimitra Simeonidou, an engineer and professor of high-

performance networks.

The new research facilities are vitally important to understand our digital futures. They will allow a step-change in sociotechnical research and help us to gain new insights on the challenges and opportunities brought by disruptive digital technologies.

"These insights will enable us create new technologies and deliver our vision for a future digital society based on opportunity, trust, human control, resilience, openness, diversity and inclusion.

Prof Dimitra Simeonidou

Hepatitis C infections could be greatly reduced in the US

A [new study](#) modelling the impact of increased treatment of hepatitis C virus (HCV) infection among people who inject drugs in the US has found that an increase of clean injecting equipment provided through syringe service programmes, provision of medication assisted treatment, and antiviral treatment for hepatitis C among people who inject drugs could reduce the incidence of HCV in the United States by 90% by 2030. They used mathematical models to estimate the impact of scaling up harm reduction services and HCV treatment in San Fran-

cisco (CA) and Perry County (KY). Results showed that modest scale-up of HCV treatment, combined with syringe service program and medication assisted treatment, could reverse the HCV burden in the United States and potentially achieve elimination goals in the next 10 to 15 years. The team found that not increasing the provision of harm reduction services more than doubled the number of treatments need-

ed for elimination in Perry County, whereas it had little effect in San Francisco because existing provision of harm reduction services is much higher. Field studies are now needed to demonstrate the feasibility and impact of such strategies. This will help to inform harm reduction policy, and therefore, potentially enable the United States to reduce HCV as a public health threat.

Fraser H *et al.* (2019). [Scaling up hepatitis C prevention and treatment interventions for achieving elimination in the United States: A rural and urban comparison](#). *American Journal of Epidemiology*.



The unintended consequences of healthcare apps

People are living longer, but often with multiple long-term health conditions. Maintaining people's quality of life in these circumstances requires a lot of support from the NHS. At the same time, GPs are under pressure to improve patients' access to healthcare while coping with their own workloads and growing patient demand. Policymakers are proposing new ways to relieve the strain by using digital technologies such as phone apps to improve the convenience and reduce the

cost of healthcare. The move towards 'digital first' care is explicit in the new NHS Long Term Plan. Hundreds of thousands of health apps are already available in app stores, targeting fitness, wellbeing and general health as well as specific conditions. These developments are set against a backdrop of well-known challenges for healthcare app innovation. For example, evidence exists that some apps can help patients, but many have not had their effectiveness rigorously tested or the

reliability of the information they provide assured. Some other possible consequences are less well understood, for instance, whether digital health tools will close or widen existing health inequalities, as well as what the impact will be on people's relationships and communication with their GP, on GP workload and how GPs use health apps with patients. The [DECODE study](#) aims to produce guidance on the unintended consequences of digital health tools for all stakeholders.

Why do more people who inject drugs get MRSA?

In Bristol, a small - but significant - number of people who inject drugs (PWID) contribute to increase in hospital admissions in Bristol with community-acquired Methicillin Resistant Staphylococcus aureus (MRSA), a strain of bacteria resistant to many antibiotics. Why this might be, and how the number of cases can be reduced, are questions that GP Dr Kate Rush posed to Prof [Matt Hickman](#) (Bristol Medical School), Dr Maya Gobin (Public Health England) and

collaborators from Bristol Drug Project. To understand the issue the team expanded on the annual cross-sectional survey of PWID living in the City of Bristol as part of the national Unlinked Anonymous Monitoring (UAM) survey. The number of participants was increased, more questions were asked about injecting practice, groin and nasal swabs were taken for MRSA testing, and new ethical approval was obtained. MRSA positive swabs were sent to the Public Health Eng-

land Staphylococcus Reference Unit for whole genome sequencing. They found that one in 12 people who inject drugs had MRSA living on their skin, identifying characteristics that might be associated with MRSA colonisation such as injecting in public places, injecting in groups of three or more, recent healthcare contact and skin and soft tissue infection.

[Preventing and managing community acquired MRSA in PWID. Eurosurveillance \(2019\)](#)

Partnership with Kenya to build data science expertise

A collaboration between the University of Bristol's [Jean Golding Institute for Data Science](#) and the [Strathmore University Business School](#) in Kenya, will focus on using data science to address contemporary challenges facing Kenya and other African countries. The partnership will involve an exchange of ideas and people between the two institutions, sharing expertise, connecting researchers across disciplines and facilitating research projects. The aim is to produce high-quality academic research which addresses societal challenges in an African context, across sectors as diverse as

healthcare, agriculture, wildlife conservation, disaster response, geospatial modelling, communications and economics.

Prof Kate Robson Brown, Director, Jean Golding Institute, with Dr George Njenga, Executive Dean of Strathmore University Business School



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 Seed Fund: Public Engagement with Health Research

Seed funding is available for health researchers who would like to deliver public engagement events and activities. Applications accepted on a **rolling** basis.

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

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 play-book or the Research Fortnight news publications and stay up to date with the latest news.

For further information on Research Professional, go to the [RED website](#).

International Union of Immunological Societies

[Early-career research prize in vaccinology](#)



Closing date: 31-Aug-19

Award amount: €10,000

This recognises achievement in vaccine research and development in Europe, including the discovery of new vaccine antigens, new vaccines design, understanding the basics of the immune response, new technologies that will improve the future of vaccines and vaccination and that are supported by proof-of-concept data.

Healthcare Infection Society

[Major research grant](#)



Closing date: 01-Sep-19

Award amount: £99,000

It may be used for: fund research projects to answer well-defined IPC/HCAI questions; build collaborations between clinicians and researchers; provide access to funds for hypothesis testing; encourage innovative and interdisciplinary research in IPC

NIHR

[Health technology assessment programme – strategies in older people's care settings to prevent infection commissioned call: 19/30](#)



Closing date: 04-Sep-19

Award amount: £ unspecified

This supports primary research that aims to prevent infection in older people's care settings and targets either individual infections, particular types of infections or infections generally. Settings of interest include long term care facilities and any day care settings where older people gather, but excludes acute hospital settings.

Wellcome Trust

[Impact of vaccines on antimicrobial resistance](#)



Closing date: 06-Sep-19

Award amount: £750,000

This supports researchers investigating the impact of vaccines on antibiotic use and antimicrobial resistance with the aim of informing vaccine decision-makers around the world and tackling antimicrobial resistance. Projects must aim to analyse data on antimicrobial resistance or antibiotic use in the context of a vaccine study.

National Institute of Allergy and Infectious Diseases, US

[Natural killer cells to induce immunological memory to prevent HIV infection \(R01\)](#)

Closing date: 07-Sep-19

Award amount: \$ unspecified

This supports multidisciplinary, hypothesis-driven research on NK cells, leading to the discovery of pathways relevant for early immune responses and immune regulation impacting the potential protective immunity to be induced by HIV vaccination.

Coeliac UK

[Coeliac UK/Innovate UK joint grants](#)



Closing date: 16-Sep-19

Award amount: £250,000

These aim to bring researchers and industry together to make improvements for people living with coeliac disease.

Medical Research Council

[Research grants – infections and immunity](#)



Closing date: 18-Sep-19

Award amount: £1 million

These fund focused research projects that may be short- or long-term in nature related to infections and immunity, as well as method development and continuation of research facilities.

CONTACTS

The Infection and Immunity Network is run by a Steering Group:

Co-Chair: [Ruth Massey](#)
Reader



Co-Chair: [Adam Finn](#)
Prof of Paediatrics



- [Borko Amulic](#) - Lecturer in Immunology
- [Matthew Avison](#) - Co-Director, BristolAMR
- [Philip Bright](#) - -- Clinical Immunologist
- [Andrew Davidson](#) - Senior Lecturer in Virology
- [Hannah Fraser](#) - Senior RA in Infectious Disease Mathematical Modelling
- [Wendy Gibson](#) - Professor of Protozoology
- [Kathleen Gillespie](#) - Reader in Molecular Medicine, Head of the Diabetes and Metabolism Research Group
- [Melanie Hezzell](#) - Senior Lecturer in Cardiology
- [Peter Muir](#) - Clinical Virology
- [Angela Nobbs](#) - Lecturer in Oral Microbiology
- [Emma Pritchard](#) - Research Development Associate: Network Facilitator
- [Annela Seddon](#) - Director of the Bristol Centre for Functional Nanomaterials
- [Katy Turner](#) - Senior Lecturer in Veterinary Infectious Diseases
- [Peter Vickerman](#) - Professor of Infectious Disease Modelling
- [Linda Woolridge](#) - Chair in Translational Immunology
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