Opinion
Mental health: United we stand, divided we fall

100 years of tuberculosis research
70,000 years of evolution

Network can also be downloaded as a PDF at:
www.mrc.ac.uk/network
In January, the government published a green paper seeking consultation on its Industrial Strategy, a plan to create a stronger economy and a fairer society across the UK.

Of particular relevance to the research councils is the ambition to invest in science, research and innovation, and to do more to commercialise our world-class science to spread economic growth right across the UK.

The MRC is already doing well in this regard. For example, with Innovate UK our Biomedical Catalyst has funded some truly innovative ideas from researchers and small businesses, bringing new technologies for treating and diagnosing disease to patients (see page 7).

And our stratified medicine consortia have brought together biotech and pharma companies with academic expertise from all parts of the UK, including Manchester, Belfast, Newcastle and Glasgow.

But the green paper encourages us to go further. The Industrial Strategy Challenge Fund, announced last autumn, provides opportunities for the research councils to fund cross-disciplinary research and use our considerable experience of supporting regional clusters of excellence to encourage balanced growth across the UK.

The government and the research councils are consulting widely on both the green paper and strategies for particular sector areas. We welcome your comments.

Sir John Savill
MRC Chief Executive

Professor Bart De Strooper is to direct the UK Dementia Research Institute (UK DRI), an investment led by the MRC alongside founding charity partners Alzheimer’s Society and Alzheimer’s Research UK.

Professor De Strooper joins the UK DRI from his leading role at the University of Leuven’s Laboratory for the Research of Neurodegenerative Diseases and as scientific director at the life sciences research institute VIB in Belgium.

He said: “I am delighted to be directing a world-leading initiative with as much potential as the UK DRI. The UK research landscape is brimming with talent and opportunity. My vision is to establish a unique environment with a diverse and interdisciplinary team ready to undertake creative and innovative research.”

With a globally ageing population, there is an urgent need to find ways to stop or slow the progression of dementia. The UK DRI will be on the frontline of modern neuroscience to identify new targets for drug development.

Its ‘hub’ will be at University College London (UCL), closely linked with regional centres which will be announced this spring. Scientists will be recruited to the institute throughout 2017.

Find out how a lay interview panel supported the recruitment process on page 14.

More information at: mrc.io/2hBkDnB

To beat the winter blues and get a flavour of MRC public engagement activities you could get involved in, check out a film of highlights from the MRC Festival of Medical Research 2016.

The film features some of the many engagement activities that took place during last year’s MRC Festival in June. And if you’re looking for ideas for this year’s festival, the MRC Festival 2016 evaluation report is here to help, summarising 2016 festival activities. The MRC Festival 2017 will take place from 17-25 June. Watch the film and read the report at: www.mrc.ac.uk/mrcfestival
New UK-Japan medical research collaboration

A new agreement between the UK and Japan aims to promote international medical research collaboration.

On 1 February, the MRC and the Japan Agency for Medical Research and Development (AMED) signed a Memorandum of Cooperation to advance a UK-Japan partnership in medical research and development. The aim of the partnership is to promote research collaboration in areas of medical science that builds on the strengths of both countries.

Sir John Savill said: “The opening of a Japan AMED office in London is an exciting development that will open up new opportunities for UK researchers to work with world-class scientists in Japan’s medical research community, with an initial focus on neuroscience, regenerative medicine, antimicrobial resistance and infectious disease. Our agreement with the Japan agency represents our strong commitment to international research collaboration, aiming to speed up the development of new treatments for diseases, leading to better health for all.”

Read more at: mrc.io/UK-Japan-collaboration

Support for preprints

From 1 April, researchers can cite preprints in MRC grant and fellowship applications.

A preprint is a complete scientific manuscript (often one also being submitted to a peer-reviewed journal) that is uploaded by the authors to a preprint repository or service (eg bioRxiv, PeerJ Preprints, arXiv, SocArXiv or PsyArXiv) without formal review.

The MRC encourages researchers to share pre-peer reviewed manuscripts via established preprint servers and recognises that preprints are a valuable way for researchers to publish their results.

Preprints may be cited in applications only if they have a permanent identifier such as a DOI or any other persistent identifier. Preprints should only be referenced when they are less than five years old at the time the application is submitted. The MRC also encourages researchers, where appropriate, to cite preprints in CVs and publications.

Find out more at: mrc.io/support-preprints

Read how members of the MRC community are using preprints at: mrc.io/preprint-converts

Supporting clinical academics

Several academic, charitable and funding bodies have come together to outline a set of principles and obligations to support clinical academic training.

Research-active clinicians have an overwhelmingly positive impact on patient care but still face many challenges in juggling clinical work and research.

The principles aim to ensure academic training is acknowledged and integrated with clinical training. They include protecting continuous employment rights for clinical academics whose career path requires changing their employers between the NHS and academic institutions, including all family and care-related leave and pay, as well as sick leave and pay.

Find out more at: mrc.io/clinical-principles

Change to skills fellowship scheme

To promote interdisciplinarity and career flexibility, MRC Skills Development Fellows will be appointed directly by participating host research organisations in 2018.

MRC Skills Development Fellowships are capacity building training fellowships. They support individuals gaining expertise in quantitative skills applied to biomedical research questions, and quantitative skills development for biomedical researchers. The MRC will identify host institutions to support fellows across multiple departments, to facilitate interdisciplinary, quantitative training.

Applicants preparing to apply in May 2017 should wait until early 2018. By then, successful host institutions will advertise their broad themes, allowing potential fellows to identify a host that best supports their personal research project and training plan.

More information at: mrc.io/skills-fellowship-change

Sir John Savill and Professor Makoto Suematsu, President of AMED, signed the agreement at the Japanese Embassy in London.
Camels, climate change and snakebite all feature in the first phase of health research awards from the new £1.5bn Global Challenges Research Fund (GCRF).

Led by the research councils, the GCRF projects will address issues affecting people in low and middle income countries (LMICs) using the UK’s world-class research expertise.

The MRC, AHRC, BBSRC, ESRC and NERC have allocated over £20m to 41 short-term projects, across 39 UK research organisations, working in partnership with up to 32 different countries around the world. These will complement existing UK strengths in global health research to explore new, more diverse opportunities, and to build wider multidisciplinary links and new partnerships in LMICs.

Declan Mulkeen, the MRC’s Chief of Strategy, said: “The five research councils involved in the Foundation Awards have been working collectively to provide new approaches to meet global research challenges. It’s encouraging to see these projects tackling the broader environmental and economic factors affecting health, as well as using new technologies to bring cost-effective treatments within reach. The Global Challenges Research Fund will enable us to tackle a broader range of health problems, for local and global benefit.”

Read more at: mrc.io/GCRF-foundation

Accelerating innovation
At the end of 2016, the Biomedical Catalyst scheme, run by the MRC and Innovate UK, awarded £26m to 67 industry-led projects and £11m to seven academic-led projects.

The Biomedical Catalyst scheme aims to develop innovative healthcare technologies and processes. For the first time, Scotland’s economic development agency, Scottish Enterprise, have also invested in the industry-led component of the scheme.

Sir John Savill said: “The Biomedical Catalyst is an important collaboration between the MRC and Innovate UK and we are pleased with the impressive results from the initiative to date. This unique partnership is clearly valued by both academia and industry – as evidenced by this latest investment from Scottish Enterprise.”

See details of how to apply at: mrc.io/BMC-funding

A snapshot of some funded projects:
• Micropharm, with collaborators including the University of Leeds, are using antibodies produced in sheep to develop a treatment for antibiotic resistant ‘superbugs’, such as Clostridium difficile.
• Researchers at King’s College London are testing internet-delivered cognitive therapy for young people with post-traumatic stress disorder, with potential to improve access to treatment if successful.
• A team at the University of Edinburgh are developing an alternative high-quality human liver cell replacement therapy, to support liver transplants, liver failure and treatment of liver disease.

For the latest information on MRC funding opportunities, visit www.mrc.ac.uk/funding

Five year funding boost
In December, the MRC and Wellcome confirmed a five year funding boost for the Wellcome/MRC Cambridge Stem Cell Institute. The institute, established in 2012, is a world-leading centre for stem cell research, and is the heart of a vibrant stem cell community in Cambridge.

Director Professor Tony Green said: “Stem cell research offers unrivalled opportunities for developing new approaches to the management of disease, and I am delighted that both Wellcome and the MRC will continue to support our pioneering research at this exciting time.”

Read more at: mrc.io/stem-cell-institute
Dr Luiz Pedro Carvalho recently moved from the site of what was the National Institute for Medical Research (NIMR) in Mill Hill to the new Francis Crick Institute at King’s Cross, London. Sylvie Kruiniger went to find out about his work, focused on tuberculosis (TB), and looks back at over 100 years of MRC-funded TB research.

“It’s a mixture of excitement and already missing the place,” says Luiz. Mill Hill was home to NIMR for most of its lifetime but activities there have come to an end. The venerable institute is now part of the Francis Crick Institute.

A long history of TB research
At the MRC we have been funding work to understand and treat TB since we began. At its very first meeting, back in 1913, the fledgling Medical Research Committee discussed a new national scheme for health insurance that would treat and study TB.

Later on, researchers at NIMR pioneered randomised controlled trial design while testing patulin – a fungal toxin – to treat the common cold, and then streptomycin to treat pulmonary TB. They developed a system that meant that neither the patient nor the clinician knew whether the drug or a placebo was being used. The gold standards of clinical trial design that we use today are based on that work.

The global terror of TB
Although now far less common in the UK than in the past, TB is a huge and tenacious global problem. Around a third of the world’s population is infected and the disease kills 1.5 million people every year.

“In my group we’re trying to understand and map exactly how the bacteria that cause TB, Mycobacterium tuberculosis, work in humans. The number of people who have an infection we can’t treat is growing all the time. That’s because the strain of bacteria they’re infected with is resistant to all the drugs we have available,” says Luiz. We need new drugs but we are struggling to keep up with the speed at which bacteria develop resistance. We need to understand TB better so that, perhaps, we can find completely new ways to treat it.

Recently, research in West Africa, led by MRC Unit The Gambia, showed the problem of multi-drug resistance was worse than previously thought. They found that six per cent of people infected with TB for the first time, and 35 per cent of people who had been infected before, had a multi-drug resistant strain. These statistics are much higher than previous WHO estimates of two and 17 per cent.

Metabolomics
“Over the last 70,000 years, M. tuberculosis has evolved to be completely at home in humans. We are their favourite source of nutrients,” says Luiz. To find out why, his team is using genetics, biochemistry, bioinformatics and structural biology, as well as a technique called ‘metabolomics’.

‘Metabolomics’ involves separating out all of the molecules that make up a cell, fluid or tissue, allowing you to identify them. “Once you know what everything is, you can start to understand how it works. We make small alterations to the system, such as adding a drug or deleting a gene, and get a clear snapshot of what’s happening inside the individual bacterium,” explains Luiz.

Interdisciplinary research and collaboration
“Our lab has a very diverse skillset. We have biochemists and chemists, computational and structural biologists, and geneticists and microbiologists. So everyone has a different language. It can be very hard to communicate at times, but we try our best!”

“AT Mill Hill we had to send an email, schedule a meeting, go to another site… But now these people are here in the fifth floor! We just have to pop in the lift and discuss what the issue is and how we can solve it. That can really accelerate the research we’re doing.”

Read the full article on our MRC Insight blog: mrc.io/TB-research-evolution

FEATURE
100 years of tuberculosis research
70,000 years of evolution

Dr Luiz Pedro Carvalho in his brand new lab at the Crick.

Find out more about the Francis Crick Institute at: www.crick.ac.uk

• See inside the Crick in our photo album: mrc.io/Crick-photos
• Find out more about MRC history in our timeline: mrc.io/MRC-timeline
• Hear Luiz discussing the joys and challenges of interdisciplinary research in our podcast: mrc.io/MRCtalks-ep9
• Read about TB research at MRC Unit The Gambia: mrc.io/drug-resistant-TB
Welcoming new MRC directors

On 1 January, Professor David Lomas started his role as the MRC’s new Deputy Chief Executive.

His main focus will be supporting Sir John Savill in driving forward the MRC Delivery Plan and ensuring that the organisation remains a world leader in medical science in preparation for the creation of UK Research and Innovation (UKRI). David joins the MRC from UCL where, in his role as the Vice-Provost Health, he is responsible for overseeing the largest group of medical researchers in the UK.

Professor Nish Chaturvedi is the new Director of the MRC Unit for Lifelong Health and Ageing at UCL.

She will work alongside the existing Director, Professor Diana Kuh, until 28 February 2018. This will ensure existing research is maintained alongside the development of a new agenda, building on the exceptional range of cohort studies and ageing research at UCL.

Nish said: “My vision is to create an internationally recognised focus of human ageing research, with the rich UCL cohort resource at its core. It will integrate the highest quality basic, clinical and social science to extend healthy lifespan and enhance wellbeing.”

First chief executive of UKRI

Professor Sir Mark Walport will be the first Chief Executive Designate of UK Research and Innovation (UKRI).

UKRI will, subject to legislation currently in Parliament, incorporate the seven research councils, Innovate UK and the research funding and knowledge exchange parts of HEFCE. It is anticipated that UKRI will be formed in April 2018.

Sir John Savill said: “The MRC welcomes this announcement and we look forward to working with Sir Mark to ensure that both UKRI and the MRC are successful in the future.”

Read more at: mrc.io/UKRI-Chief-Exec

New Year’s Honours 2017

Congratulations to the following people closely connected with the MRC, recognised in the 2017 New Year’s Honours list:

Professor Jim Smith, Director of Science, Wellcome, was awarded a knighthood for services to medical research and science education.

Professor Amanda Fisher, Director, MRC London Institute of Medical Sciences (LIMS), was awarded a DBE for services to medical research and the public understanding of science.

Professor Jill Pell, Henry Mechan Professor of Public Health and Director of the Institute of Health and Wellbeing at the University of Glasgow, was awarded a CBE for services to public health research.

Professor Anne Willis, Director, MRC Toxicology Unit, Leicester, was awarded an OBE for services to biomedical science and promoting the careers of women in science.

Professor Sir Alec Jeffreys, Emeritus Professor, University of Leicester, was made a Companion of Honour for services to medical research and society.

Professor Jim Neil, Associate Director of the MRC-University of Glasgow Centre for Virus Research, was awarded an OBE for services to the advancement of biomedical sciences.

New Council members

Two new scientific members have been appointed to the Council of the MRC by the Minister for Universities, Science, Research and Innovation, Jo Johnson.

Professor John Iredale is Pro Vice Chancellor (Health) at the University of Bristol and holds the chair of Experimental Medicine. He also holds Honorary Consultant contracts with the North Bristol NHS Trust and the University Hospitals Bristol Foundation Trust. His research interests are focused on tissue scarring and regeneration.

Professor Irene Tracey holds the Nuffield Chair in Anaesthetic Science and is Head of the Nuffield Department of Clinical Neurosciences at the University of Oxford. Her multidisciplinary research team focuses on better understanding pain perception, pain relief and nerve cell processing within the human central nervous system using advanced neuroimaging techniques.

Read more at: mrc.io/council-members
How thrush fungus hides from attack
Researchers from the MRC Centre for Medical Mycology at the University of Aberdeen have discovered how the fungus which causes thrush tries to hide from our body’s defences.
Candida albicans lives in most of us and is usually harmless. But it can be deadly when it takes advantage of the weakened immune systems of cancer or transplant patients.
Our immune system normally kills the fungus by detecting and interacting with particular molecules, called Pathogen-Associated Molecular Patterns (PAMPs), on its cell surface.
But the MRC research team showed that C. albicans is able to change its cell surface to ‘hide’ these molecules in response to lactic acid, which is produced as a normal part of the chemical processes which keep us alive. This makes it harder for our immune system to find and kill the fungus, allowing it to take hold.
Lead author Professor Al Brown said that the next step would be to define how these discoveries, made in the lab, relate to infections in real patients.
Published online at: www.nature.com, 12 December 2016. Free ePrints at: mrc.io/free-eprints

Alzheimer’s drug makes teeth self-repair
A drug developed to treat Alzheimer’s disease can trigger stem cells to repair tooth cavities, suggesting an alternative to man-made fillings.
An MRC-funded research team from King’s College London discovered a series of signals, part of the cell repair process, that kick-start tooth stem cells to repair damaged tissue.
By using small molecules – glycogen synthase kinase (GSK-3) inhibitors – that switch on these signals, they were able to stimulate the stem cells needed for making new dentine: the mineralised material that sits under the enamel, protecting the tooth.
One GSK-3 inhibitor, Tidegusib, had already been used in clinical trials for neurological disorders, so it was known to be safe in patients. The team applied low doses of drug to the tooth inside biodegradable collagen sponges. Over time, new dentine replaced the sponges, leading to complete and natural repair.
Lead author Professor Paul Sharpe said: “The simplicity of our approach makes it ideal as a clinical dental product for the natural treatment of large cavities, by providing both pulp protection and restoring dentine.”
Published online at: www.nature.com, 9 January 2017.

Drug improves memory in depression
Almost everyone with depression experiences problems with attention, concentration and memory. But MRC and Wellcome-funded research suggests those recovering from depression could improve their memory by taking wakefulness-promoting drug modafinil.
Cognitive symptoms, including memory problems, tend to persist even during recovery from depression. This can interfere with everyday life, such as the ability to work, making relapse more likely.
Researchers from the Department of Psychiatry and the Behavioural and Clinical Neuroscience Institute at the University of Cambridge asked 60 people previously diagnosed with depression to complete computerised memory, attention and planning tasks after taking modafinil or a placebo. Those given modafinil showed a significant improvement in episodic memory (needed for tasks such as remembering where our car is parked) and working memory (used, for example, to rehearse a new computer password).
Senior author Professor Barbara Sahakian explains: “We now need a longer term study using modafinil to see if the drug, which improves cognition and motivation, can facilitate successful return to work following depression.”
Published online at: www.sciedirect.com, 17 January 2017.

New urine test for bladder cancer
A new test for bladder cancer that can be done at the GP surgery could spare patients an uncomfortable cystoscopy and pick up cancers earlier.
The test, UroMark, uses genomic sequencing to detect abnormal cancer DNA in a urine sample. It is able to detect a set of DNA alterations, identified by UCL researchers, which are highly specific to bladder cancer.
A study in 300 patients showed it was able to detect 98 per cent of cases. This is equivalent to the current ‘gold standard’ test, cystoscopy, which involves passing a tube through the ureter into the bladder.
Two larger trials, funded by the MRC with Biomedical Catalyst funding, are now underway to confirm UroMark’s accuracy before it becomes available for clinical use.
UCL’s Professor John Kelly said: “Often patients visit a GP several times with symptoms before bladder cancer is detected. Having the UroMark test available to GPs will mean that patients can be tested at an early stage to rule out bladder cancer.”
Published online at: clinicalepigeneticsjournal.biomedcentral.com, 31 January 2017.
Creating a culture of patient and public involvement

Professor Bart De Strooper will lead the first UK Dementia Research Institute, an investment led by the MRC alongside founding charity partners Alzheimer’s Society and Alzheimer’s Research UK.

Sara Gregson from the Alzheimer’s Society Research Network, a former carer for her mother with dementia, chaired a lay interview panel of people affected by dementia to support the director recruitment process.

It was an honour for me to be asked to chair the lay interview panel for recruitment of the UK Dementia Research Institute (DRI) director.

The panel involved people living with dementia and carers from the founding charity networks. We had the opportunity to hear from and speak to the potential candidates, all of whom had significant backgrounds and experience in dementia research.

The UK DRI marks a combined investment of £250m from the MRC, Alzheimer’s Society and Alzheimer’s Research UK that will transform the landscape of dementia research in the UK.

The founding partner charities are bringing their expertise in patient and public involvement to the UK DRI. This will ensure the voices and experiences of people affected by dementia shape its work throughout. Recruiting the director provided the first opportunity for meaningful involvement.

The panel

Six people with dementia, carers and former carers – including myself – were invited to form a panel to meet with the four shortlisted candidates. It was slightly daunting – but then that was why we were interviewing them. We wanted to see if they could tailor their language and ideas so that we, as lay people, could understand their vision.

Before we met the candidates, we discussed and agreed the questions we wanted to ask. As a group, we decided to focus on the following topics:

- The candidates’ views on what should be the priority in dementia research
- The use and sharing of patient data
- How to encourage more diversity in research participation
- The role of patient and public involvement in the UK DRI
- The candidates’ approach to communication.

The interview

We requested for the candidates to be introduced to us using first names only so that no prior knowledge about the candidates would influence our discussions. Each candidate gave us a short presentation of their vision for the institute. We then asked our questions, which inspired four fascinating and very different conversations.

At the end of the day, I presented the panel’s feedback to the Scientific Advisory Panel. This included the highlights on each candidate including our preference for Professor Bart De Strooper to be offered the role.

Our recommendation

We selected Bart from a competitive shortlist of international candidates. He coped well with our wide-ranging, lay-centred questions, answering them in an engaging, clearly understandable way. He also demonstrated great depth of knowledge and experience of dementia research.

We are delighted he will be taking the lead at the UK DRI and that we were involved in his appointment. People with dementia and their carers have so much to offer scientists and researchers, as they try to find the causes of, and cures for dementia.

We felt that we offered varied, unique and practical perspectives to the interview process and are delighted that our choice matched with that of the Scientific Advisory Panel.

This article focuses on the role of the lay interview panel and does not cover the full and comprehensive scientific selection process. It has been re-purposed from the original Alzheimer’s Society article: https://blog.alzheimers.org.uk/research/dementia-research-institute/

Professor Bart De Strooper has set out his vision to build an institute of international repute with a central focus on the biological mechanisms underpinning dementia, coupled with a broad vision and strategy to support research in care, technology and public health. Read more on page 3.
Dr Nessa Carey is International Director at PraxisUnico, Visiting Professor at Imperial College and an author

I think of myself of someone who has had a lot of careers in science, rather than one scientific career. I dropped out of a veterinary medicine degree to become a forensic scientist. During that time I studied for my degree (immunology) part-time, then left forensic science to study full-time for a PhD in Virology.

I did a postdoc in human genetics and then a Lectureship and Senior Lectureship in Molecular Biology. I left academia to join a biotech company. Three senior jobs in biotech later, I joined Pfizer.

After three years there I became International Director at PraxisUnico, the first time in nearly 30 years in which I stopped being a full-time scientist. I am currently developing, delivering and marketing international training courses to provide people with the skills they need to drive commercial and social impact from academic science.

I am Visiting Professor at Imperial College and the author of two popular science books: The Epigenetics Revolution and Junk DNA: A Journey Through the Dark Matter of the Genome.

I have lots of career highlights: working on high level murder cases, taking highly academic research and turning it into a drug discovery programme partnered with a major pharmaceutical company, seeing one of my PhD students go on to a successful postdoc position in Francis Collins’ lab, creating a BSc course for medical students, writing a popular science book that has reached a lot of people and given me the opportunity to spread the word about how fascinating biology can be, and being appointed onto an MRC grant panel – I finally felt respectable!

I think academia still has a long way to go in terms of supporting staff and seeing them as assets. There are exceptions in every sector of course, but generally I have felt far more supported and valued in industry. I was better at teaching than I was at research, at a time when teaching was undervalued.

I like the overall shape my career has taken. Looking back, I would have tried to find mentors, or an extended peer group; I perhaps should have moved to industry a bit sooner, but making that decision was quite an emotional one, because you’re not supposed to give up the Holy Grail of a permanent academic post!

I am not the world’s best scientist, but what I am very good at is recognising what can be developed from great science, and getting that done. People pay a huge amount of money to support research, whether that’s through taxes or charitable donations. We have a responsibility to create the maximum benefit for society from that money, and also to find ways of communicating what we do.

Work out what is really important for you and follow that. If you do something you enjoy, you are far more likely to succeed at it. Don’t fall into the trap of thinking that only an academic career really counts. There is an amazing range of fascinating and fulfilling jobs out there, think of this first, not as a fall back option.

There are many good scientists around but not many with other skills, such as leadership, flexibility, good communication, management, teamwork and a focus on deadlines. Develop these skills. Think in terms of T-shaped – expertise but other capabilities as well; prepare for lots of careers. When opportunity comes knocking, it’s best not to be in the shower…

Talk to people from as many environments as you can; if someone asks you to do something new – teach, tutor, supervise, liaise – say yes! Don’t be a perpetual post-doc; when you are thinking about your next job, think about the new skills you will have by the end of it, and preferably non-lab skills. Knowing stuff is easy, it’s being able to do things that counts, especially the transferable skills.

Read more at: mrc.io/Nessa-Carey

“When opportunity comes knocking, it’s best not to be in the shower”
Mental health: United we stand, divided we fall

Developing better approaches to treatment and prevention of mental illness is one of the greatest challenges we face. But by sharing ideas and working together we can make progress, says Professor Sir Michael Owen, Director of the MRC Centre for Neuropsychiatric Genetics and Genomics at Cardiff University.

Mental health is never far from the headlines these days and this is as it should be. One in four of us will suffer from some form of mental ill health in any given year. Mental illness affects people across the lifespan from children to the elderly, and the burden imposed on individuals and society is immense.

It is widely acknowledged that we need more investment in care provision, and research into the causes and prevention of mental ill health and into the development of new treatment approaches.

We need new thinking about care and treatment, causes and prevention. We also need to hear from a wide constituency including those with direct or indirect personal experience of mental illness (virtually all of us), health care professionals and academics.

I am an academic psychiatrist and have spent my professional life caring for patients with severe mental illnesses such as schizophrenia and bipolar disorder, and researching the causes of psychiatric disorders and dementia. Also, like most of you, I have encountered mental illness and dementia in my personal life.

Many of you will know that mental illness can be a controversial area. Stories in the media often give the impression that there are widely held fundamental disagreements about whether mental illnesses are disorders of the brain or mind, caused by nature or nurture, and whether they should be treated by drugs or psychological approaches. These polarisations may make good copy but I sincerely hope that we can move away from them.

First, they are profoundly misleading. They assume, implausibly, that mind and brain are separate independent entities rather than different aspects of the same thing. They also fly in the face of a large body of evidence indicating the importance of genes and altered brain states in contributing to disorders of mental health and equally compelling lines of evidence that psychological and social adversity impact on mental health.

There is also strong evidence that drugs, psychological therapies and social interventions can be effective and often work better in combination than when given separately. Most mental health workers, researchers, and those with personal experience of mental illness recognise that mental health disorders reflect a complex interplay of social, psychological and biological factors, and that the relative balance of these varies from person to person.

Providing treatment consists of working out for each individual the optimal combination of social care, psychological therapy and drugs as well as management of any concurrent physical illness, and is delivered by a multidisciplinary team of nurses, psychologists, social workers, occupational therapists and doctors (both psychiatrists and GPs).

The second reason I hope we can move away from these polarisations is that not only do they misrepresent the evidence and the views of the majority, but they also misleadingly suggest that there is widespread disagreement among mental health workers about how mental illness should be treated and researched.

Surely, if we wish to bring much needed resources and innovation into mental health, we need to present a coherent and unified case for greater investment and a positive image of the many exciting possibilities for progress whether in genomics, neuroscience, social sciences, psychological treatments, early intervention, public health measures and so on.

While understanding mental illness and developing better approaches to treatment and prevention represents one of the greatest challenges we face, there are grounds for optimism.

Many voices are calling for change; the need to integrate social, psychological and biological approaches to both treatment and research is widely acknowledged; and new research approaches are making this increasingly possible. What we need to do now is share ideas and work together to make this happen.

Mike speaks in his own capacity and his views do not necessarily reflect those of the MRC.

This article has been re-purposed from the original, published on Cardiff University’s blog: mrc.io/mental-health-blog
Network is for anyone who has an interest in the work of the MRC, including scientists, doctors and health professionals involved in medical research, government departments and parliamentarians, and university staff and students. The aim is to provide a quick, easy-to-read summary of activities across the MRC, from research news through to funding, grant schemes and policy issues, with pointers to more in-depth information on websites and in other publications.

We are keen to receive feedback on Network and suggestions for new features from our readers. To share your views email network@headoffice.mrc.ac.uk

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Coloured scanning electron micrograph (SEM) of a macrophage white blood cell (purple) engulfing tuberculosis bacteria (pink).