

# ignite

WARWICK MEDICAL SCHOOL MAGAZINE

AUTUMN 2018



## **NHS at 70**

What's next for this strained workforce?

## **Child mental health referrals increase**

Professor Sarah Stewart-Brown explores prevention

## **Genomic medicine**

Disease prevention or enhancement?

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## Foreword

Welcome to our second edition of Ignite magazine. This issue brings you features examining surgical clinical trials and a discussion on modern-day undergraduate degrees, but also a particular focus on the NHS.

With the NHS turning 70 this year, we thought it only fitting to include pieces from our colleagues on the demands, next steps and potential future needs of our healthcare system. We have also looked into how, as a University, we can step up to the mark to educate and prepare our students to solve future problems in healthcare.

As we prepared for the new academic year, we reflected on our successes from the last. Once again, our MB ChB finalists were successful in their applications to the Foundation Programme, with 85% achieving their first choice of placement and 98% being allocated one of their top five choices. This year also saw a huge increase in the number of our finalists offered a place on the Academic Foundation Programme. This achievement places Warwick Medical School (WMS) joint second

in the country in a list of medical schools whose students have been most successful in applying to join the programme.

Our staff have also had a successful year, with a number of academics being named as Turing Fellows and receiving new research grants.

We look forward to a busy and exciting academic year ahead. We're expanding our Gibbet Hill campus with the creation of a new Interdisciplinary Biomedical Research Building. This will bring together 300 biomedical researchers from across our school and the School of Life Sciences, focusing on understanding the origins and mechanistic basis of diseases of the body and brain.

This academic year we will also be working on two new undergraduate degrees that will both have a focus on teaching science in an integrated way. We look forward to the future launch of these courses and to welcoming undergraduate degree students onto our campus in the next few years.

We hope you enjoy reading this edition. As always, if you would like any further information about WMS, please don't hesitate to get in touch.



# The NHS at 70: A workforce under strain

With the NHS under immense pressure, there has never been a more important time to show kindness and compassion to healthcare professionals.

A tweet from President Trump earlier this year suggesting that the NHS is “going broke and not working” provoked an outcry on Twitter and across the British media. The three founding principles of the NHS - that it should meet the needs of everyone, be free at the point of delivery and be based on clinical need, not ability to pay - were widely contrasted with the US health system. Many people told their personal stories of what the NHS had done for them. At 70, the NHS is held up as one of the best things about being British, but have our ongoing commitment to the founding principles and individual experiences of great care blinded us to the fact that all may not be well with this beloved but ageing institution? We need to recall that President Trump’s comments related to a march entitled “NHS in crisis: fix it now” demanding an end to NHS budget cuts and constraints. We are aware of chronic staffing problems, high sickness rates and UK-trained staff moving abroad to work. For every patient’s good news story, there is a report of failures in care.

A recent report has suggested that up to 85% of doctors have experienced mental health issues, with 65% reporting an impact on their work, and there has been a succession of widely reported suicides in junior doctors. In a profession where mental health problems have been particularly stigmatised

it is difficult to tell if this is a new phenomenon or an increasing willingness for doctors to be open about their own health. The question which arises, then, is whether doctors are more likely to have mental health problems on entering the profession or whether it is in fact the working environment that causes the problems.

Medical schools have noticed an increase in students with mental health issues, though it should be noted that this is a trend being seen across all university degrees. This may be related to the increasing mental health morbidity of children and young people, which is of increasing national concern, yet could also be compounded by financial worries around student debt and increasing pressure to achieve. The General Medical Council’s guidance ‘Gateway to the professions’ gives a strong steer that medical schools should be opening their doors to students with disabilities, including mental health problems, and outlines ways in which students should be supported. The power of patient experience in doctors can give profound insights with the power to change and move individuals and organisations, as demonstrated by Kate Grainger’s #hellomynameis campaign.



There is no doubt that the NHS is a stressful working environment. Junior doctors have the responsibility for making complex decisions many times a day, at times with inadequate support and supervision. Dealing with human suffering on a daily basis can result in compassion fatigue and burnout. Parts of the NHS can exhibit heavy-handed management and bullying cultures. This can all be compounded by a culture within the medical profession that supports the misconceptions that you should be at work unless you are physically unable to stand and that doctors should not show weakness.

Preparing medical students who may have pre-existing mental health issues for practice in a difficult environment is a challenge medical schools are taking very seriously. Many UK schools are building on work from Monash University in Melbourne, Australia, where mindfulness practice is integrated within the medical degree. Personal and professional development teaching promotes reflection as a tool to review not only performance but personal wellbeing. There has been interest in both selecting students who may exhibit characteristics suggesting they are more resilient, and in teaching resilience.

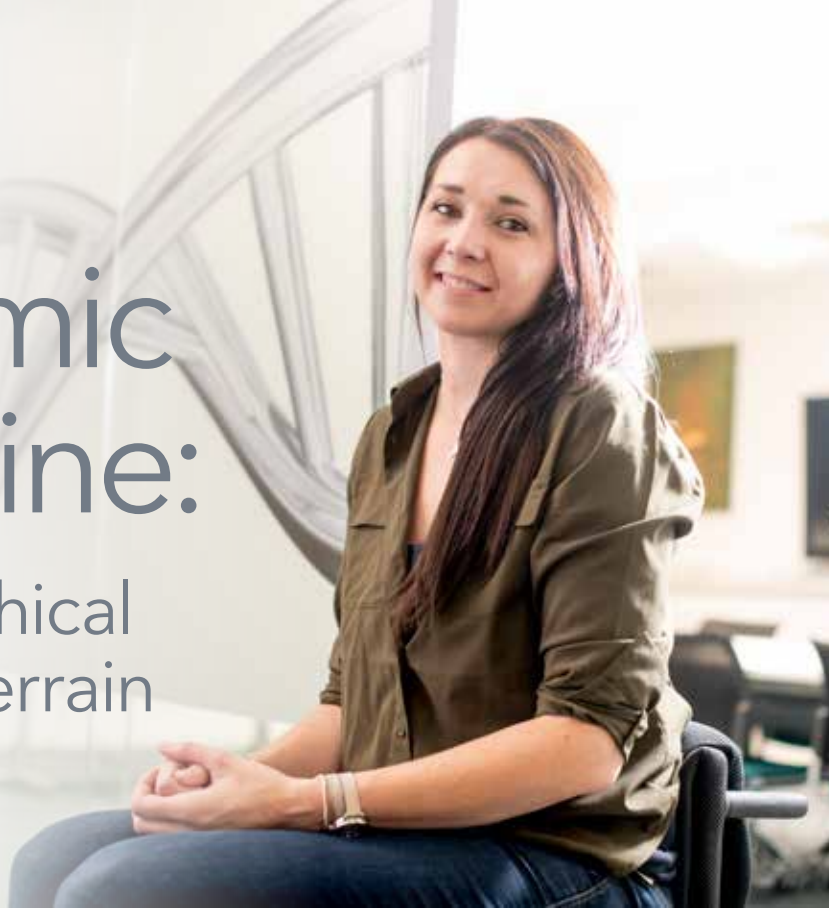
This conscious strategy to work with students can, however be undermined by observation of behaviour and poor advice given by older doctors who maintain vestiges of culture from the “work until you drop” era. Providing positive role modelling for students and junior doctors across the curriculum is a more compelling learning experience for students than taught material.

There has been a recent spike of opinion amongst doctors who feel that being trained to be resilient is akin to being given a coat when the central heating has broken, rather than fixing the boiler. Ballat and Campling, in their book, ‘Intelligent Kindness: Reforming the Culture of Healthcare’, propose a radical shift within the NHS to promote values of compassion and kindness to staff as well as patients. The NHS at best is the people who work in it, who exhibit kindness to patients on a daily basis by staying late to look after a sick patient or see a baby delivered, who make a cup of tea for an elderly patient at home or fetch a prescription for them. As the NHS reaches 70, I would like to propose an additional fourth underlying principle: that it demonstrate kindness and compassion to patients and staff.

Dr Felicity Boardman,  
Assistant Professor,  
Warwick Medical School

# Genomic medicine:

## A bumpy ethical and social terrain



It is estimated that the average person is unknowingly a 'carrier' (i.e. someone who can pass on a genetic disorder to their offspring but who do not have it themselves) for at least one serious genetic disorder.

For many, this genetic risk will never be discovered unless they have a child with a genetic disease or experience some of the health issues that can be associated with particular carrier statuses (e.g. those associated with the fragile X pre-mutation or thalassaemia).

Nevertheless, the relationship between the general public and genomics is slowly beginning to change. Current and anticipated uses of genomic medicine are always high on the public agenda, demonstrated by the Chief Medical Officer's annual report, 'Generation Genome' in 2017. Indeed, the increasing use of whole genome sequencing (i.e. a systematic analysis of a person's entire genome) within NHS

healthcare (such as the 100,000 Genomes Project), suggests a future in which the genomic profiling of prospective parents is an accepted and integral part of reproductive care.

The use of genomic sequencing to collect information for would-be parents that is relevant to their reproductive planning appears to offer a range of benefits. By giving them information about their genome in either early pregnancy or before a pregnancy is even conceived, such parents may be able to circumvent the birth of a child with a genetic condition altogether, which has, up until now, been the most common way that carrier couples come to realise their genetic status.



However, the sheer volume of conditions and propensities that genomic profiling could potentially flag up, coupled with the public's widespread lack of knowledge about genetic disorders and inheritance, mean that the implementation of genomic sequencing into standard reproductive care raises a raft of social and ethical concerns that have yet to be adequately addressed in the context of public and policy debates. For instance, there is a fine line between preventing genetic disease and enhancement and it's possible that one could become the other as we expand our understanding of genetic variation.

The impossibility of gaining sufficiently meaningful informed consent for screening, in relation to each of the individual conditions that could be returned within a genomic sequence, is one example that contributes to concerns that the use of these technologies will quickly become 'routinised'. A process that would only reinforce the shock and disbelief reported from people who discover for the first time that they are carriers for a condition they had no idea even existed.

As well as the impact on the general public, there are also implications for families and individuals who already live with the conditions that can be detected through genomic sequencing. Indeed, these perspectives have been largely unexplored in debates around selective reproduction. However, the potential reduction in the prevalence of their condition associated with the introduction of genomic sequencing has the potential to raise stigma and

reduce peer to peer support for those currently living with it (as the condition comes to be re-conceptualised as 'preventable' and less people are born with it). Concerns have also been raised that it could also divert funding away from research into treatments as the population of affected individuals reduces.

However, an impact that has not been as widely acknowledged concerns the loss to society of the personal insights and lived experience that people with genetic conditions possess. Lived experience - our physical and emotional encounters with the world - is critical to the way in which people approach decision-making, especially permanent decisions where the stakes are high, as is the case of reproductive decision-making.

In order to explore the value and uses of lived experience in reproductive contexts, Warwick is undertaking a three-year Wellcome Trust funded study, comparing and contrasting (through qualitative interviews and quantitative surveys) the reproductive views and decisions of people living with a range of genetic conditions that are each associated with very different types of lived experience (Spinal Muscular Atrophy, Haemophilia, Thalassaemia, Fragile X Syndrome and Cystic Fibrosis). The study also involves a comparison of the views of such families with the views of people volunteering to undergo genomic sequencing as part of the Genomics England initiative, the 100,000 Genomes Project.

Whilst still on-going, the study's emerging findings suggest that even for those undergoing

genomic sequencing, knowledge of the most common genetic disorders facing the UK population remains poor. Moreover, there are also clear differences in the values placed on life with genetic disease by the two groups, with affected families and adults far more likely to express negative or ambivalent views about the practice of selective reproduction than those undergoing genome sequencing.

The study underscores the role that the lived experiences of people with genetic disabilities can play in addressing some of the biggest questions facing reprogenetic medicine today; to ascertain which disease-causing variants are sufficiently serious to warrant return (following genomic sequencing) and to identify which forms of support and information can be given to would-be parents in these contexts (and in what format) that facilitate their understanding, and making of, reproductive decisions.

As genomic medicine expands, the need for high quality and balanced information about genetic disease is greater than ever before, both in relation to the practice of genomic sequencing, but also in other areas of reproductive medicine such as standard antenatal screening. Whilst lived experience remains a nebulous and also a potentially dwindling resource, its role in providing context and meaning to otherwise hard-to-access medical information needs to be taken seriously, as it is this insight into unknown realities that may just provide us with the map needed to navigate the bumpy ethical and social terrain of genomic medicine.

# Getting child mental health back on the agenda

Professor Sarah Stewart-Brown,  
Professor of Public Health,  
Warwick Medical School

Following the findings from the NSPCC that the number of referrals by schools seeking mental health treatment for pupils has increased by over a third in the last three years, Professor Sarah Stewart-Brown considers what these findings highlight.

These statistics are shocking, but in some ways, they are also positive. They mean that the hidden problem of children's mental health is becoming less hidden. And once something comes to light it is possible to give it the attention it needs.

Mental health problems in children have been known by those who study these things to be a major concern for a long time. More than one in 10 children have some form of mental health problem and a very small proportion of these children and their families get help.

Mental health problems in childhood are of lifelong consequence. Affected children are likely to suffer from mental health problems throughout their lives with serious knock-on effects on their physical health too; and their capacity to form

health-enhancing relationships with others in adult life is also likely to be impaired. In childhood, it is not just the children who suffer - it is their parents, teachers and classmates too.

More NHS services are needed to address this problem but much more importantly we need to address prevention and promotion. We need to change the conditions in the family home, in schools and in society which create the conditions where children's mental health suffers. We know how to do this and before austerity hit, community services and funding of schools with these services were starting to be provided throughout the country. Now many of them have had to close. Reopening services to support parents and teachers caring for children is very important, as is addressing educational policy that puts cognitive achievement above emotional and social development. Finally, creating conditions in which parents do not need to sacrifice down time with their children in order to provide them with homes needs to be another priority.

# The graduate perspective

We caught up with one of our graduates from our Masters in Public Health (MPH) programme, to see how the course helped build her career and hear what she's been up to since graduating.

Coming to Warwick meant being part of a great institution, one that offered a safe and engaging environment for knowledge exchange. The rich diversity meant a lot to me as I needed a stimulating environment to challenge myself in order to excel academically and professionally.

The course was part of a roadmap to achieving my goals. My Master's in Public Health (MPH) equipped me with the expertise and skills needed to think innovatively to improve the lives of the communities I serve. The course also stirred a passion for helping adolescents and families in particular - a cause I am very enthusiastic about.

Since graduating from Warwick, I have worked as District Director of Health Services in rural and deprived parts of Ghana. I am naturally very committed to helping low income communities to overcome the public health setbacks they face. The MPH helped me realise the many ways I could do this. My first challenge was to establish a District Health Directorate in the newly created Mpohor district. Having succeeded, I moved on to the Ellembelle district, where I now assess health needs, plan, implement and evaluate clinical and public health services for a population of over 100,000.

One of my biggest achievements in Ellembelle was the significant improvement in data management. This was achieved through a sub district data validation plan I set up. I've also set up the first research-focused organisation in the western region, called Volunteers for Social Medicine in Ghana (Vossmed). Vossmed has the mission of advancing research among health professionals to inform health policy. The organisation is now functioning in 24 districts in Ghana, providing free quality health information to adolescents and young people.

To those considering applying for the MPH at Warwick, I would highlight that there is a rich cultural experience on campus and a highly challenging academic syllabus awaiting them.



Marion Okoh-Owusu,  
Masters in Public Health graduate and  
current student in MPhil Health Sciences



# Can we teach surgical trials new tricks?

## A study of shoulder surgery using novel adaptive methods

Medical technology is moving at an increasingly fast pace, and this is just as true of surgery as any other branch of medicine. We are regularly told about new techniques or pieces of equipment that will revolutionise surgery and transform patients' lives. In many cases this is true, and modern surgery is as safe and effective as it has ever been. However, some new procedures are no better than the things they replaced, exposing patients to risk and costing the NHS money. Recent scandals such as vaginal mesh repairs and metal-on-metal hip replacements teach us that we need better ways of assessing new surgical procedures before their use becomes widespread.

The obvious solution is to do more clinical trials. This sounds simple but is hard to deliver. Randomised controlled trials can be long and expensive to run, and often require small pilot trials before the main study commences. This process can take a long time, up to a decade, meaning that for many years patients are either exposed to treatments that may not work, or are not offered good treatments that would improve their health.

At Warwick, we set out to develop a way of performing randomised trials in surgery that was cheaper and quicker, and yet just as good at determining whether a surgical treatment was

effective or not. To do this we are using an approach called an 'adaptive design', where the size or structure of the trial adjusts as the study proceeds. This means that a study can stop early when it has already reached a clear answer. We have called our approach to this problem REACTS: Randomised Efficient Adaptive Clinical Trials in Surgery.

We decided to use this new approach to test a novel technique for treating tendon tears in the shoulder, called the InSpace Balloon. This was a research question recommended by the National Institute for Health Research and Care Excellence (NICE), and more importantly by clinicians themselves, who recognised the need to find out if this device worked.

Shoulder pain is a common and disabling problem. One of the most common causes of shoulder pain is a torn tendon in the shoulder (called 'rotator cuff tears'). Many tears of the tendons can be repaired but some tears cannot. When a tear cannot be repaired, surgeons may choose to perform a keyhole operation to clear space around the tendons and remove the painful tissue (called an 'arthroscopic debridement'). This does not solve the problem itself but it may help reduce pain and improve movement.

The InSpace balloon is made out of a biodegradable synthetic material and is inserted above the shoulder joint at the end of a keyhole operation. It is thought to act as a cushion, helping to reduce pain and allowing rehabilitation of the remaining muscles in the shoulder. It is simple and quick to use but the device is costly and there is no good evidence that it works any better than the standard 'arthroscopic debridement' operation. NICE have restricted its use in the UK to research only.

The Warwick Clinical Trials Unit and the University Hospitals Coventry and Warwickshire have received funding (from the National Institute for Health Research and the Medical Research Council) to answer this important research question, using our novel approach to surgical studies. The study is called START:REACTS, and it will include up to 212 people with an irreparable rotator cuff tear, across approximately 20 hospitals in the UK. Participants will be randomly assigned into one of two treatments: arthroscopic debridement alone or arthroscopic debridement with the insertion of the

InSpace balloon. They will be seen in clinic at three, six and 12 months after surgery and we will measure their strength, check their movement, and ask questions about their shoulder function, pain and their general health.

Within this study, we will be using the early, emerging follow-up scores to predict the final results. We have done a lot of background statistical work showing that there is a strong association between early outcomes and late outcomes for patients with rotator cuff tears and we will use the emerging three, six and 12 month patient data to confirm that this is true. If, after an early look at the data, we get a strong finding (either a big difference or no difference), we can stop the study early, saving time and money. If there is uncertainty, we can continue the study to increase our confidence in the data. This will make real savings in research costs but more importantly, an early answer will impact clinical practice quicker, meaning patients get the best treatment and the NHS makes the most efficient decisions.

To our knowledge, this will be the first time an adaptive study has been used in surgery, but it's unlikely it'll be the last. The REACTS method can be used for all sorts of interventions and there are good reasons for doing this more in the future. It requires careful thought and planning to get right and we are fortunate to have world-leading statistical experts in this field here at Warwick, making sure we do this correctly. It is important that we find quicker and more efficient ways of assessing new surgical procedures, and we are taking the first steps towards changing this for the better.

**Dr Andy Metcalfe, Associate Clinical Professor; Mrs Elke Gemperle Mannion, Clinical Trials Coordinator and Dr Nicholas Parsons, Principal Research Fellow, Warwick Medical School**

### Acknowledgement

This project is funded by the Efficacy and Mechanism Evaluation (EME) Programme, an MRC and NIHR partnership.

\*The EME Programme is funded by the MRC and NIHR, with contributions from the CSO in Scotland and Health and Care Research Wales and the HSC R&D Division, Public Health Agency in Northern Ireland.

Dr Hollie White, Senior Teaching Fellow, Warwick Medical School

# University education stepping up to the mark

Warwick has always been concerned with producing employable and in demand graduates. Evidence of this can be seen in the Highfliers' research, 'The Graduate Market in 2018', which names Warwick as the third most targeted university by UK top graduate employers. Here, Dr Hollie White explores how universities can work to ensure degrees meet the needs of the future employment market.

The World Economic Forum have suggested that the top 10 graduate skills valued by employers in 2020 will be:



- 1 Complex problem solving
- 2 Critical thinking
- 3 Creativity
- 4 People management
- 5 Coordinating with others
- 6 Emotional intelligence
- 7 Judgement and decision making
- 8 Service orientation
- 9 Negotiation
- 10 Cognitive flexibility

Of course, there is not one single type of graduate employer, nor one definition of a graduate job, and we are not yet in 2020, but even accepting those unknowns, this list may be considered a somewhat challenging demand when viewed from within higher education.

A possible reason as to why it might be difficult to equip undergraduates with skills training may be found in the age-old debate of whose responsibility it is to deliver that part of an undergraduate degree course. Unfortunately, it is becoming clear that student and institution differences in delivery and expectations about skills represent a missed

connection when viewed through the lens of the student experience and are a source of inequality across the sector.

From as early as 2011 there have been calls for institutions to take on more responsibility regarding preparing students for employment via skills training. Yet in 2015, Universities UK highlighted the example of maths graduates who felt they excelled at problem solving but lacked presentation skills for interviews, and creative arts graduates who reported developing good entrepreneurial skills but not the logical thinking skills they found required by their varied employment market. Even this year a Guardian article has highlighted that students are still too often not cognisant of, or able to, articulate their own sought-after skills and experience at the time of graduation, or when applying for their first job. It appears that we are some way from a solution.

Discipline-specific learning and teaching is undoubtedly paramount, and at Warwick interdisciplinarity is embedded in the educational strategy, but these things are perhaps also in the comfort zone for many UK academics. However, course design that incorporates innovative problem-based, enquiry-driven pedagogy, which requires students to appreciate their topic through the lens of multiple perspectives, may still be an under-utilised method for the delivery of specific skills training.

If repeated throughout a course then problem-based and enquiry-driven activities are excellent ways for students to learn about, then immerse themselves in, then feel confident about, authentic and complex problem solving. By presenting groups of students with case problems that have no clear right answer, they must engage in criticality, decision making, coordination and negotiation with others. This can require increasing insight into the ways in which one can show respect for others' values and beliefs, developing emotional intelligence and people management skills. As an extension, students can be asked to view case problems from numerous perspectives and angles, perhaps by asking them to put forward and defend views that do not easily tally with their own, or which concern communities with which they are not familiar. In this way, it may be possible to extend the scope of learning and activity toward a more service-oriented philosophy and even into the

transformative arena. Indeed, as Ray Land asserted when he presented at the University of Warwick Education Conference, citing Proust, "The real voyage of discovery consists not in seeing new landscapes, but in having new eyes, in seeing the universe with the eyes of another".

At WMS we are currently developing a new undergraduate course that is underpinned by a desire to train a new generation to contribute to problem solving in health. We will use the WMS signature pedagogy of case-based learning to help achieve this. The focus, however, will not be on managing an individual patient, but rather looking at health on a broader scale.

One interesting case we are planning will consider traumatic brain injury. Through facilitation, students can learn about the underpinning biomedical science of the condition. For example, how brain damage can lead to physical, cognitive, emotional and behavioural problems. This will be considered alongside the broader topics of how health services manage patients through systems and healthcare professions. Broad health science disciplines can also be included. For example, ethical reasoning if a patient is not able to make decisions for themselves; health economics in considering the costs of in-patient treatment and transfer to a home environment; the economic benefits of support services to return to employment; and the role and scope of mental health support and assistive technology, which might be involved in rehabilitation and on-going care.

Throughout their work on varied case problems there will be a need for cognitive flexibility and pattern recognition. Students will maintain a focus on trying to creatively solve problems, in whole or in part, effectively closing a feedback loop by investigating a problem and then strategically planning a response that can be tested for its effect. This process will culminate in the independent project. For our part as a course team, in the interests of closing our own identified feedback loop, and in the hope of solving a problem surrounding skills training in an undergraduate course, we will be active in labelling skills training and acquisition as it occurs. Our graduates will have skills that will equip them for 2020 and beyond, and they will know that they do too!



# The growing demand for prehospital critical care

Unlike many other parts of the world, where ambulance services are perceived solely as an emergency service, in the UK they are recognised as an integral part of the NHS. Despite comprising only a small proportion of the NHS workforce - there are approximately 35,000 registered paramedics in comparison to over 23,000 doctors and 60,000 nurses - hardly a day passes without the media reporting on the performance of, or pressures on, NHS Ambulance Services.

Michael Smyth, Clinical Research Fellow, The University of Warwick

In part, this is because demand for ambulance services is growing rapidly. In 2015-16 the number of calls to ambulance services exceeded 10.7 million, up from 7.9 million in 2009-10. Contributing factors include an ageing population, increasing mental health issues, availability of primary care services and alcohol-related concerns. In response to the changing patterns of patient demand, epidemiology and wider social changes, ambulance services are evolving. Rapidly.

Public expectation that ambulance services can respond to an ever-increasing range of clinical presentations of increasing complexity, is forcing ambulance services to recognise that it is simply not possible to train all paramedics to manage the entire range of cases they may encounter, and at the same time ensure their continuing competence. As in other areas of health care practice, this has led to the development of areas of specialist practice.

A clear example of the evolution of specialist paramedic practice within the NHS is the development of critical care paramedics alongside regional trauma networks. Centralising specialist trauma services, to ensure all required specialties are available at a single hospital site, concentrates expertise, leads to improved patient outcomes and is cost effective. However, ensuring victims of major trauma receive optimal prehospital care and are transported to the most appropriate hospital presents unique challenges.

Regionalisation of trauma services means critically injured patients often need to travel extended distances to reach the major trauma centres. The most severely injured patients frequently require advanced treatments, including surgical interventions, administration of blood products or delivery of an anaesthetic, before arriving at hospital. Traditional paramedics cannot provide this level of care at present, meaning specialist prehospital critical care teams are central to delivering this level of care.

There are several challenges to delivering prehospital critical care. Many might assume the training to undertake such a role focuses on in-depth understanding of pathophysiology and delivery of advanced interventions. However, this is not the most important element of such training. Human factors, team working,

In 2015-16 the number of calls to ambulance services exceeded

**10.7 million** 

effective communication and managing a chaotic environment are the key skills to be developed within these teams.

Delivery of prehospital critical care requires a multidisciplinary team, comprising a suitably trained and experienced doctor, a critical care paramedic (or prehospital critical care nurse), ambulance paramedics, ambulance technicians, often police or fire service colleagues and potentially community first responders. Although the doctor leading the critical care team is ultimately responsible for the treatments delivered at the roadside, they depend upon the members of the team to deliver critical care. It is never a one-man show! The doctor and critical care paramedic co-ordinate the delivery of care, delegating appropriate tasks to other members of the team in line with their respective skill sets. This delegation enables the critical care team to focus on specific interventions, requiring specialist knowledge.

Development of the critical care practitioner to include human factors, team working and a broad knowledge of specialist practice (such as acute mental health crises and major incident response) ensures that they are able to play a much wider role in supporting areas of specialist ambulance practice. These areas could include emergency preparedness, Medical Emergency Response Incident Team (MERIT) functions, Helicopter Emergency Medical Services (HEMS), logistic management and co-ordination of specialist resources, provision of clinical support and advice for non-specialist practitioners; there are also opportunities for potential roles in education.

A well developed, highly skilled and motivated workforce helps to ensure that ambulance services can adapt to future challenges, and are able to meet the needs of the most seriously ill or injured patients. The postgraduate certificate in prehospital critical care offered by Warwick Medical School helps to prepare clinicians from all health care backgrounds to work in this highly-specialised area of practice.



Muna Dubad, Postgraduate Researcher;  
Steven Marwaha, Associate Clinical Professor;  
Andrew Thompson, Associate Clinical Professor;  
and Farah Elahi, Postgraduate Researcher,  
Warwick Medical School



# Exploring digital interventions in mental health services

Technology has become an important part of our everyday lives. Innovative developments in technology have substantially transformed the way in which we communicate, gather information, and access goods and services – all of which can be accessed through the internet using different devices. Given the current pressures on mental health services, which are likely to increase in the following years, the use of technology could potentially reduce these pressures by delivering digital interventions, assessments, and other e-resources outside the clinic, from the comfort of people's own homes.



At WMS, we are conducting research on the use of technology in mental health settings. The MeMO study, for example, which is funded by the Economic and Social Research Council (ESRC) and Coventry and Warwickshire Partnership NHS Trust, specifically looks at the use of smartphone technology. Smartphone ownership has continued to increase over the years across different age groups, with the highest rates (90%) being reported for young people aged 16 to 24. Smartphones offer a variety of features, including inventive smartphone applications or “apps”, which may play a particularly important role in the delivery of mental health care. Given the flexibility in the software, this mobile technology can also be tailored to people's individual needs, ensuring the care they receive is person-centred.

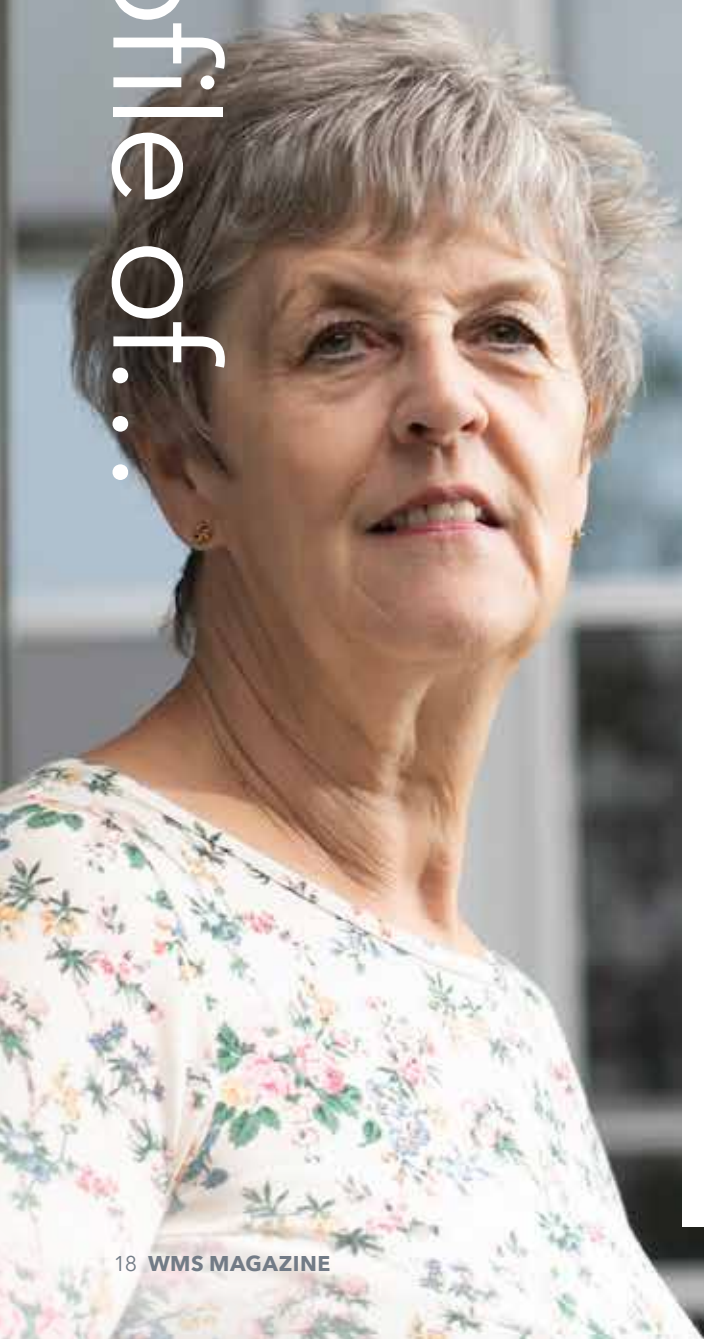
The MeMO study aims to examine how useful mood-monitoring apps are for young people experiencing affective instability (also informally referred to as mood swings). Research has shown that young people with affective instability are more likely to develop mental health issues when they are older. Young people are likely to need a large amount of support in general, yet unfortunately this is also the period of time in their lives when their needs are least likely to be addressed by mental health services. Mood monitoring apps may therefore increase access to services for young people experiencing problems in this critical stage of their life. Moreover, because the smartphone apps allow for moods or emotions to be assessed accurately in people, this could also lead to more reliable and objective assessments.

Within the last few decades, virtual reality (VR) treatment has gained momentum in its potential to provide cost-effective treatment and engagement with clinical populations whom are hard to reach. VR allows individuals to interact with three-dimensional social environments through mediums such as headsets, and VR interventions have been utilised in the diagnosis and treatment of clinical populations with psychosis. Its novelty lies in providing participants with an immersive experience, whilst allowing clinicians to control and alter such environments. This means patients may experience responses which are similar to the real world.



Currently in WMS there are two ongoing projects, which aim to utilise VR technologies to improve social cognition deficits in those diagnosed with first episode psychosis (FEP). One trial aims to assess the feasibility of delivering a treatment called ‘Social Cognition and Interaction Training’ (SCIT) in an online virtual world, for those diagnosed with FEP. Here, both group facilitators and patients will use avatars (a virtual representation of an individual) to attend the treatment sessions, with outcome measures (presence, feasibility, acceptability and social cognition) collected at pre- and post-intervention.

A second project is developing a novel CBT intervention, which aims to target social cognitive deficits in those with FEP. This six session treatment will be combined with 360 degree videos (a type of VR), to provide patients with a more immersive experience. Everyday social scenarios (i.e. individuals socialising in a café) will be scripted and filmed using a 360-degree video camera, which patients will be able to view using a VR headset, as part of their treatment. The aim of the 360 degree videos is to provide a stepped care approach to exposure to real life social situations. Both projects form the first step in assessing the efficacy of utilising VR in the treatment of social cognitive deficits in those with FEP, with the aim of improving their social functioning.



Anne Phillips is a Senior Teaching Fellow within the Diabetes team. As part of her role, she contributes to our Master's in Diabetes, Certificate in Diabetes Care and the Optimising Glycaemic Control online course. Here, she discusses the Warwick courses and how she believes today's diabetes challenges can be tackled.

### What's your background?

I'm from a nursing background. I started out in psychiatric nursing, then general nursing and then became a district nurse. While I was a district nurse I became very interested in diabetes as I had a lot of patients who were affected by it. I did extra training in this area and eventually became a diabetes nurse specialist for children and adults. Part of my job as a specialist nurse was teaching and I did a teaching qualification in my own time. I greatly enjoyed working with learners from a whole range of backgrounds, including GPs and practice nurses. I joined Warwick in 2008 after leaving the NHS.

### What professions do the other members of the Diabetes teaching team come from?

Our teaching team includes doctors and nurses and we've recently been joined by a dietitian. In recent months, there has been a greater emphasis on the role of nutrition and food, particularly in relation to type 2 diabetes, and I think this teaching role will expand as a result - especially based on recent research which has indicated that type 2 diabetes can be reversed with a special diet.

Having nurses in the team is useful as they're often the main people looking after patients with diabetes in primary care. They're used to dealing with patients using a holistic approach and sometimes patients find it easier to communicate with a nurse than a doctor. Having this experience can be useful to recount to our students on the course.

### What do you enjoy most about teaching?

I really enjoy the unpredictability - each course group is made up of very different individuals from different backgrounds. The working environments they come from can vary a lot, so you never know what you're going to get. I also like the fact that I can learn as much from them as they can learn from me - we aim to make the courses very interactive, so there's a lot of discussion and sharing of experiences.

I like helping to change how healthcare professionals view diabetes care. Some people who come on our courses wouldn't have necessarily chosen to do them but have recently been given extra responsibilities in their role, so need to learn more about the condition. What's more, in some cases, our student haven't had very positive experiences dealing with diabetes care in the past. I enjoy helping people to see diabetes care in a more positive light and I like seeing them starting to enjoy the topic as well as feeling more confident in what they're doing.

### What is the biggest diabetes challenge facing the UK today?

The prevalence of obesity is causing an increase of lots of long term conditions, one of the main ones being type 2 diabetes. It's really important that we get the message to individuals that diabetes is a very serious condition and one of the leading causes of cardiovascular deaths.



### What do you think needs to be done to address this challenge?

Education for the public is so important. Public health campaigns can sometimes be difficult because people can resent being told what to do by the government. Instead, children need to be learning about the importance of healthy eating and healthy lifestyles from a very young age. A lot of schools have started implementing the walk a mile a day initiative, which is having great results. More initiatives like this could really encourage children to remain active and reduce obesity levels as they grow up. We also need to educate people from a young age about how to use the NHS appropriately and not to abuse it - for example by making sure they turn up for their appointments and use their medication exactly as it has been prescribed.

Encouraging more professionals to go on continuing professional development courses on diabetes is important as well so that people are aware of the latest developments and can take their up-to-date learning back to their teams.

### How does our Master's course help students to tackle these challenges?

Our course gives clinicians increased knowledge and understanding of diabetes and its complications, and very much focuses on the prevention or delaying of type 2 diabetes where possible, which is so important. Our students take their new knowledge back to their team so many professionals benefit and can help to implement diabetes services that are appropriate, efficient and as cost effective as possible.



[wms.comms@warwick.ac.uk](mailto:wms.comms@warwick.ac.uk)  
[warwick.ac.uk/med](http://warwick.ac.uk/med)