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ARC West Midlands News Blog

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Why are University Students so Depressed?

Richard Lilford, ARC WM Director

My colleague and friend Tim Hofer is a senior Professor at the University of Michigan in Ann Arbor. He was recently over on sabbatical and, while driving home one evening he described the elaborate measures his university needs to take to cope with an epidemic of mental illness. He said that his university was not alone in the US; all had to employ armies of counsellors. The situation Tim describes has its counterpart on this side of the Atlantic, or at least in the UK. A doctor I know well served in a practice close to a large city campus. She consulted a large and growing number of depressed students and had a big job writing medical reports as examinations approached. And we keep reading reports on the high incidence of young people labelled as depressed. Whence all this angst? And is it a problem that can be tackled by ever larger armies of counsellors? Can it be 'fixed' without understanding the origins of the epidemic, if epidemic it is?

Firstly is it real – is the term 'epidemic' correct? Well of one thing there can be no doubt – the attention and expression of the problem has greatly increased.[1] And I don't think it is just an artefact of some sort, even if it does not meet the technical definition of 'epidemic'.

Could it be caused by a hard life? Depends what we mean by 'hard'. I understand that depression was less of a problem in the UK during the Second World War and people were more content than in modern life. Okay, some 'well-known' things are urban myths so correct me if you can. When I was doing basic training as a conscript in the army we had a torrid time. For example, Sergeants Major would put their faces close to ours and ball insults till the spittle covered our faces. Egregious for sure, but did it make us a miserable lot? Not a bit of it. But there again there is massive solace and more than a little humour in shared hardship. Our recent work shows that people in slums are not particularly unhappy, and the incidence of depression among poor people in Dhaka shows that only small increases in wealth reduce the incidence of depression.[2] Okay, there may be some (or a lot) of cultural reluctance to disclose psychological distress, but people under considerable life stresses in other countries seem to cope a lot better than students in British and American universities. Could it be that the demands of university education are so great that all but the most resilient must crumble in the face of relentless pressure to perform? Follow a history student around all day and you will see that this explanation is risible.

So the distress seems real in circumstances that, on the face of it, are not terribly psychogenic. Now it falls to me to formulate hypotheses. I will start with some (non-exclusive ideas) in the hope that others can come up with further suggestions (including the suggestion that I have got it all wrong):

1 Helicopter parents

Family sizes have been declining for some time but parents now sense that the knowledge economy is taking out the middle tier of jobs. Not much middle ground left; little Naomi will either be in the cognitive elite or she will be doing work her parents consider menial. Many children will thrive as they race from fencing to flute to Mandarin, but some kids will sense the pressure and lose heart.

2 Lack of helicopter parents

When all parents had a fairly insouciant view of their role in nurturing the minds of their children, then there was not much basis for comparison. But hands-off parents now stand out and could seem neglectful. A doctor friend told me that half her depressed students said the parents pressurised them too much while the other half said their parents took no interest. I am reluctant to blame parental pressure or the need to succeed in life.

3 Computer games, etc.

Yes, I think this may be a problem but my reading of the literature (no I have not done a systematic review) is that the toxic effects are at the extremes. That is to say, they can do lasting harm but only among the 5% or so of young people who become seriously addicted.[3]

4 Mobile phones and the internet

Social media, it is said, have reified the perfect, glamorous individual; since this is an ideal that cannot be attained it leads to despair. I have heard this theory advanced a number of times now but it has low verisimilitude for me. That is because the stereotypical perfect body and glamorous lifestyle predate social media. Or maybe it is the social isolation that mobile IT platforms engender that is harmful. Again the evidence seems to suggest that harm is confined to a small proportion of outliers.

5 Fulfilment paradox

I remember reading a diary entry from a high social class boy before he went off to join the army prior to the First World War. He was clearly suffering from a kind of boredom born from a lack of struggle that such a person may have experienced in Edwardian England. The kind of problem epitomised by Sebastian Flyte perhaps. I read somewhere that the period immediately following retirement is associated with low mood (are my recently retired friends faking their apparent happiness?). And then the old quip; 'middle aged people have either jobs, boyfriends or breakdowns'. So maybe life it just too easy; while some thrive from the opportunities that their escape from a hand to mouth existence opens up, others crumble under a sense of the ultimate futility of life. Ah yes, lack of meaning – existential angst – is a pursuit for those who do not have to struggle.

Well I am fresh out of ideas so please add or subtract. As stated this list is not exclusive so all or any combination could be in play. Time to look at other cultures. Parents in Shanghai and Seoul, I understand, out-hover those in Hampstead or Long Island. Look for natural experiments (instrumental variables/threshold effects) if you encounter them. Maybe do RCTs if you can find a good hypothesis to test (parents randomised to ban or not ban access to social media?). Understand the neurochemistry as much as you can. But do not put too much store in association studies; by themselves they cannot tell you which way round causality runs.

But I doubt that armies of counsellors are the way out of the putative problem. We used to think that near everybody should be on pills of some sort, but Fiona Godlee has recently argued that we should break this thought cycle and says that 'pills are not the answer to unhealthy life styles'.[4] Well I think the same type of question has to be asked of both pills *and* counselling. The thing we call depression in our society might just be a part of life. There is a bandwagon in favour of making low mood a disease and advocating therapy for it. But if 30% of the population is affected, then is this really a good idea?[5] Or should we be looking for more systematic – call them psycho-prophylactic – approaches? Bear down on bullying in school; encourage sport; promote social activities. "Count your blessings, one by one," my father said before such an approach was called CBT. So here is the Lilford hypothesis: beyond a certain threshold, relying on self-help does more harm than good – the person is sick and needs clinical services. But before that limit is reached, becoming a case does more harm than good, and could even become a self-fulfilling, learned behaviour. And what is that threshold? No person knoweth it, but I doubt it applies to everyone under the 30th centile.

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The Importance of Getting the Right Idea

Richard Lilford, ARC WM Director

Recently I read about the ongoing saga of the opioid crisis in the United States.[1] Crises are generally attributed to some turpitude or other. However, having the wrong idea also lurks behind person-made crises. In the case of the banking crisis the wrong idea was that derivatives, by repackaging debts among many investors, systemic risk would be reduced. It turned out that derivatives were more cause than solution.[2] In the case of opioids, there were two wrong ideas: the new generation of pharmaceuticals carried a lower addiction risk than traditional opioids, and medical reluctance to prescribe opioids reflected a lack of medical sympathy for people in pain.

It is true that in both cases, selling derivatives and promoting opioids, self-interest was being served by people promoting the failed practice. Bankers were indeed making money on the back of repackaged debt. Likewise, pharmaceutical companies were making money from the so-called 'new generation' opioids. But to concentrate entirely on commercial turpitude is too narrow a focus. A false theory was also to blame in each case. Thus we need to consider the role of proper evidence as a guide for action and the tendency for social bandwagons to form. Ideas spread like a virus through societies and are insufficiently tempered by skepticism and a demand for evidence. Further, once a bandwagon has formed, it takes immense courage and leadership to stand against it.

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What Can We Do For You?

Warwick Business School Research on Innovation Applied to Health and Social Care

Graeme Currie
ARC WM Organisational Sciences Theme Lead

Implementing and scaling up evidence-based innovation is key to addressing health and social care challenges, and innovation research is core to a business school. If we consider the potential ways to address the challenge in health and social care from an innovation research perspective, then, based upon research carried out within Warwick Business School, we might consider the following.

Innovation is a process, encompassing an "innovation journey" through which new practices and structures are "diffused" by key actors to improve organisational performance. "Diffusion" is an interesting descriptor applied to innovation; it captures the dynamic nature of the innovation journey, its spread from the early adopter to other organisations and contextual influences upon the adaption of innovation. Much of the research on innovation has been criticised for focusing on its early stages, such as the development of an innovation culture and its local implementation, with the sustaining and diffusion of innovation much less researched. Innovation and its diffusion prove challenging to manage because it is nested in a complex ecosystem, the components of which may diverge rather than come together. Understanding and managing the innovation journey thus requires multi-level study that identifies drivers of diffusion of innovation across national, regional and organisational contexts, as well as experiences of adaption of innovation within contexts.

Early research focused upon technical or economic benefits of the innovation itself, assuming that successful, evidence-based ('best practice') innovations would diffuse en masse, if only users could be made more aware of their benefits & persuaded to adopt them.[1] However, this model is inadequate. Later research carried out by Warwick Business School focuses upon social aspects. Innovations spread through social networks when they come to be perceived as legitimate, or even 'must-have', aspects of organisations. At the extreme, diffusion of innovation is driven by 'bandwagons' and 'success stories' that have less to do with performance benefits and more to do with actions & vested political interests of particular professional groups. Commonly, innovation that diffuses fits with pre-existing organisational and professional practices, rather than radically deviating from them, regardless of potential benefits. This means that some innovations spread even where their performance benefits are questionable; they are 'hollow',[2-4] like derivatives or new generation opoids in the earlier piece by the ARC WM Director.

Alternatively, innovation may be driven by the regulator, such as the Care Quality Commission (CQC) or Office for Standards in Education, Children's Services and Skills (Ofsted), with their spread limited even where they are meaningful and there is a strong evidence-

base surrounding their benefits and use, as shown in Warwick Business School research about the often patchy uptake of NICE guidelines.[5-6] Typically policymakers and managers may want to ensure innovation remains faithful to its original, evidence-based origins, which determine its efficacy. This seems the basis of 'evidence-based practice' encompassed within social care and NICE guidelines. However, viewing innovation as a process leads us to question these assumptions.[7]

In essence, we need to understand whether, and what kind of adaption of innovation as it diffuses is necessary, and what affect this adaption has on outcomes. We need to understand trajectories of innovations, their adaptions, and what makes them meaningful or hollow. Adaption in the face of an unpredictable innovation process poses particular challenges for management and organisation. Problems, unintended consequences and resource constraints inevitably occur along the journey as innovations are adapted to new organisational contexts. Innovation cannot be managed, then, through a step-by-step set of plans made upfront. Managers must be receptive to the possibilities opened up by innovations as they diffuse and are adapted, while at the same time being sure that clear benefits are realised. Shared leadership across professionals & managers in different organisations is likely to prove crucial in diffusion of innovation, with the source and leadership of innovation commonly coming from frontline professionals rather than managers.[8]

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Celebrating Public Involvement

University of Birmingham hosts a 'Thank You' event for public contributors

Magdalena Skrybant, Public Involvement Lead ARC WM

On Wednesday 23 October 2019, the University of Birmingham hosted a *'Thank You'* event for members of the public who have contributed to research projects. Magdalena Skrybant, who leads public involvement in ARC WM, was a member of the Organising Committee and reports that the event was a great success, with over 80 members of the public joining in the celebrations.

The University of Birmingham, like so many academic institutions, continues to benefit enormously from the valuable insights and unique perspectives members of the public contribute to research. When members of the public become involved in research, they often cite a willingness to *'give something back'* to health and social care. This event provided an opportunity for the research community to demonstrate just how much those contributions are valued.

The event started with a guided tour of the University of Birmingham's Barber Institute of Fine Arts. Guests were then welcome to visit over 20 interactive stands, showcasing the breadth of research activity in health and social care, and listen to short presentations, which demonstrated how health and social care research at the University of Birmingham is making a real difference to the quality and experience of healthcare locally, nationally and on a global scale.

ARC WM's Director, Professor Richard Lilford, was a keynote speaker at the event. Richard presented some of his latest research to the audience, which included some personal reflections on how public involvement has been integral to shaping research. The event concluded with a panel discussion and a buffet reception, which enabled members of the public to meet research teams.

As public involvement matures, we are developing closer relationships with members of the public. We hope that ARC WM will continue to be a part of

other initiatives in our host and partner organisations to ensure that members of the public are not only valued for contributing their skills and knowledge so generously, but that they also consider themselves true partners in research successes.

Co-design and implementation of a family friendly way of communicating with families of children in hospitals

Richard Lilford, ARC WM Director

This study from the US aims to improve the so called 'grand round' in hospitals.[1] The intervention, co-designed with patients, aims to make the patient a more active participant in the ward round. I loved ward rounds, especially when I was a medical student in Johannesburg. I enjoyed the learning experience and, depending on the specialist in charge, the theatricality of the occasion. The specialists seldom talked as though the patient was not there and I think patients also enjoyed the rounds. But it would be wrong to say that the patient was centre stage. The intervention developed in this paper tries to change that. For instance the ward round starts with the patient's voice – the patient is asked to comment at regular intervals. Patients receive a summary of the conversation. The intervention consisted of training sessions that included role-play. The intervention was implemented over seven sites and each site made specific adaptations to the intervention.

The intervention was studied in a before and after design. It was associated with small, but statistically and (I would say) clinically, significant improvements in both patient and carer satisfaction. Satisfaction with doctor and nurse communication improved. The investigators did not only measure satisfaction and communication. They also measured error rates and adverse events. Overall errors were unchanged but errors resulting in harm were reduced following the intervention. But then *unavoidable* adverse events also declined.

So, what to make of the above American educational intervention? I have four concerns. First, as the authors themselves state, it is hard to draw cause and effect conclusions from a before and after study. However, I am not impressed with the authors attempt to sweep this concern aside by pointing out that RCTs may be difficult in improvement research. Researchers can deploy stronger alternatives to before and after studies in addition to standard cluster RCTs. Time series, non-randomised designs with contemporaneous controls [2] and step-wedge cluster RCTs [3] instance. Second, while the effect on satisfaction seems robust, the fact that non-avoidable adverse events declined in parallel with adverse events caused by error is evidence in support of the hypothesis that the changes seen in adverse event are part of a temporal trend rather than a result of the intervention. Third, the theory that this intervention should reduce adverse events due to error is not strong and has to rely on some fairly nebulous reasoning about 'accident chains'. However, the effect on communication has high face validity; in Bayesian terms one might expect an enthusiastic prior for an effect on satisfaction. There must be greater uncertainty regarding the finding of a reduction in adverse events. Fourth, the measurement of errors and adverse events was not entirely third party, but included data collected by participants meaning that it could have been 'reactive' (there could have been in interaction between the phase of the trial and the measurement obtained).

Would I have recommended publication had I been a reviewer? Certainly, but I would have urged greater caution regarding the putative causal effect on errors.

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Calorie Content of Meals from Fast Food and Sit-Down Restaurant Chains

Richard Lilford, ARC WM Director

I think I am correct in saying that a sedentary adult requires about 2,400 kcal per day (higher in young men/lower in old women). So you will be alarmed to see how little you need to eat to get your daily energy requirement. In an interesting study Robinson and colleagues compare the mean kcal content of restaurant chains.[1] I hate fast food but it turns out that their meals are lower on energy than those from full service restaurants. While the former have a mean kcal content of 751, the full service outlets have a mean of 1033. The highest value for fast food outlets was 987 at Kentucky Fried Chicken and for full service restaurants the corresponding value was 1358 at the aptly named Hungry Horse. The lowest values (best?) restaurants were Ask and Zizzi at 790 and 735 kcal respectively. I would like to see this analysis extended to up-market restaurants such as *Craft London* or *Le-Gavroche*.

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A Useful Summary of Unintended Consequences and Backfires

Richard Lilford, ARC WM Director

We researchers love unintended consequences; well-intentioned actions that backfire. Unintended consequences refer to any effect that is different to the intended effect. Backfires refer to an effect opposite to that which was intended.

A recent BMJQS editorial gives very useful lists of unintended consequences and backfires in the social world in general and in healthcare in particular.[1]

There are some lovely examples of backfires in the social world. For example, three randomised controlled trials show that exposing juvenile offenders to prisons actually increases crime rates.

Another well-known example is the effect of fining parents for arriving late to pick up the children from nursery; this intervention increases late arrivals. An example not included, but covered in a past issue of the CLAHRC WM News Blog, concerns the effect of community groups for male youths at risk of antisocial behaviour, which increases the risk of criminal activity.[2]

In healthcare, numerous studies have shown that trying to decrease hospitalisation by identifying people at high risk before they seek health care, has the opposite to the intended effect. An example that I did not know about concerns provision of free condoms for sex workers. This can actually increase the risk of sexually transmitted infections by creating a premium for unprotected sex. An example that I love concerns providing a financial reward on production of dead cobras to counteract the scourge of snake bite in India.[3] This encouraged the breeding of cobras in order to elicit the reward. The hapless cobras were subsequently released following withdrawal of the failed initiative! It also turns out that disclosing conflicts of interest perversely

increases the bias it is supposed to counteract. The ARC WM Director declares no conflict of interest!

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Health Effects of Running

Peter Chilton, Research Fellow

Many health guidelines recommend that people should spend at least 150 minutes each week exercising, and numerous studies have shown an association with benefits to health. Running is one of the most popular forms of exercise in the UK, with an estimated 7.1 million adults going for a run at least twice a month.[1] Authors from Australia looked at whether there were any associations between participating in running, the amount of time spent running, and mortality.[2] Using a systematic review and meta-analysis that pooled data from 14 studies (232,149 participants), they found that, compared to no running, any amount of running is associated with lower risk of all-cause mortality (27%), cardiovascular mortality (30%), and cancer mortality (23%). However, meta-regression showed that there were no significant improvement in mortality associated with higher frequency, duration, pace or total amount of running.

As it is an easily accessible form of exercise, not requiring any specialist equipment or venue, nor any particular skill, running should perhaps be encouraged by health professionals for the general population, even if it is just a short amount.

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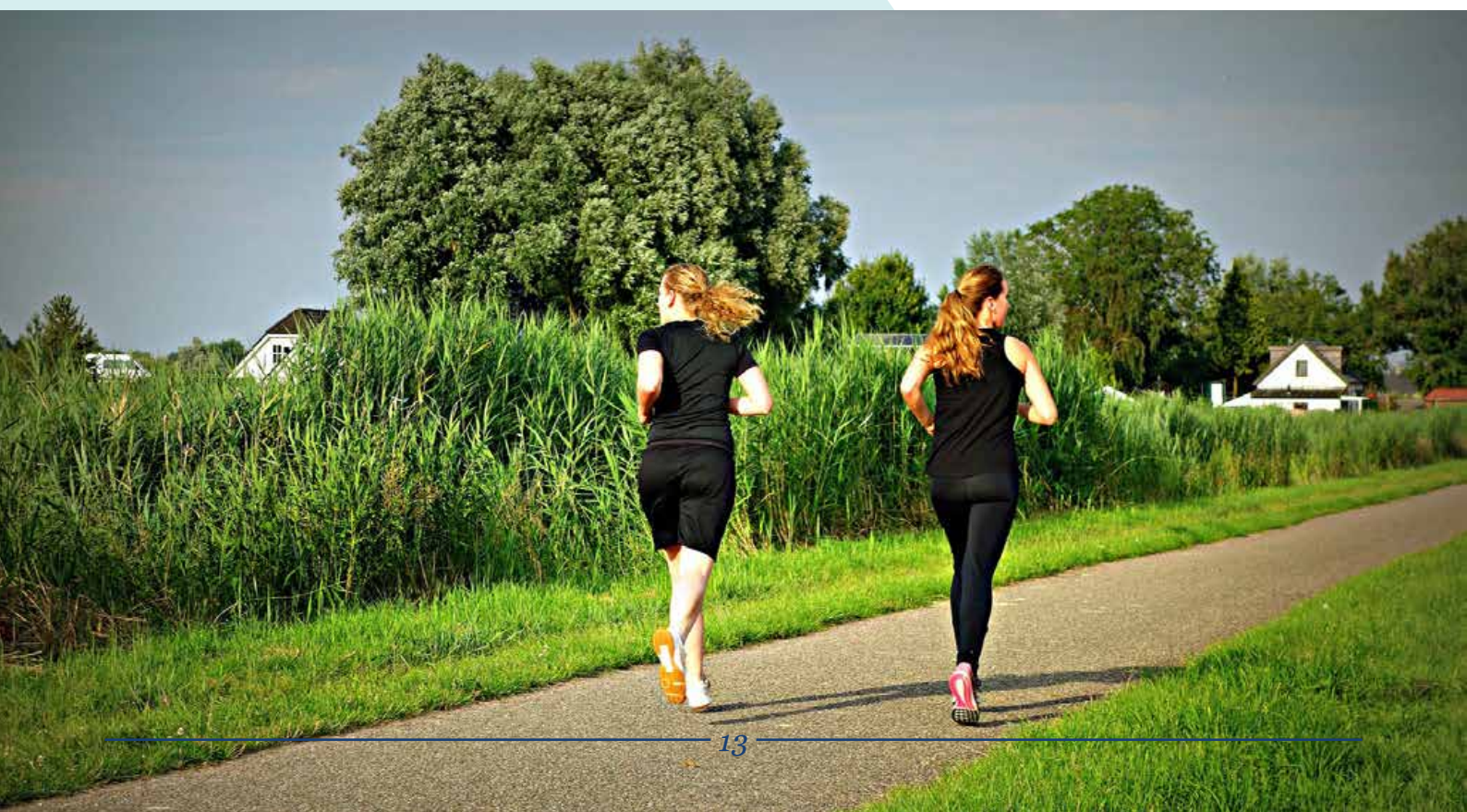
Update on Scientific Writing

Richard Lilford, ARC WM Director

Your last ARC WM News Blog featured an article by me on good scientific writing.[1] My friend and colleague, Andrew Stevens, asked how I could possibly tackle such a subject without drawing on Steven Pinker's 'The Sense of Style'.

Andrew was quite right; it is a superb book, and I recommend it. Like me, Pinker has no time for postmodernists, and he also intensely dislikes the use of quotation marks to distance the writer from a concept or idea that does not fit the prevailing paradigm. Pinker produces a lovely piece of irony as follows: "Post modernism rejects the possibility that any word can refer to anything or that there is an objectively existing world for words to refer to. Hence the headline in a satirical newspaper on the death of the postmodernist: "*Jacques Derrida 'dies'.*"

Reference:

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ARC WM Quiz

Who invented the **ventouse**, a device that assists delivery of a baby?

email your answer to:
ARCWM@warwick.ac.uk

Answer to our previous quiz: Two grandchildren of former US President **John Tyler** (President of the United States from 1841-1845) are still alive today. John Tyler was born in 1790 and was 63 when Lyon, his youngest son, was born. Lyon Tyler's youngest sons were born in 1924 (Lyon Jr) and 1928 (Harrison).

Congratulations to Magdalena Skrybant and Jan Skrybant who were first to answer correctly.

CC BY-SA 4.0 Bruce Blaus
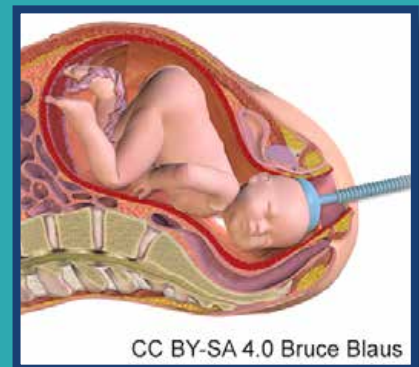
Latest News and Publications

Statistical Christmas Carol

Dr Celia Brown, University of Warwick, has created a statistics-based version of a popular Christmas carol, which has been featured in the latest issue of Significance, the magazine of the Royal Statistical Society. You can read it (and sing-along) at: rss.onlinelibrary.wiley.com/doi/10.1111/j.1740-9713.2019.01345.x.

Job Opportunity - Senior Manager

A job opportunity is available within the **NIHR ARC Oxford and Thames Valley** as a Senior Manager, providing effective project management for the ARC programme and themes, supporting theme leads and liaising with research teams.

Closing date for applications is 12:00pm, **Monday 6 January 2020**. For more information, please see: https://tinyurl.com/s5lh68y.

Latest Funding Opportunities

Funding the Front Line

Have you identified a clinical challenge that you can solve, but which needs funds/support to succeed? The Wellcome Translational Partnership are holding a launch event detailing how to apply for up to £30k funding for projects that address real clinical needs. The event will take place in Birmingham on Tuesday 4 February 2020. For more details, please visit: www.fundingthefrontline.eventbrite.co.uk.

NIHR Public Health Research programme

- 19/133 Continuing priority research topics of interest to the PHR programme.

- 19/135 Interactive electronic devices and children and young people's wellbeing.

- Public Health Intervention Responsive Studies Team (PHIRST).

NIHR Efficacy & Mechanism Evaluation programme

- 19/136 Evaluating interventions for the diagnosis and treatment of autoimmune diseases.

- 19/137 Bipolar disorder.

- 19/138 EME programme, researcher-led.

- 19/139 Mitigation of the adverse effects of health and social care interventions.

Recent Publications

- Adderley N, Nirantharakumar K, Marshall T. Temporal variation in the diagnosis of resolved atrial fibrillation and the influence of performance targets on clinical coding: cohort study. *BMJ Open*. 2019; **9**: e030454.

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