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ARC West Midlands News Blog

29 January 2021
In our first article on this topic, we discussed social and possible genetic factors that predispose to an anti-science and conspiracy theory prone disposition.[1]

Then in a second article I took a more psychodynamic perspective, describing anti-science as a psychological defence mechanism, which people use to block out uncomfortable thoughts that challenge instincts or cherished beliefs.[2]

Now I go further and take a social evolutionary perspective. It turns out that humans do not tend to go from argument to conclusion, but from conclusion to argument; we reverse engineer our argument from our conclusion. The tendency to argue backwards from a conclusion is deep-seated.

This phenomenon has a name: the Social Institutionalist Model. And no, it is not the confirmation heuristic; it is not simply a subconscious bias whereby people (subconsciously) tend to select information that supports their prior belief. Rather, arguing backwards is a conscious activity that takes considerable mental effort; akin to that of an advocate defending a client. Further, more cognitively-able people are best equipped to make plausible sounding arguments to defend a cherished belief.

Numerous psychological experiments provide empirical support for the idea that people tend to reason backwards from their prior beliefs. In one study, academics were asked to produce an argument for and against a proposition in which they believed.[3] Their cognitive ability was measured, and the quality of the arguments was assessed blindly. Sure enough, there was a strong correlation between intellect and the blindly assessed quality of the argument. But this was only observed when the writer was defending their favoured position and rebutting expected counterarguments. When the writer was opposing their own belief, in devil’s advocate mode, the correlation between intellect and the blindly assessed quality of argument vanished.

Of course there can be a cost to maintaining an argument that has little going for it in terms of intellectual coherence and empirical support. But here is the crucial point. This cost applies when the belief informs a personal behaviour, such as financial decisions. When it comes to public decisions arising from issues such as global warming or COVID-19, an individual can maintain an illogical or disproven view at no cost to themselves. This difference between personal and public costs results in a difference between espoused and actual behaviour, which could be called hypocritical.
The fashion for anti-science fluctuates. During the 18th century period of ‘Enlightenment’ there was societal acclaim for rationality, only for this to be reversed during the subsequent ‘Romanticism’ period. But it is always latent. It comes to life in so-called lay epidemiology where one person’s experience is given equivalent weight to a careful scientific study. Or take this statement:

‘Healthy young child goes to doctor, gets pumped with massive shot of many vaccines, doesn’t feel good and changes – AUTISM. Many such cases!’

That was a tweet from Donald J. Trump.

Humans seem hard-wired to have latent, instinctive preferences. It can be shown that people have preferences for stories over numbers and data (as in Trump’s case). Our ancestors were story tellers; their communal knowledge was encoded in narratives. No wonder that people are so impressed by stories and will go to great mental effort to argue for ideas that are instinctive. And what can be so bad about arguing for one’s beliefs? Here people conflate how to reach an objective (an empirical/scientific issue) and which objectives to choose over others (which cannot be resolved scientifically). The anti-science movement often conflates these two ideas that should be kept separate; one a question of probabilities informed by evidence, and the second a question of preferences informed by values.

In our next news blog I shall tackle the politics (small p) of tackling anti-science behaviour.

References:
W hilst COVID-19 is the main challenge that will be occupying much of our energy over the next twelve months, once we have sufficient vaccine coverage to return to a form of normality, adult social care will face a number of long-standing challenges. Sadly, on this occasion, science will not provide us with a sliver bullet to these complex problems.

A new funding settlement is of course a major priority, as it has been for at least two decades despite numerous proposals from all the major political parties when in government and five independent national commissions and reviews. When the current Prime Minister was elected in 2019, he promised to ‘fix’ the social care crisis, but there remains no concrete plans about what this fix will be or even the process to achieve it. Insufficient funding means that individuals and their families will experience poorer wellbeing with connected pressures on health and other services.

Similarly, despite commitment and skills of social care staff being celebrated during the pandemic, almost three-quarters of them continue to receive less than the “real” living wage. Such poor levels of pay contribute to the difficulties social care employers face in recruiting and retaining staff, with an estimated 1 in 11 posts unfilled. Without radical reform this will only worsen, as the sector will need to recruit up to 900,000 more people by 2035. Brexit is also likely to have a major impact, with 100,000 EU nationals working in adult social care at the end of 2020.

But despite these challenges, there are reasons for optimism as we emerge from the worst of the pandemic.

Firstly, during the past twelve months there has been heightened public outrage about social inequalities – in the way in which the lives of care home residents were treated as less important to freeing hospital beds, in the lack
of adequate meals for children living in poverty, and the higher death rates of people from BME communities to name but a few. Social justice is one of social care’s guiding principle, and this new level of awareness is an opportunity for us to push for sustained progress to tackle such disadvantage.

Secondly, the practical benefits of community action have been clearly evidenced and widely applauded. There has been a common pride across our society in the work of volunteers and charities providing social support to those who are vulnerable, delivering vital daily supplies, and reducing personal distress. Social care has long seen the importance of community resources and is well placed to support their further development and wider recognition by other professions.

Thirdly, the enforced social distancing has led to an acceleration in the use of digital technology in social care and social work. Forms of support than most would have thought unworkable are now being provided successfully through virtual means. This demonstrates that such innovation is possible – not for everything or everybody, but at a scale and pace much greater than we were willing to consider before.

Fourthly, we have been reminded of the vital importance of a dynamic relationship between research and policy to facilitate timely and appropriate decision making. This has not been sufficiently robust in adult social care in the past, arguably leading to missed opportunities to use the scant resources available as effectively as possible. This underlines the relevance of applied research bodies, such as Applied Research Collaborations, to improving the quality and outcome of social care.

So, despite major challenges, there are reasons for optimism regarding the future of adult social care. Ensuring that research contributes to this future is a major priority of ARC WM. We are fortunate that both our practice partners, such as the regional branches of the Association of Directors of Adult Social Services, Skills for Care, and the Social Work Teaching Partnership all share this vision. This has been translated into our current research projects, which include exploring how local authorities can move to a strength (or asset) based model of support, and how local authorities can better work as peers to constructively challenge each other’s strategy and practice.

If you are interested in learning more about adult social care research in the West Midlands, please consider attending our upcoming summit event on Thursday 25 February 2021. The event will provide an opportunity for practice and research to meet, discuss and create together. For further details, and to register, please visit: eventbrite.co.uk/e/adult-social-care-research-in-the-west-midlands-tickets-129275513541.
The ARC WM Director was at junior school in the wake of the Second World War, where the most common question in the playground was ‘What did your father do in the war?’ It is becoming increasingly clear that COVID-19 is not going anywhere soon. From the start it was predicted that the virus would come under selection pressure, and already new strains are emerging that elude antibodies induced by vaccination or previous infection. All ARCs have adjusted their portfolios to help in the fight against the virus and the collateral damage it causes.

Here in the West Midlands we have developed an extensive range of projects across all of our themes, and they are all supported by our methodologists. We have listed these in the table, sub-divided by the broad topic. Thus, some are directed at the disease directly, for example concerning effectiveness of vitamin D prophylaxis, and factors affecting uptake of the vaccine. Others deal with collateral damage and build on or re-purpose our existing portfolio. Thus, we have an extensive set of projects dealing with virtual consulting. Perhaps our largest set of projects deal with the broad topic of admission avoidance, covering hospital at home, remote monitoring, and skill substitution. Our work on rough sleepers has been extended to monitor the effects of the pandemic where we will work with Warwickshire county council. We are also proposing to start a piece of work on waiting list management, where we hope to bring in a health economics perspective.

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<tr>
<th>Project</th>
<th>Delivery of impact, and public health and care involvement</th>
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<tr>
<td>COVID-19 related systematic review on association between vitamin D and</td>
<td>Systematic review looking at evidence of any association between vitamin D supplementation or level and susceptibility to</td>
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<td>susceptibility.</td>
<td>COVID-19 infection, including clinical course, morbidity and mortality outcomes.</td>
</tr>
<tr>
<td>Tracking effect of COVID-19 pandemic on hospital care.</td>
<td>Analysis of hospital data to investigate the effect of COVID-19 pandemic has had on in-patient hospital care for various,</td>
</tr>
<tr>
<td></td>
<td>indicative conditions.</td>
</tr>
<tr>
<td>COVID-19 related systematic review on cardiac arrest and infection risk.</td>
<td>A rapidly <em>published systematic review</em> looking into whether chest compressions or defibrillation cause aerosol generation</td>
</tr>
<tr>
<td></td>
<td>and transmission of COVID-19 to rescuers.</td>
</tr>
<tr>
<td>Behavioural insights to overcome vaccine hesitancy in COVID-19.</td>
<td>A panel survey to find wording to maximise uptake of COVID-19 vaccine.</td>
</tr>
<tr>
<td>Effects of COVID-19 on ambulance call-out for heart attack / stroke</td>
<td>Media claimed that people with stroke and heart attack were not accessing care. Working with West Midlands Ambulance Service</td>
</tr>
<tr>
<td></td>
<td>we analysed long-term trends and <em>found no reduction</em> in call-out.</td>
</tr>
<tr>
<td>COVID-19 and hospital admission for heart attack / stroke</td>
<td>This hospital-based study again <em>showed no detectable change</em> in admissions for these conditions.</td>
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We know that many of our topics, the uses and abuses of virtual consulting for example or improving care and reducing hospital admission in care homes, are also live topics for other researchers at home and abroad. So we are keen to establish collaborations with peer ARCs and other research groups with special reference to developing competitive multi-centre protocols for competitive funding.

### Admission Avoidance

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<tr>
<th>Project</th>
<th>Delivery of impact, and public health and care involvement</th>
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<tr>
<td>Intervention to support homelessness (Everybody In).</td>
<td>We are developing an intervention for homeless people. (Warwickshire Health Authority.)</td>
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<tr>
<td>Development of user-friendly technology. (Originally ARC now industry.)</td>
<td>Organisational Science theme research into technology to link isolated older people to social care support, medical care and family.</td>
</tr>
<tr>
<td>Implementation of a package of enhanced support for care homes to improve health and reduce admissions.</td>
<td>A qualitative study of stakeholders' views and experiences. Aim to capture the experience of the enhanced care for care homes delivered with Birmingham Community Healthcare NHS Trust, Birmingham City Council.</td>
</tr>
<tr>
<td>Evaluation of service for children with rare diseases to reduce the need for hospital care.</td>
<td>We are evaluating implementation of remote monitoring, commissioned by NHS England's Highly Specialised Services agency, to support children with rare diseases during the COVID-19 pandemic.</td>
</tr>
<tr>
<td>Reducing hospital admissions from care homes.</td>
<td>Co-design and evaluation of a local intervention to reduce emergency admissions from care homes.</td>
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### Collateral Damage

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<tr>
<th>Project</th>
<th>Delivery of impact, and public health and care involvement</th>
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<tr>
<td>Implementation of remote consultations – reducing inequality of access.</td>
<td>BAME have lower access than other groups to virtual consulting. We are evaluating responses of people who have used these systems, stratified by ethnic group. (Primary care / industry.)</td>
</tr>
<tr>
<td>Investigation into inequalities in remote consultation access.</td>
<td>Analysis of routine data from University Hospitals Birmingham to describe factors associated with access to remote consultations.</td>
</tr>
<tr>
<td>Systematic review of remote consultations with focus on inequalities in uptake.</td>
<td>To support implementation of remote consultations by University Hospitals Birmingham, Birmingham Community Healthcare Trust, and Birmingham Women’s and Children’s Hospital.</td>
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</table>
Some time back now we featured an article on the advantages and disadvantages of integrated vs vertical – that is to say problem specific – health services.[1] We pointed out the drawbacks of working in vertical silos to manage just one problem when people do not come packaged like that. We argued for integration of vertical systems, such as HIV care, to become more integrated with mainstream services. We have also argued for integration across hospital and community and identified barriers and facilitators to cross sectoral working, harking back to the great Elinor Ostrom.[2] But here is the point; vertical programmes have been a spectacular success. They were the key to taming the HIV pandemic, eradicating polio, and preventing deaths from infant diarrhoea.

I serve on the steering group for a large study of vaccine delivery to children in a low-middle income country. The service is sub-optimal. And my interpretation of the data is that the service is too fragmented, with too many different types of health centre delivering vaccines. Here vaccination struggles to get priority in the face of people presenting with urgent problems, such as pain or fever that cannot wait. It is one thing to ensure adequate training, a functioning supply chain, and refrigeration in ten or twenty city outlets, but quite another across a hundred or more. So, I am arguing for more vertical integration of this poorly performing city wide vaccination programme. On the other hand, I am working with colleagues in India to evaluate a programme that seeks to integrate leprosy care into the mainstream. In fact this imaginative...
programme integrates care for the health and wellbeing of people affected by leprosy into the educational and civil administrative service, not just the health service.

So, when should services be mostly vertical (focussed) and when mostly horizontal (integrated)? In general, services should be integrated but there are circumstances where the focussed, vertical, approach is needed. First, in times of national emergency; get the problem under control and then consider how you want to continue. Second, when the vertical service is a poor ‘fit’ with the service as a whole (as in the city vaccination service mentioned above).

I think mass vaccination centres in England are highly consistent with this philosophy. The first seven centres opened in the first week and ten more came online in week two. Vaccination would otherwise have been painfully slow. Israel has had massive success thanks to mass vaccination centres. I understand that Israel has the further advantage of an excellent IT-based medical registration system so access can be controlled from one central point.

It is likely, perhaps inevitable, that the virus will mutate sufficiently to escape sensitivity to current vaccines that are based on earlier generations of the virus. Thus, recurrent rounds of immunisation will be required. At this point I predict that it will be necessary to gradually withdraw the vertical elements of the mass vaccination system and integrate all vaccinations into the primary care system. COVID-19 for the next few years may be treated in a similar way to ‘flu, with recurrent rounds of vaccination tailored to the prevalent strain. The difference of course is that COVID-19, unfortunately, is a virus for all seasons.

References:

ARC WM Quiz

Fritz Haber, who died on 29 January 1934, was awarded the Nobel Prize in Chemistry for the Haber Process - but what is it?

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

Answer to previous quiz: Cliodynamics is the discipline of theoretical historical social science, where unifying theories are developed and mathematically tested with data generated by history, archaeology and other specialised disciplines. It was coined by Peter Turchin - see here for more information.

Congratulations to those who answered correctly.
A recent JAMA commentary [1] summarised recent evidence that mortality rates for patients hospitalised with COVID-19 have dropped dramatically over nine months, sometimes by over half.[2] The data are standardised for age, so the lower mean age of hospitalised patients cannot explain the phenomenon. Much of the drop is due to better treatment such as use of non-invasive ventilation, and dexamethasone for patients with respiratory failure. Some is also due to community detection of asymptomatic hypoxia, which might result in admission of lower risk than would otherwise occur. Mortality rates correlate with overall prevalence. This may be because medical service quality suffers when pressure on services is very high and/or because inoculums tend to be bigger when epidemics peak (though the association between inoculum and severity remains unproven). Not mentioned is the possibility that the virility of the virus is declining due to natural selection of less virulent strains, as suggested in an earlier news blob on ‘super-infectors’. [3] That said there does not appear to be any reduction in virulence so far and we might yet see strains that are both more virulent and infectious.

References:
In the UK it is estimated that around 5% of people aged over 65, and 12% aged over 80, suffer from age-related macular degeneration (AMD) – the leading cause of irreversible blindness in adults.[1] As AMD progresses, the retinal pigment epithelium (RPE) of the eye gradually becomes more dysfunctional, alongside a loss of photoreceptors and degeneration of the retina. There are various risk factors that are well known, including age, weight, smoking and genetics. It has been hypothesised that ambient air pollution may also be a risk factor, and one which can be modified.

Researchers recently conducted a cross-sectional study where they analysed data from over 115,000 UK adults aged 40-69 years old, who were part of the UK Biobank community-based cohort study.[2] They found that those who were exposed to higher levels of fine ambient particulate matter ($\text{PM}_{2.5}$) (as measured using an established land use regression model focussed on each participant’s residential address) had higher odds of self-reported AMD (odds ratio 1.08, $p=0.036$), and those exposed to $\text{PM}_{2.5}$ as well as various other air pollutants, had worse measurements of various retinal structures, such as thickness of photoreceptor layer and RPE.

This study adds to the growing body of evidence for the negative impact ambient air pollution is having on population health. Although the result for AMD is significant, the effect is small and small biases can be more important when effect sizes are small. Further research may be needed to look into the possibility of a dose-response relationship.

References:
Previous evidence suggests that children whose mothers suffered from postnatal depression have an increased risk of emotional, behavioural and cognitive problems [1] that may continue into adulthood.[2] In particular, there is a worrying risk that such children will have problems with being able to regulate their emotions,[3] which has been linked to a variety of negative outcomes. Development of a child's emotion regulatory system relies on the quality of their interactions with their primary caregiver(s), and so a recent study in Canada looked at whether providing cognitive behavioural therapy (CBT) to mothers with postnatal depression could improve these outcomes.[4]

The researchers matched forty mother-infant dyads, where the mother had been diagnosed with postnatal depression, with 40 control dyads, where the mothers were non-depressed (matched on age and gender of infant, and socioeconomic status of family). As expected, baseline comparisons showed that infants of women with postnatal depression exhibited poorer emotion regulation when compared to the infants in the control group. The mothers who had postnatal depression then received weekly two-hour sessions of group CBT for a total of nine weeks.

Analyses found adaptive changes seen in both the brain and behaviour of the infants whose mothers received CBT, including improvements in their nervous and cardiovascular systems (measured by electroencephalography and heart rate variability respectively), and improved regulation of behaviours and emotions (as observed by both their mother and her partner). There were no significant changes in the infants of the control group. After the intervention period, the improved brain activity in the infants in the CBT group was now comparable to that seen in the control infants. CBT was showed to be a cost-effective option that has the potential to reduce the transmission of risk from mothers suffering postnatal depression to their child. One of our themes at ARC WM is Youth Mental Health, and this study is worth noting due to it demonstrating the effect external circumstances may have on the development of the brain, to the point that it can be detected by imaging and electrophysiology.

References:
 recent Publications


West Midlands Healthcare Awards - Nominations Open

Nominations are now open for the prestigious West Midlands Academic Health Science Network (WMAHSN) Meridian Celebration of Innovation Awards. For five years this awards programme has been celebrating individuals and organisations that are revolutionising healthcare in the West Midlands with new ideas, technologies, and initiatives. Last year our Birmingham Symptom-specific Obstetrics Triage System (BSOTS) won the Patient Safety and overall Meridian award for Innovation.

Any organisation or individual from across the healthcare, enterprise, academia, or not-for-profit sectors can enter, but they must have worked on a project with WMAHSN, or one of its expert networks, to qualify.

Entries can be submitted via the Meridian Innovation Exchange website: meridian.wmahsn.org. The deadline for submissions is Friday 5 February 2021.

Social Care Summit

ARC West Midlands are holding an online Social Care Summit on Thursday 25 February 2021. The event will focus on adult social care in the West Midlands and will provide an opportunity for practice and research to meet, discuss and create together. For further details, and to register, please visit: eventbrite.co.uk/e/adult-social-care-research-in-the-west-midlands-tickets-129275513541.

Call for Abstracts- PROMs UK Conference 2021

The call for abstracts is now open for the 5th National Patient Reported Outcome Measures (PROMs) Annual Research Conference, which is being held virtually on 16-17 June 2021. The deadline for abstract submissions is Monday 8th February 2021.

HealthChat with Samantha Riley

Samantha Riley, Deputy Director of Intensive Support, is speaking at an upcoming HealthChat on Tuesday 23 February 2021, hosted by the Institute of Healthcare Management.

Samantha has over 20 years experience in the NHS, and is passionate about ensuring that the NHS makes the best use of its data; a fan of Statistical Process Control (SPC) and hater of RAG reports; lead author for Making Data Count; and is a successful grant holder for the RAGs to Riches project.

Tickets to the event are £12 and are available at: eventbrite.co.uk/e/healthchat-with-samantha-riley-tickets-135858435237.
The January issue of the national NIHR ARC newsletter is now available online, including pieces on out-of-hospital cardiac arrest, coeliac disease, and parental mental health during COVID-19. There are also a number of blogs and details of upcoming events.

To subscribe to future issues, please visit: https://tinyurl.com/ARCsnewsletter.

Prof Richard Lilford, ARC WM Director, is co-chief investigator alongside Dr Semira Manaseki-Holland on a recently awarded £2m grant from the UKRI. The Mali-based health project will encourage families to change their food safety and hygiene behaviour in order to reduce the incidence of diarrhoea and pneumonia among children, with a particular focus on children transitioning from breastfeeding to eating food – these youngsters are at most risk as complementary food becomes contaminated.

Experts will use culturally relevant dramatic arts – including drama, songs and stories – as well as public meetings and home visits to engage with tens of thousands of people living in 60 rural villages and 60 urban communities in urban and rural Mali during the three-year project.


The latest round of the Development and Skills Enhancement Award is now open. This post-doctoral opportunity is available for individuals who meet the criteria to be an NIHR Academy member and is open three times a year. Those wishing to develop skills and experience in entrepreneurship and working with industry; health data science; and/or clinical trials, are particularly encouraged to apply.

Deadline for applications is 31 March 2021 and the maximum duration of the award will be one year and may be taken up on a part time basis of between 50 and 100 WTE%.

Further information, and how to apply, can be found at: nihr.ac.uk/funding/development-and-skills-enhancement-award/26427.