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Describing Implementation Science

Richard Lilford, ARC WM Director

Implementation science is thoroughly in fashion; citations in PubMed using the term have risen exponentially – from four published in 2006 (the first year the term was used) through to approximately 420 in 2014, and reaching almost 7,000 by 2022. Some of this rapid increase may reflect a change in usage, whereby projects previously described as '*health service research*' are now described as '*implementation science*'. Nevertheless, the use of a verb in the latter term is important since it denotes some kind of action. This personal view concerns how we describe the action.

Implementation researchers are encouraged to provide detailed descriptions of interventions. For example, the Medical Research Council states "*studies should include a detailed description of the intervention to enable replication…*",[1] while the TIDiER guidelines state that "*without a complete published description of the intervention other researchers cannot replicate…*".[2]

Admittedly, guidelines acknowledge the frequent need to adapt interventions from one place to another. But the pervading opinion is strongly in favour of detailed description of an intervention so "*that others could reproduce it.*"[3] A recent intervention described in BMJ Quality and Safety ended up with 15 intervention components.[4] It is the purpose of this blog to argue for an alternative approach – for a minimalist description of an intervention. The essential details and principles should be described, leaving the details to local discretion. How can I defend this idea, when it runs counter to the prevailing principle and practice of implementation science?

My point of departure is based on observations of what service managers do in practice. Exhortation in favour of detailed descriptions assumes that, when the intervention is replicated in another place at another time, it will be implemented in its totality. However, observations of practitioners shows that this is not how they behave. Practitioners follow "mindlines" and do not follow step-by-step guidelines.[5] View the board papers of any NHS hospital (which are available online) and you will find scant attention to the details of any proposed intervention. By way of an analogy, service managers behave like experienced chefs, taking a cue from the recipe but not following it with meticulous fidelity. Why then, reify detailed intervention descriptions when the detail will not be followed?

The above argument suggests that providing extensive detail is otiose – serving no useful purpose. But there are also reasons to suspect that extensive detail may be harmful. Such detail could be seen as disempowering. Thus, a separate stream of thought has arisen outside of the 'implementation science' fraternity that sees positive advantages in a minimalist approach. Such an approach can be called a 'strengths-based' or 'assets-based' approach in that it seeks to harness or activate strengths/assets that already exist in a community of practitioners or citizens. Far from specifying the detail, such 'assets-based' approaches actively encourage innovation. A good example of the assets-based approach arose during Barack Obama's first presidential election campaign.[6] Rather than specify the intervention to get the rate out across the country in precise and detailed terms, Marshall Ganz asked various campaign groups in different parts of the country to work in teams and devise bespoke methods suited to

their particular context; church groups in one place, social networking sites in another. The psephological problem that Ganz confronted is similar to many service and health improvement projects, where a "one size fits all' solution is judged to be inappropriate, but where policy makers want to prompt local service providers or communities into action. Many highly successful policy delivery and service interventions take such a minimalist approach, leaving service providers free to decide how to implement the intervention. 'Women's groups' in Asia and Africa archetypically exploit this philosophy,[7-9] and it has also been used to improve the health of female sex workers in Zimbabwe [10]; prevent childhood obesity [11-13]; improve emotional wellbeing of secondary school children [14-16]; promote urban health [17, 18]; and, with less success, reduce recidivism in young men.[19]

At this point, the reader may discern a flaw in my argument. How is the reader of an evaluation to make sense of the findings if the intervention description is based on essential principles shorn of the detail that may determine its effects? However, a moments reflection shows that exactly the same principle applies to a detailed intervention description; no matter how much detail is provided, the implementation might have deviated from plans. Both of these issues can be dealt with in another way; by providing a description of the implementation. The implementation might be minimalist or maximalist; either way the implementation must be observed to find out how it played out locally. The implementation is the first downstream effect on the causal chain linking intervention as described and promulgated to service user outcome achieved. To carry my analogy to its conclusion – in judging a recipe, it is necessary to examine the cooking, which can enhance the effect of a minimalist recipe or ruin outcomes from a detailed recipe. Examination of the implementation might show that the way an intervention works is completely different to the way the designers thought it may work, as in the famous Michigan intensive care unit example.[20]

Thus, I advocate some loosening up on the current insistence on detailed intervention description. But there should be no relaxation of the requirement to conduct detailed examinations of intervention processes. The latter should be go beyond the question of whether the intervention was delivered with fidelity to the intervention description. Examination of the implementation should seek to reveal all the actions taken to overcome barriers and exploit facilitators. Intervention descriptions can be relaxed to include the essence – the things that are really important and that are specific to the intervention. In such cases, intervention description can be very short – for example, concerning an incentive and payment to achieve a target threshold. In other cases, it may have to include a lot more detail – for example, a multi-component behavioural intervention to improve hygiene for village children when they are weaned. Either way, the intervention description should include only the essential elements, leaving plenty of scope for local managers to use their expertise in implementing interventions. The implementation process should be studied in detail, along with all the other potential downstream effects.[21]

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ARC Reformation Committee

Richard Lilford, ARC WM Director

In anticipation of the future, we in ARC West Midlands have embarked on a process of consultation to help make sure that our programme of work remains responsive to the needs of the services. This consultation is informed by a stakeholder group, which we call the '*Reformation Committee*'. Ultimately it will advise on the shape of any new Applied Research Collaboration for which we may apply. We likened it to the committee a candidate forms when they decide to run for presidency of the United States! The important feature of our committee is that it is constituted of service managers / policy-makers, and public member representatives.

We feel that it is important to refresh our work plans for the remainder of our ARC, to ensure that we continue to meet the changing needs of our stakeholders and the research landscape, especially in light of the COVID-19 outbreak. By analogy, the service dog will wag the research tail! To this end, the remit of our Reformation Committee is to advise on the proposed work programme of ARC WM and suggest any strategic changes that may be required. Our initial tranche of projects have largely been completed and it is time to consult on the future programme.

Of course, we are not starting with a clean sheet of paper. We are bound by two constraints: existing ARC staff hold contracts, and the time remaining under the existing funding envelope is too short to support new appointments – good candidates will not apply for short contracts in a sellers' market. That is not to say that there is no scope for change. First, the normal 'churn' in posts will create some new opportunities. Second, participating organisations may offer co-funding in collaboration with the ARC. Third, and most important, the projects undertaken by existing staff are not crystalised and the Reformation Committee can help establish priorities from a long-list of possible projects. Lastly, the Reformation Committee will continue its work and provide essential guidance when we come to craft a potential new ARC application.

The third meeting of the ARC WM Reformation Committee will take place on 2nd February. Members include representatives from local authorities (public health and social care), NHS service organisations, and public representatives (including Health and Wellbeing Boards). We have also invited members of the newly formed Integrated Care Boards (ICBs). ICBs are legal entities through which most NHS funding flows and they have responsibility for developing plans for meeting the health needs of their local population, managing the NHS budget and arranging for the provision of health services in the area.[1]

Theme leads will introduce their plans and the committee will comment on proposals and provide a sense of priority. We will not ask for a vote, as in a grant award committee, for a number of reasons. First, the existing list of proposed topics reflect ongoing engagement with services, most of whom will not be present at the meeting. Second, the value of a project often only emerges when a detailed programme is written – only at that stage will potential lethal flaws become apparent. Third, proposers will not have done literature reviews in all cases, and sometimes a potential research project metamorphosises into a knowledge management project. Thus, the

priority setting process takes on the form of an iterative process unfolding over time (see Figure below). The deliberations will also be informed by NHS England and NIHR priorities (see Table on following page).

One outcome of our deliberations will be a strategic document that we will present to the ARC WM Steering Committee, which has an independent chair and which holds the director accountable to the funder.

Interested readers can find a list of existing ARC WM projects through our website at: arc-wm.nihr.ac.uk/impact/project-tables/

In addition, we have published a series of articles on the theory and practice of ARCs: arc-wm.nihr.ac.uk/reflections.

Figure: *Process to Inform Priorities for Implementation and Research*

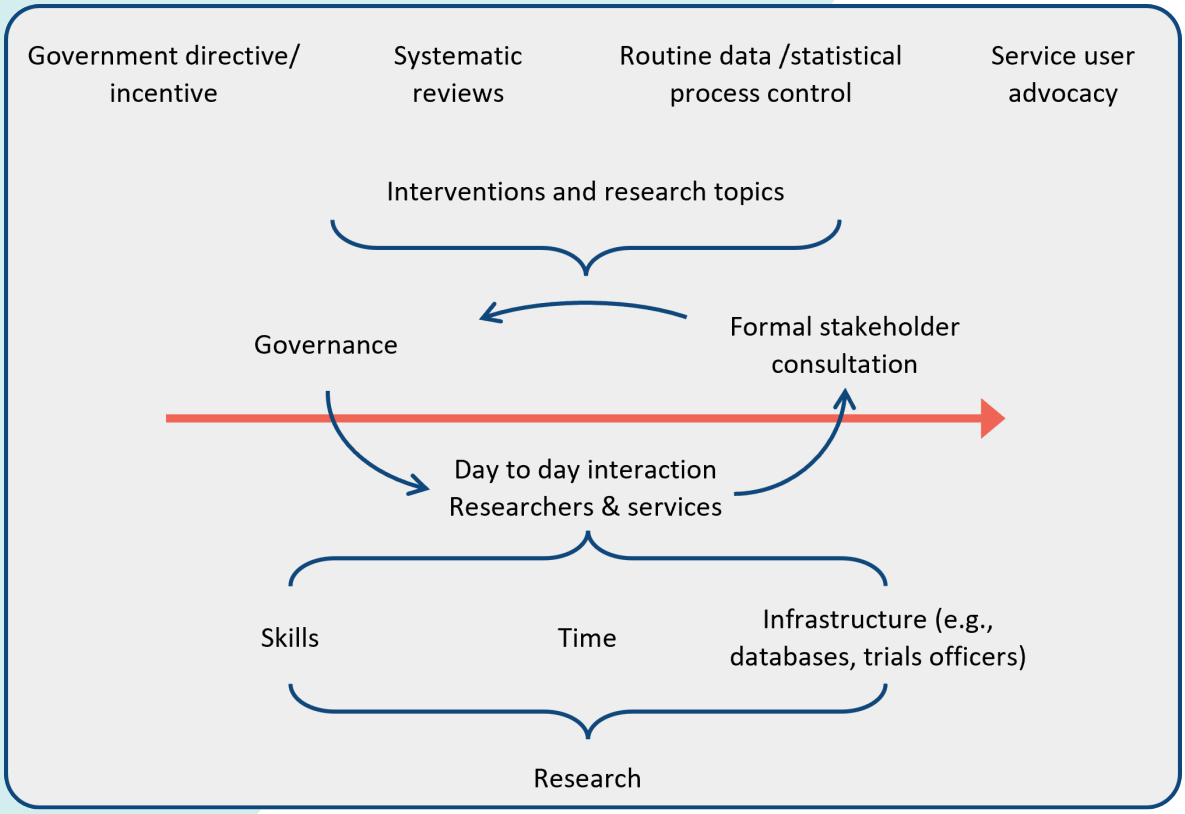

Table: *NHS England and NIHR Priorities 2022*

Department of Health & Social Care's Area of Research Interest [2]	NIHR Key Research Priorities [3]
Early action to prevent poor health outcomes	Building on learning from research response to COVID-19 and support the recovery of the health and social care system
Reduction of compound pressures on NHS and social care	Building capacity in preventative, public health and social care research
Shaping and supporting the health and social care workforce of the future	Improving the lives of people with multiple long-term conditions
	Bringing clinical and applied research to under-served regions and communities with major health needs
	Embedding equality, diversity and inclusion across NIHR's systems and culture
	Strengthening careers for research delivery staff and under-represented disciplines and specialisms
	Expanding our work with the life sciences industry to improve health and economic prosperity

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ARC WM Quiz

Thomas Willis, an English doctor born on 27 January 1621, coined which medical term after noting the sweetness of patient's urine?

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

Answer to previous quiz: The first person to warn about global warming was Swedish scientist **Svante Arrhenius** who, in 1896, estimated the extent to which increases in atmospheric carbon dioxide are responsible for the Earth's increasing surface temperature.

Social Isolation, Loneliness, Their Relationship to Health and Well-Being, and What May Be Done About It

Richard Lilford, ARC WM Director

News blog readers who have followed us over our 15 years of existence may remember that one of our first feature articles concerned the problem of loneliness. [1] I thank News Blog reader, Paramjit Gil, for drawing our attention to a recent article on the problem of loneliness in the New England Journal of Medicine.[2]

The authors cite extensive literature on the relationship between loneliness and physical health. There is a strong association between loneliness and both physical and mental health. The existence of a causal arrow from loneliness to health is supported by the discovery of biological mechanisms underpinning such a relationship. For example, immunity is reduced under conditions of loneliness and social isolation. And of course, the authors recognise that loneliness is a bad thing, net of any medical or health effects. We need social interaction to promote our general sense of worth and well-being.

If the article brings out a point that I had somewhat neglected in my previous News Blog feature, it is that loneliness can occur at many life stages, not just in old age where it is hard to get about and where many of your friends and family will have died. Indeed, ARC WM is planning a study on reducing loneliness of 'freshers' in universities.

But what can be done about the problem? The authors cite a meta-analysis including 106 RCTs of psychosocial support.[3] They find this intervention increases the likelihood of longer survival by nearly a third. The authors mention the importance of social prescribing, a topic also emphasised by policy makers consulted as part of ARC WM's ongoing consultation initiative. Social prescribing relies on networks of voluntary and statutory agencies to connect lonely people to social resources. It is thus a programme in which health and social care need to collaborate.

The New England article also points out that healthcare providers must themselves remain interconnected and avoid social isolation within the workplace. Indeed, the importance of social professional networks was emphasised in an article in our previous News Blog.[4] And we will return to this theme in a forthcoming article on the Harvard Adult Development Study.

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Wellbeing and Income: New Evidence That There is No Asymptote Where Further Wealth Causes No Further Gain in Wellbeing

Richard Lilford, ARC WM Director

The standard teaching is that wellbeing rises with income, but only to an asymptote of around $75-80,000 per year, after which there is no further gain in wellbeing with increasing income. A new study by Killingsworth, however, suggests that this is not so.[1] Instead they found a continued increase in wellbeing with no plateau; indeed, the rise in well-being is linear when plotted against the log of rising income.

What is different between this study and its widely cited predecessors?

First, as stated, they use a log scale of income; the slope would not be linear using natural units. Second, they have a massive sample of 1.7 million observations from 33,000 employed adults in the United States. Third, most other studies measure satisfaction with life, rather than experienced wellbeing. This study can get at experienced wellbeing because rather than asking a person to remember their state of happiness, they used smart phone technology to collect real-time reports of experienced wellbeing. Fourth, they measured experienced wellbeing on a continuous scale on dozens of separate occasions per person.

Although experienced wellbeing increases across the monetary scale, it does so less steeply than for well-being in terms of life satisfaction.

Interestingly, in a nested sub-study, they found that higher income was associated with lower levels of negative feelings and higher levels of positive feelings. That said, improvement in wellbeing with rising incomes below $75k were driven mostly by reduction in negative feelings, while improvements above the $75k threshold were driven by increases in positive feelings. These observations at an individual level mirror those at a country level, where wellbeing also continues to rise among higher income countries if a log scale is used.

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The Value of Lives That Do Not Exist

Richard Lilford, ARC WM Director

News Blog readers may remember a post concerning the ethics of the treatment of infertility.[1, 2] If so, you will remember that the return on investment in infertility treatment depends on philosophical assumptions. If value is attributed only to benefits experienced by the parents, then treatment offers poor value for money, except in rich countries where the opportunity cost justifies the expenditure. However, more countries can afford this treatment if the productivity of the future child, who would otherwise not exist, is taken into account. Further, if the value of the child itself is included, even discounted over a normal life span, then even the poorest country can afford infertility treatments.

I mentioned that this raised the thorny problem of valuing a life that never existed. I pointed out that funding contraception has negative value if one includes the value of the life that would otherwise have existed.

For those who would like to investigate the philosophy of this conundrum, concerning the value of a potential future life, I recommend an article in the Christmas special issue of the Economist.[3] In this article the idea is put forward that a future life is neutral, and therefore it would not need to be taken account in a value calculus regarding fertility or contraceptive practices. The argument here is that it is impossible to apply a value to something that does not exist. However, philosophers like Derek Parfit, cannot leave the argument there. This is despite the so-called repugnant conclusion. This conclusion holds that if we take seriously the values of future lives, then we must maximise the world population up to the point that most lives are not worth living; that they are worse than death on average.

Personally, I take the neutrality position. In my view we have an obligation to future generations, only because we know there will be future generations who can have better or worse lives. But we have no obligation to maximise the size of that generation and that we are not doing harm to potential lives by not creating such a life. To argue otherwise, would be to assign turpitude to couples who limit the family size or decide not to have any children at all.

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Sharing Our Gut & Oral Microbiome with Others

Peter Chilton, Research Fellow

We already know of the importance of the human microbiome (the 10-100 trillion symbiotic microbiol cells that primarily reside in the gut) on our health. While mother-to-infant transmission has been shown in numerous studies, a new study in Nature has found evidence of transmission between other individuals.[1] Using data from nearly 10,000 human meta-genomes, the authors were able to detect over 10 million instances where bacterial strains had been shared across individuals – while mother-to-infant (0-3 year-old) sharing accounted for the highest rates, there was also significant sharing between members of a household (the extent of which was enhanced by the length of time people had lived together) and between members of the local population. Sharing rates were significantly higher among members of a household than the population, suggesting that sharing was due to transmission rather than similar environmental conditions.

This evidence of extensive person-to-person transmission suggests a non-negligible effect of social interaction on shaping our microbiomes, and a possible role in associated diseases.

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Effect of Green Environment on Components of Breast Milk

Peter Chilton, Research Fellow

We have looked in previous News Blogs at the positive impact a green environment can have on a person's mental health,[1, 2] as well as their physical health. However, there are still questions over the mechanisms through which these benefits occur. A recent study in Nature's Scientific Reports has suggested one possible mechanism through breast milk.[3] The authors looked at data from almost 800 mothers in Finland, and showed that there was a link between the diversity and concentration of human milk oligosaccharides (HMOs) in their breast milk, with increased diversity of vegetation cover and the extent of human impact in their environment (naturalness index). Data were adjusted for a number of variables, including education, smoking, lactation time, birth weight, etc).

HMOs are a group of complex carbohydrates that are the third largest part of breast milk, and have been shown to have immune- and gut microbiota-related health effects on infants. However, the total amount and exact composition of carbohydrates various considerably, based on genetics and environmental factors, including, it seems, the local flora.

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Should I Get Involved in Social Care Research? "Just Go For It!"

Caroline Jackson, Research Fellow

"*The more opinionated you are, the better!*" says Rhys from Hartlepool. Tracie from the Community Led Inclusion Partnership in Hartlepool agrees: "*Don't leave it up to someone else to speak on your behalf!*".

Rhys and Tracie are part of a group of people with lived experience of Community Led Support who are advising researchers on a project that is being led jointly by the University of Birmingham and King's College London. The research is looking at the Community Led Support programme, run by the National Development Team for Inclusion (Community Led Support - NDTi), and is part of the National Priorities Programme for Adult Social Care & Social Work funded by the NIHR. This National Priority Programme is led by ARC Kent, Surrey and Sussex, whilst the ARC West Midlands leads on its public involvement. As two of the project's lived experience advisory group members, Tracie and Rhys each spent time chatting with Caroline Jackson (one of the research fellows on the project team) about their experiences of getting involved.

Tracie recalls that she saw an advert saying that researchers were looking for people to support the project: "*My advice to anyone else who sees [such] an advert would be to say 'yes!' and then spend time talking to the actual researchers, not just whoever sent you the opportunity, so you can find out more and decide if it is the right thing for you*".

Rhys adds that he is glad he got involved: "*Hearing how other people experience different things is important. We have people with different needs involved in the group. I work with lots of people who have mental health needs, so to learn from others with different needs, like physical disabilities, but who still get involved with Community Led Support, is interesting*".

They both also reflect on the importance of doing something that could ultimately help support change and development in the sector. "*Community Led Support is close to my heart and if people don't get involved we are not getting the right sort of research [to] happen,*" says Tracie. Rhys mentions that: "*This group is a bunch of people who have something to say about something that might affect me, so I want to input as well*".

Rhys acknowledges that he is mostly a '*yes person*', so it was a '*no brainer*' to get involved. He says there were a few nerves meeting new people at the first meeting but that everyone made him feel comfortable. Tracie was glad of the opportunities to ask the researchers questions about what the project meetings would be like before she got involved, so she knew what to expect. When asked whether getting involved was what they thought it would be, both Rhys and Tracie said that it was '*straightforward*' and having a chat with one of the researchers beforehand was helpful. They tell Caroline that it helped to understand things like how much they would be paid and how

that would happen, how many people would be in the meeting and who they were, so they weren't in the dark. Of course, you never know what the dynamic of a group is going to be or how the group would flow but happily, from both Tracie and Rhys' perspectives, that has all been okay. When asked what he would say to anyone else wondering whether to get involved as a public contributor to research, Rhys is clear: "*I would say to anyone to 'just go for it' and get involved*".

The researchers on the project agree with both Rhys and Tracie about the importance of having people with lived experience engage with the research: "*The public contributors in the group make us consider things that we might not otherwise have thought about,*" says Caroline. "*We have learnt from the group members' own personal experiences of community led support and their opinions on what is important. They have helped us see aspects of the project from a different angle and made us think about particular things we might want to look for in more detail when working with case study sites. We feel privileged to have their input and are grateful to the group for being willing to share their views with us*".

So, if you are considering getting involved in social care research, perhaps it is time to take that step and find out more. It might be something you enjoy being part of, as well as influencing important work in the field. If you want to find out about future opportunities, please contact Magdalena Skrybant from the ARC West Midlands at: m.t.skrybant@bham.ac.uk.

Ethnic Health Inequalities in Maternal and Neonatal Health

Amy Grove, Professor of Health Technology Assessment and Implementation Science
Laura Kudrna, Assistant Professor

Dr Abimbola Ayorinde, Assistant Professor in our Public Health Theme at Warwick Medical School, recently made headlines for her work on ethnic health inequalities in maternal and neonatal health.

The NHS Race and Health Observatory report describes how few maternal policies have been developed by hospital trusts to address ethnic health inequalities across maternity care. Authors identified a lack of a national, central focus; a lack of diversity in research; and a lack of national commitment, which all contribute to this issue. Dr Ayorinde, said: "*Ethnic inequalities in maternal and neonatal health is a very important issue. It was disappointing that in over 40 years of published evidence we only found 19 interventions aimed broadly at tackling ethnic inequalities. This suggests paucity of robust evidence as well as lack of clear records of interventions in this area. The report highlights recommendations for various stakeholder groups and we hope that each party would play their part to ensure we achieve the much-needed improvement going forward.*"

This work was commissioned in partnership the University of Liverpool.

More information is also available at the RHO press release: nhsrho.org/news/new-research-identifies-gaps-in-ethnicity-research-in-maternal-care/

This report was also covered in the News section of the BMJ (bmj.com/content/379/bmj.o2964)

In addition, an explainer video of the key findings can be accessed at: https://youtu.be/FPkdEnObgZs.

Further, ARC WM is now involved in further work specifically focussing on identifying interventions to improve communication with ethnic minority pregnant people. There are language and communication barriers in maternity care that affect inequalities in health and we aim to identify what has been done to address these. The work is being conducted with London School of Economics and funded by NHS Race and Health Observatory.

Patient & Public Involvement in Research: Drop-in Sessions

If you have any questions on involving patients and the public in research, then you are welcome to come along to one of our online drop-in sessions for tailored advice for any stage of research and any level of experience.

Upcoming dates are:

- Wed 8 February, 11:00-13:00
- Fri 15 March, 09:30-11:30.

Book a slot via email: PPI@contacts.bham.ac.uk.

Congratulations to Prof Swaran Singh

Congratulations to Prof Swaran Singh, our theme lead for Integrated Care in Youth Mental Health, who was recently awarded the Inspirational Cross-Sector ED&I Leader award at the NHS Staff Network - Asian Professionals Network Alliance (APNA) Awards.

Successful Multidisciplinary Teams - Upcoming Webinar

The Social Care Institute for Excellence, in collaboration with the Improvements Analytics Unit (a partnership between NHS England and the Health Foundation), and the University of Birmingham, are hosting a webinar to share findings and practical insights on what leads to a successful Multidisciplinary Team, from research and the experience of local areas who have sought to be innovative in their approach.

This webinar offers an opportunity to hear about and discuss various aspects of MDTs, including what differences they can make to outcomes; and key factors that lead to a successful MDT.

The event will be held online on **Wednesday 8 March at 11:30**. For more information, and to register, please visit: scie.org.uk/integrated-care/workforce/role-multidisciplinary-team/webinar-2023-03.

National NIHR ARC Newsletter - Best of 2022

The January issue of the national NIHR ARC newsletter is now available online at http://eepurl.com/iemKoH.

This issue is a retrospective, focussing on the most popular newsletter stories from 2022, including tools to help integrate an intersectional equity lens into research; and unintended consequences of allowing patients access to their health records.

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

Early Career Researcher Virtual Coffee Mornings

After a trial in the autumn, the Academic Training and Capacity Development committee at Keele University will be holding virtual coffee mornings every two months in 2023. This will be an opportunity for early career researchers to come together, discuss researcher-related issues and develop their networks across the region in an informal setting.

For further information, please contact Sara Muller: s.muller@keele.ac.uk.

Confidence Workshop for Early Career Researchers

Following requests by our early career researchers, we have been able to secure a workshop on *Confidence*. This has been advertised to public contributors within the ARCWM as well as researchers. In line with our newly agreed One NIHR approach, it has also been advertised to members of the NIHR School for Primary Care Research and NIHR School for Social Care Research.

For further information, please contact Sara Muller: s.muller@keele.ac.uk.

Community Nursing Bite-size Research Masterclasses

The Queen's Nursing Institute hold a number of online, bite-sized research masterclasses on writing for publication with tips from an editor, which are open to all community nurses interested in publishing their work.

Upcoming dates include:

- Tuesday 28 February, 13:00
- Thursday 16 March, 13:00
- Thursday 20 April, 13:00

To register, please visit: eventbrite.co.uk/o/the-queens-nursing-institute-7691156851

NIHR RfPB Nursing & Midwifery Highlight Call

The NIHR Research for Patient Benefit programme are highlighting under-represented disciplines and specialisms, starting with an upcoming research call for nurses and midwives. The call opened on Wednesday 25 January 2023 and expressions of interest are due by **Friday 21 April 2023**.

For more information, please visit: https://www.nihr.ac.uk/funding/rfpb-under-represented-disciplines-and-specialisms-highlight-notice-nurses-and-midwives/32059.

Save the Date: NIHR Routine Statistics Group Meeting

The NIHR Routine Statistics Group are planning their fifth workshop on "*Analysis of classification problems using machine learning and traditional statistical techniques*".

This will be an in-person event held in Southampton on **3 July 2023**.

For more information please contact Amanda Knight at: Amanda.Knight@newcastle.ac.uk, who will be able to provide a detailed programme for the day and information on how to register closer to the time.

Recent Publications

Boisvert I, Dunn AG, Lundmark E, Smith-Merry J, Lipworth W, Willink A, Hughes SE, Nealon M, Calvert M. Disruptions to the hearing health sector. *Nat Med*. 2023; **29**: 19-21.

Bunnewell S, Wells I, Zemedikun D, Simons G, Mallen CD, Raza K, Falahee M. Predictors of perceived risk in first-degree relatives of patients with rheumatoid arthritis. *RMD Open*. 2022; **8**(2): e002606.

Jones LL, Costello BD, Danks E, Jolly K, Cross-Sudworth F, Byrne A, Fassam-Wright M, Latthe P, Clarke J, Adbi A, Abdi H, Abdi H, Taylor J. Preferences for deinfibulation (opening) surgery and female genital mutilation service provision: A qualitative study. *BJOG*. 2022.

Lawton S, Mallen C, Muller S, Wathall S, Helliwell T. Investigating the usefulness of Automated Check-in Data Collection in general practice (AC DC Study): a multicentre, cross-sectional study in England. *BMJ Open*. 2023; **13**(1): e062389.

Osuh ME, Oyaniran OH, Tunde-Alao TS, Lawal FB, Oke GA, Osuh JI, Harris B, Chen YF, Lilford RJ. Tooth adornment among siblings living in an urban slum in Nigeria: Health implications for a vulnerable population. *Clin Case Rep*. 2023; **11**(1): e6563.

Remsing S, Reeves K, Evison F, Morton D, Chilton P, Bird P, Watson S, Khunti K, Lilford R. Elective Surgery Before, During and After the COVID-19 Pandemic in England 2015 - 2022: A Database Study. *medRxiv*. 2023.

Silverwood VA, Bullock L, Turner K, Chew-Graham CA, Kingstone T. The approach to managing perinatal anxiety: A mini-review. *Front Psychiatry*. 2022; **13**: 1022459.

van Bodegom LS, Gerritsen SE, Dieleman GC, Overbeek MM, de Girolamo G, Scocco P, Hillegers MHJ, Wolke D, Rizopoulos D, Appleton R, Conti P, Franić T, Margari F, Madan J, McNicholas F, Nacinovich R, Pastore A, Paul M, Purper-Ouakil D, Saam MC, Santosh PJ, Sartor A, Schulze UME, Signorini G, Singh SP, Street C, Tah P, Tanase E, Tremmery S, Tuomainen H, Maras A; Milestone consortium. The importance of clinicians' and parents' awareness of suicidal behaviour in adolescents reaching the upper age limit of their mental health services in Europe. *J Affect Disord*. 2023: **325**: 360-8.

van Rens T, Hanson P, Oyebode O, Walasek L, Barber TM, Al-Khudairy L. Healthy diets, lifestyle changes and well-being during and after lockdown: longitudinal evidence from the West Midlands. *BMJ Nutr Prev Health*. 2022; **5**(2): 321-31.

Watson L, Belcher J, Nicholls E, Chandratre P, Blagojevic-Bucknall M, Hider S, Lawton SA, Mallen CD, Muller S, Rome K, Roddy E. Factors associated with change in health-related quality of life in people with gout: a three-year prospective cohort study in primary care. *Rheumatol*. 2022: keac706.