NIHR | Applied Research Collaboration West Midlands

LEGACY










2019

ARC West Midlands

2026

Contents

The **National Institute for Health and Care Research (NIHR) Applied Research Collaboration (ARC) West Midlands** was a seven-year initiative (2019-2026) with a mission to create lasting and effective partnerships across health and social care organisations, and universities (*Birmingham, Keele and Warwick*) in order to improve care services across the West Midlands.

Our research was carried out across four substantive themes: **Long-term conditions**, **Acute care interfaces**, **Integrated care in youth mental health**, and **Maternity services**; and four cross-cutting themes underpinning this research: **Organisational sciences**, **Research methodology, rapid response and informatics**, **Public health**, and **Social care**.

It is with mixed feelings that I write these reflections. This current ARC, and its predecessor CLAHRCs, have been a large part of my life for nearly 17 years. That is enough! However, I have enjoyed the work enormously. Mainly because I believe in it. The services are the laboratory for the Health Service Researcher. So the Director of an ARC/ CLAHRC must inhabit the furrow between the world of academia and the world of service delivery. Having held clinical, managerial and policy-making responsibilities in my life, I was well-equipped – both intellectually and emotionally – for the life of an ARC Director. But it is tiring – the service has its heart in the day-to-day, while academic lead times are much longer. It is thus hard work being an ARC Director. Like being a perpetual suitor!

In these pages we chronicle some of the fruits of our engagement with the services. Some of these projects, like the maternity triage and the statistical process control charts, have evolved over a decade of work. Others, like warm spaces, have been short, time-limited, evaluations responding to a changing healthcare landscape. In some cases, there is an almost unequivocal causal link between research findings and change on the ground. In other cases, the findings are directly policy relevant, but proving that one particular study drove change is not possible.

Over the years we have written extensively on measurement of performance, discussing how unreliable these measurements are (mostly because of very poor signal to noise) and how they are also often invalid (they do not measure the thing they purport to measure) [BMJ. 2025; e083517]. We also use statistics to demonstrate the manipulative behaviour they induce in organisations. Since policy-makers all over the world, including the Secretary of State for Health and Social Care here in England, use these measurements, our findings are of obvious policy relevance – we "*speak truth unto power*". So, I hope you enjoy reading the examples of our work in this short document.

I would like to thank the NIHR for funding our series of CLAHRCs and the ARC (to the tune of ~£34m). I thank all of my ARC WM colleagues from the service and our three collaborating universities (University of Birmingham, Keele University and the University of Warwick). I thank University Hospitals Birmingham NHS Foundation Trust with whom I have had an excellent relationship since Julie Moore (Chief Executive of UHBFT) and Michael Sheppard (Provost of the University of Birmingham) asked me to lead the first application back in 2009. Lastly, I express special appreciation to Jo Foster, Nathalie Maillard, Jo Sartori, Anne-Marie Brennan, Paul Bird and Peter Chilton, our core administration team who supported me in both writing and delivering on these infrastructure grants.

Richard Lilford, ARC WM Director

1,021 PAPERS

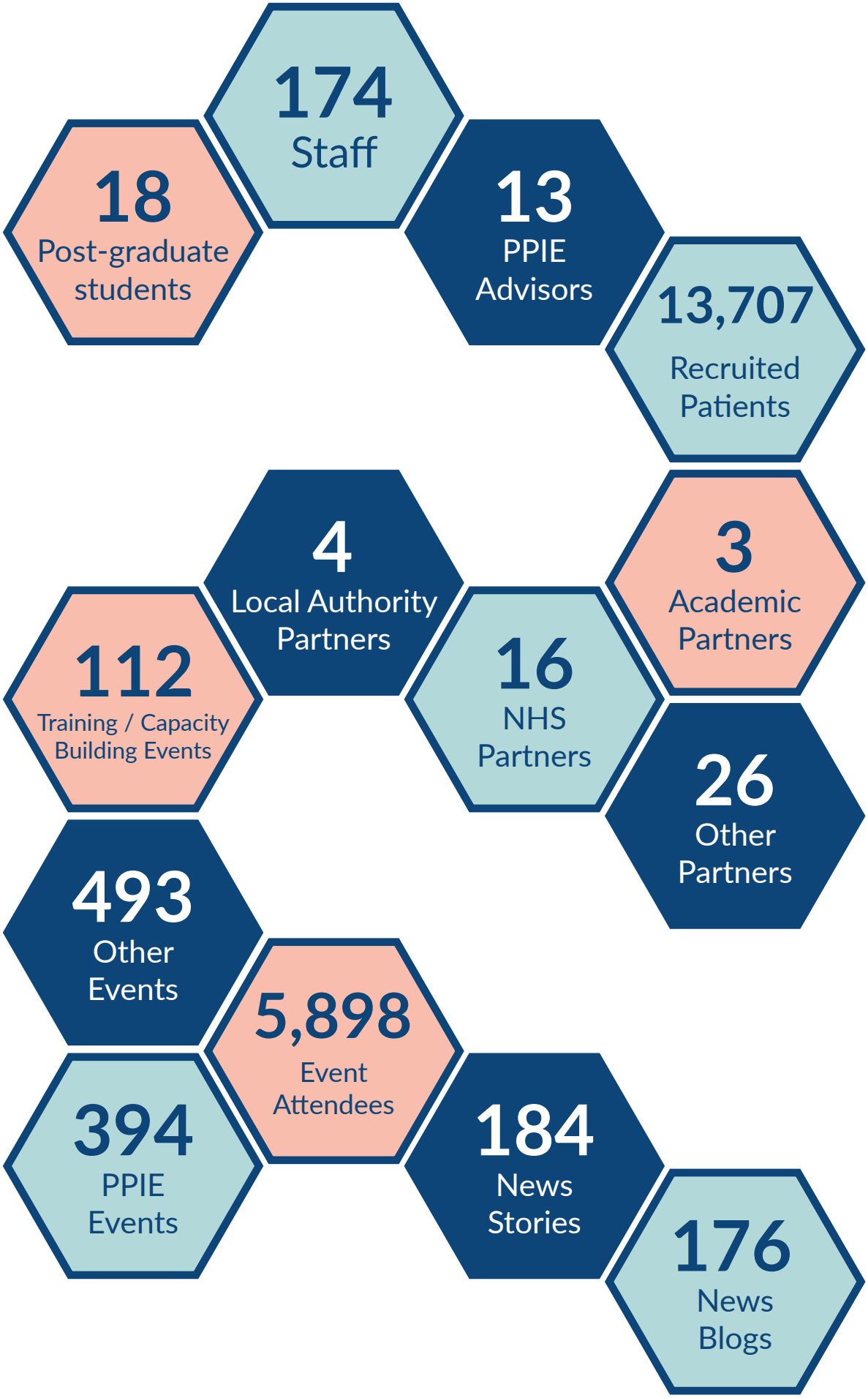
260 PROJECTS

382 FUNDING SUCCESSES

£173.20m EXTERNAL FUNDING

- Long-term Conditions
- Acute Care Interfaces
- Integrated Care in Youth Mental Health
- Maternity Services
- Organisational Science
- Research Methodology, Informatics & Rapid Response
- Public Health
- Social Care

ARC WM in Numbers



Improving Safety for Mothers & Babies in Maternity Emergency Care: BSOTS

Effective emergency care relies on the ability to triage patients quickly and assess risk to prioritise care. This requires dedicated infrastructure, such as appropriate space and staffing. Unlike general emergency departments, maternity services have lacked a formal, risk-based triage system for pregnant and early postnatal women and their babies. Because pregnant women are typically young and healthy, serious problems are often not obvious, and standard triage tools are unsuitable as they do not consider the unborn baby or the body's adaptations to pregnancy. This usually results in women being seen in order of attendance, posing significant risk of harm to those who urgently need care.

ARC WM developed the **Birmingham Symptom specific Obstetric Triage System** (BSOTS),[1,2] led by Prof Sara Kenyon MBE (University of Birmingham) in collaboration with Dr Nina Johns (Birmingham Women's and Children's Hospital NHS Trust). BSOTS is a maternity triage system specifically designed to improve safety for pregnant women and their babies attending maternity assessment units by providing a structured approach to triage. The system allows staff to assess risk in a timely manner and assign a category of urgency for those who need to be seen more quickly for further assessment.

Since the launch in 2013, BSOTS has been adopted and implemented nationally across 133 units, being responsible for the triage of approximately 1.5 million women and 509,129 births annually, as well as expanding to Australia [3,4] and New Zealand. BSOTS has transformed the management of maternity triage nationally, and improved safety for pregnant women and their babies.

BSOTS is recommended by the Royal College of Obstetricians and Gynaecologists as the national maternity triage system in the UK,[5] and is also endorsed by the Royal College of Midwives and the Care Quality Commission.[6]

BSOTS has also received a number of awards/recognition, including from the Health Services Journal,[7,8] the University of Birmingham Rose Sidgwick Award for External Engagement and Impact in the 2024 Founders' Awards, and the University of Birmingham Impact award for Outstanding Contribution to Impact in Global Health 2025.[9-10]

Further Reading:

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2. Dharni N, Latuszynska A, Dann S, Johns N, Currie G, Kenyon S. Factors Influencing Normalisation and Sustainment of the Birmingham Symptom Specific Obstetric Triage System (BSOTS); A Qualitative Implementation Evaluation Study with UK Maternity Health Professionals. *Impl Sci Comm*. 2025; **6**: 30.
3. Vasilevski V, et al. Evaluating the implementation of the Birmingham Symptom-specific Obstetric Triage System (BSOTS) in Australia. *Women Birth*. 2023; **36**(3): 290-8.
4. Vasilevski V, et al. Satisfaction with maternity triage following implementation of the Birmingham Symptom-Specific Obstetric Triage System (BSOTS): Perspectives of women and staff. *J Adv Nurs*. 2024; **80**(2): 673-82.
5. RCOG. Maternity Triage (Good Practice Paper No. 17). 2023.
6. CQC. National review of maternity services in England 2022 to 2024. 2024.
7. HSJ. Patient Safety Awards 2020. Project Showcase. 2020.
8. HSJ. HSJ Awards 2020: Maternity & Midwifery Services Initiative of the Year. 2020.
9. University of Birmingham Rose Sidgwick Award for **External Engagement and Impact** at the Founders' Awards 2024, for the development of BSOTS July 2024.
10. University of Birmingham Impact award for **Outstanding Contribution to Impact in Global Health**. March 2025.

Transforming Mental Health Care for Minoritised Groups: ARIADNE & OPAL

The Mental Health Act (MHA) 1983 continues to play a key role in mental health care in England, with ~52,500 new detentions recorded between 2023 and 2024. Despite this, concerns remain about how MHA standards of care are implemented. In particular, the overrepresentation of people from minority ethnic backgrounds in coercive care, and the lack of support for family members and carers when someone is detained. These issues not only reflect significant health inequalities, but also impose considerable financial and emotional strain on families and the wider healthcare system.

Working across multiple NIHR structures, our ARC WM-supported team led two major programmes – ARIADNE and OPAL – designed to address these core concerns, and to generate practical solutions relevant to both local services and national policy.

The **ARIADNE** study directly confronted ethnic inequalities in access to and experience of care, focussing on four urban areas (Coventry and Warwickshire, London, Manchester and Sheffield). The study engaged service users, carers and professionals in the development of practical, place-based action plans aimed at reducing these inequalities. These plans included outreach to young people at risk, the introduction of culturally responsive therapeutic approaches, and the creation of community dialogue spaces focussed on ethnicity and mental health. These were each refined in real-world settings, supported by a local stakeholder network that continued its involvement. Crucially, further external funding allowed the team to maintain relationships and engagement after the research concluded, assess and sustain early impacts, and engage national policy makers to inform national discussions at a critical point in the MHA reform and Mental Health Bill planning.

The **OPAL** study addressed the often-overlooked experiences and support needs of carers of people detained under the MHA. By working directly with carers with lived experience, the team co-developed a brief peer support training intervention that carers could co-deliver. The first phase of the study demonstrated strong feasibility, acceptability and positive impacts on carer wellbeing and quality of life in early adopter sites, indicating the potential for scaling-up the intervention. The next stage will be for a national evaluation, with a key consideration to determine how the programme should best be delivered: through a centralised remote model or via locally delivered, face-to-face support.

Addressing the logistical challenge of engaging this vulnerable group, the team focused on working with Trusts to improve the accurate recording of carers' contacts in clinical notes. This procedural change is vital as relying solely on service users for recruitment can mean missing the carers of those experiencing the most severe mental health crises – precisely the carers who may need the most support. This required not only institutional changes to actively include carers in research procedures but also the establishment of strong links with third-sector carer organisations to connect with those not yet engaged with NHS services.

Together, these programmes are improving quality of care, actively working to reduce health inequalities, and giving a voice to traditionally underrepresented groups within mental health services. They have also been featured in national policy discussion and are influencing local NHS Trusts, ultimately improving the lives of some of the most vulnerable NHS service users and their carers. With the new Mental Health Bill currently under discussion in the House of Commons (Bill 3884), this research holds a critical position in shaping the Bill and ensuring its effective implementation.

The sustained impact of this work was only possible due to the NIHR funding infrastructure, which provided the essential space to build cross-sector partnerships, maintain long-term stakeholder engagement, and crucially, move the findings beyond academic outputs into real-world implementation, with the flexible support of ARC WM being particularly instrumental in ensuring the findings reached policy makers at the optimal time.

Further Reading:

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- McPin Foundation. ARIADNE summary in community research organisation. 2025. https://mcpin.org/project/ariadne
- Wells I, et al. Experiences of support received by carers of people who are involuntarily admitted to hospital under the Mental Health Act: qualitative study of carers' perspectives. *BJPsych Open*. 2024; **10**(3): e82.
- Winsper C, et al. Improving mental healthcare access and experience for people from minority ethnic groups: an England-wide multisite experience-based codesign (EBCD) study multisite experience-based codesign (EBCD) study. *BMJ Ment Health*. 2023; **26**: e300709.
- Winsper C, et al. The impact of reduced routine community mental healthcare on people from minority ethnic groups during the COVID-19 pandemic: qualitative study of stakeholder perspectives. *Br J Psychiatry*. 2024; **224**(5):150-6.

Delivering Care Outside of Hospitals: Virtual Wards / Hospital at Home

It is clear that the English National Health Service (NHS) is under increasing pressure to deliver timely, high-quality, patient-centred acute care, particularly as it manages an increasingly complex patient population with multifaceted needs. At ARC WM we have directly addressed this challenge by focusing on the evolution of acute care delivery outside the traditional hospital setting.

The NHS England Virtual Ward Programme initially focused primarily on remote monitoring technologies as a means of managing patients at home. However, our research demonstrated a crucial gap in this model: the need for rapid, hands-on intervention and definitive diagnostic capabilities. Consequently, our findings advocated for a significant expansion of the Virtual Ward concept to actively incorporate Point of Care (POC) diagnostic testing and Acute Medical Intervention. This integrated approach is the foundation for a true '**Hospital at Home**' model, which allows patients to receive near-equivalent hospital-level care in the familiar and therapeutic environment of their own homes.

The project has achieved substantial influence at both the clinical advisory and high-level policy tiers. Professor Lasserson (*ARC WM Acute Care Interfaces Theme Lead*) was formally appointed to the influential NHS England Virtual Ward National Clinical Advisory Group, ensuring that the evidence and insights generated by our research directly inform national clinical strategy and implementation decisions for the Virtual Ward programme.

The clinical work and the unique care model developed through this research were recognised nationally, featuring prominently in the BBC Panorama programme entitled '*The medics trying to fix the NHS*'. This high-profile media exposure not only validated the model but also significantly raised public and professional awareness of the viability and necessity of Hospital at Home services as a critical component of future acute care delivery.

Furthermore, the reach of the work extended into the legislative and governmental spheres. Professor Lasserson was specifically invited to prepare and write a formal briefing for the then Health Secretary, Steve Barclay MP, on the critical role and feasibility of Hospital at Home services within the broader NHS recovery and reform agenda. This direct engagement ensured our evidence was placed before

the highest levels of government decision-making. Simultaneously, evidence was presented to a House of Lords health policy committee (committees.parliament.uk/oralevidence/13050/pdf/), contributing to the essential oversight and scrutiny required for long-term health policy formulation.

Perhaps the most significant and enduring legacy of this research is its direct contribution to the operational framework of the NHS. Our dedicated work on presenting a programme theory outlining the mechanisms and anticipated impact of the Hospital at Home model will be formally cited within the forthcoming NHS England Operational Guidance for Hospital at Home Services. Further, members of our team have been awarded a NIHR HS&DR grant to study the effects, experiences and costs of a virtual ward programme versus standard care for patients with acute COPD exacerbations (NIHR174496).

The inclusion of our work in this pivotal guidance document means that the evidence-based principles, definitions, and operational expectations for the delivery of acute care at home will be fundamentally shaped by our research. This ensures that the expansion of Virtual Wards across the NHS is underpinned by a robust, clinically rigorous model that prioritises timely intervention and diagnostic certainty, moving beyond simple remote monitoring to provide a comprehensive, patient-centred 'Hospital at Home' experience.

Further Reading:

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- Chen H, Ignatowicz A, Skrybant M, Lasserson D. An integrated understanding of the impact of hospital at home: a mixed-methods study to articulate and test a programme theory. *BMC Health Serv Res*. 2024; 163.
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- Holt A, Jenner T, Wakefield J. NHS crisis: The medics trying to fix the health service. *BBC News*. 2023. bbc.co.uk/news/uk-64185316
- NHS England. Access to diagnostics on virtual wards. 2024. england.nhs.uk/long-read/access-to-diagnostics-on-virtual-wards/
- UK Hospital at Home Society. hospitalathome.org.uk

Improving the Quality of PPIE Reporting in Papers and Reports

Patient, public and community involvement and engagement (PPIE) has become a key part of health and social care research, with a focus on working 'with' or 'by' patients rather than 'to' 'about' or 'for' them, and aiming to co-produce knowledge that is relevant, appropriate and acceptable for patients. However, researchers continue to routinely omit the reporting of PPIE in academic papers. This represents a form of research waste – valuable contributions are made but remain invisible, limiting learning and weakening the evidence-base. While this may seem obvious, the reporting of PPI in research remains more elusive than we might expect.[1]

Poor PPIE reporting has serious implications – patient's contributions to a study are not publicly acknowledged; clinicians cannot judge whether outcomes reflect patient priorities; and researchers struggle to synthesise good practice. Funders and policy-makers lose critical insight into whether research is inclusive and patient-centred.

ARC WM developed international reporting guidance to enhance the content and quality of PPIE reporting in academic research papers. This started with the publication of **GRIPP2**, which guides researchers to report their public involvement in a paper,[2] followed by checklists focused on specific methods that include items on PPIE, including **CHEERS 2022** for health economic evaluation,[3] **CONSORT** for clinical trials,[4] and **SPIRIT** for clinical trial protocols.[5,6] These will help ensure that PPIE is recognised as an essential part of research design and reporting. In addition, we are developing reporting guidance for the economic aspects of systematic reviews and expect **PRISMA EE** to include an item on PPIE reporting (*Petrou, et al. forthcoming*).

GRIPP2 is recommended by NIHR and widely cited internationally, with over 100 citations where researchers are either actively using it or referring to it. CHEERS 2022 is rapidly picking up citations and is now the norm for reporting health economic evaluation internationally.

These tools elevate the patient voice in academic research, normalise PPIE as standard practice, and build an evidence-base that informs better care. In the long term, this will lead to more relevant, acceptable research that is easier to implement because patients have shaped it from the outset.

Further Reading:

1. Staniszewska S, Hopewell S, Richards DP, Chidebe RCW. Patient and public involvement in research reporting. *BMJ*. 2025; **389**: r647.
2. Staniszewska, S, et al. GRIPP2 reporting checklist: tools to improve reporting of patient and public involvement in research. *BMJ*. 2017; **358**: j3453. [Simultaneously published in *Res Involv Engagem*. 2017; **3**:13.]
3. Husereau D, et al. Consolidated Health Economic Evaluation Reporting Standards 2022 (CHEERS 2022) statement: updated reporting guidance for health economic evaluations. *BMJ*. 2022; **376**: e067975.
4. Hopewell S, et al. CONSORT 2025 statement: updated guideline for reporting randomised trials. *BMJ*. 2025; **389**: e081123.
5. Chan A-W, et al. SPIRIT 2025 statement: updated guideline for protocols of randomised trials. *BMJ*. 2025; **389**: e081477
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Reducing Avoidable Hospital Admissions from Care Homes: ManDetSIP

One of the main challenges for the healthcare system is the over-representation of care home residents in avoidable Emergency Department attendances and hospital admissions, which are often due to difficulty in early recognition of deterioration and the appropriate escalation. Care home staff have varying skill levels and competencies, while monitoring tools are inconsistent and pathways for escalating care are often unclear - this can all lead to problems managing deteriorating residents and therefore unnecessary transfers to hospitals. In response to this, the **Managing Deterioration Safety Improvement Programme** (ManDetSIP) was introduced to promote continuous learning and quality improvement in care homes nationally.

In the West Midlands, the implementation and spread of ManDetSIP was led by *Health Innovation West Midlands (HIWM)*, who commissioned ARC WM to assess the effectiveness of their approach and identify optimal implementation strategies. This assessment looked at both the process (including the adoption of management tools in care homes, workforce skills development, and cross-system integration), and the critical outcomes (such as use of secondary care resources).

Our evaluation identified multiple impactful changes across the West Midlands, establishing the approach as a model of operational excellence and best practice in adoption, scale-up, and spread of innovation.[1] Results demonstrated substantial success, with 98% of care homes participating in deterioration management training, 74% adopting the necessary tools, and 43% achieving sustained adoption for twelve months - all higher than national averages.

Beyond high adoption rates, the evaluation confirmed significant system influence and skills development. Tailored implementation and monitoring efforts took place across all six Integrated Care Boards (ICBs) in the West Midlands, leading to the formation of deterioration networks. Crucially, new pathways were introduced for the appropriate escalation of resident care, and a regional patient safety network was developed to ensure consistency and facilitate learning across the ICBs. The workforce was supported through a dedicated webinar series, providing essential training on specific deterioration management tools, alongside vital topics (such as frailty) to ensure the deep embedding of practices within care homes.

This assessment of best practice provided a strong and credible case for HIWM, resulting in their approach being adopted as an exemplar of good practice by NHS England and NHS Improvement, and forming a key part of the national change package for other regions to adopt. Moreover, the economic data from the evaluation demonstrated tangible reductions in system pressure, including a 1% reduction in emergency calls, a 4% reduction in hospital admissions, and a 5% reduction in overall hospital stay. These figures suggest that if the HIWM model were to be scaled across England, it could potentially lead to 31,000 fewer emergency calls, 45,000 fewer emergency admissions, and 500,000 fewer hospital bed days.

Consequently, these findings have not only enabled HIWM to evidence multiple impacts but have also contributed to the ongoing development of potential future research projects and continued collaborative working between ARC WM and HIWM focused on improving the quality of care within care homes.

Further Reading:

1. Damery S, Jones J, Jolly K. *The prevention and management of deterioration in care homes: evaluation of the West Midlands Patient Safety Collaborative approach to implementing the NHS Managing Deterioration Safety Improvement Programme (ManDetSIP).* 2023. https://www.arc-wm.nihr.ac.uk/wp-content/uploads/2024/04/ARC-ManDetSIP-deterioration-report_final.pdf

Exploring Consultants Views on Performance Pay in Local NHS Trusts

Clinical Excellence Awards (CEAs) have been part of the NHS since 1948. Although they occupy a largely hidden place within health policy, there is some evidence about the distribution of these awards (in terms of gender, ethnicity and specialty) on their effectiveness. However, little is known about consultants' views and attitudes towards this form of **performance-related pay (PRP)**. In particular, the views of those opposed to CEAs are unknown. Given Trusts spend around £2-4 million each year on CEAs (based on the number of consultants) and the leeway to adapt local CEAs to local needs, there has been a need to investigate consultants' views ahead of any changes.

This project, supported by ARC WM and led through Dr Gauly and Dr Parsons, gathered data from one NHS Trust to explore consultants' views and attitudes towards CEAs. Around 1,400 consultants responded to the survey, while 20 agreed to in-depth interviews. Findings were shared in a widely-viewed BMJ letter,[1] and form the basis of several peer-reviewed publications and conference presentations. A peer reviewed paper on the initial survey of consultants was published in 2025,[2] while analysis of the in-depth interviews is nearing publication.

Further, a two-page summary of the research project was circulated to consultants and senior management in the Trust. The research is now informing ongoing discussions around consultant performance management within the case-study Trust. Insights gained are relevant beyond the case-study site, contributing to wider NHS understanding of staff motivation and performance in the context of PRP schemes. While the project cannot claim direct influence, local CEAs were discontinued shortly after its completion.

Further Reading:

1. Murphy N, Exworthy M, Gauly J, Parsons J, Green K. The end of local clinical excellence awards. *BMJ* 2024; **385**: q1032 .
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Equality, Diversity and Inclusion in Research Infrastructure

Embedding **Equality Diversity and Inclusion (EDI)** in research infrastructure is critical to ensuring that health and social care research benefits all communities. However, until recently, there was no clear understanding of how EDI principles and strategies were being operationalised across NIHR-funded infrastructures. Strategies varied widely in scope and approach, and much of this information was not publicly accessible, limiting opportunities for shared learning and improvement.

ARC WM led a national project to examine how research inclusion and EDI are embedded within NIHR infrastructures. Working with partners in other NIHR infrastructures (including Applied Research Collaborations [ARCs], Biomedical Research Centres [BRCs] and Schools for Public Health Research [SPHRs]), the team documented models of delivery, identified barriers and facilitators, and highlighted variation in practice. These findings were shared locally and nationally to inform future strategy and implementation. A toolkit, REP-EQUITY, was also developed to guide representative and equitable inclusion in research.[1]

Insights from the project are being applied in major programmes, including LifeArc's Accelerating Rare Disease Trials,[2] and Cancer Research UK's Data Driven Detection initiative.[3]

Regionally, the findings are guiding efforts to harmonise NIHR-funded inclusion activities in the West Midlands, co-led by ARC WM and the West Midlands Research Delivery Network. Nationally, they are influencing how NIHR interprets its new requirement for research inclusion as a condition of funding. With EDI gaining global attention, this work has the potential to inform practice internationally.

Further Reading:

1. Retzer A, et al. A toolkit for capturing a representative and equitable sample in health research. *Nat Med*. 2023; **29**: 3259-67.
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3. Cancer Research UK. Watching the Detectives - Meet the Experts Chasing Down Cancer Risk. 2025. https://news.cancerresearchuk.org/2025/01/22/watching-the-detectives-the-experts-chasing-down-cancer-risk/

Impact of Trial Results on Changing Clinical Practice in Surgery & Maternity Care

Surgical trials are constantly being carried out looking into new devices and procedures, and their impacts on patients and the healthcare system, but it is unclear to what extent recommend best practice ends up being implemented.

Initially, researchers from our ARC WM Research Methods theme looked at the impact of three orthopaedic trials dealing with various bone fractures on clinical practice.[1] Results showed that all three trials favoured the option that was less expensive and less invasive – however, for two of these cases clinical practice had begun to change before trial publication; while the third did not influence practice even though it showed clear-cut evidence of improvement.

In order to extend this work, the team looked at six further surgical trials that had shown actionable findings, in the sense that the original hypotheses had been confirmed or refuted within pre-specified levels of statistical precision, and examined whether they had influenced healthcare practice in England.[2] Three of the trials saw changes in practice, but for the remaining three, there was no corresponding change that was in line with the findings. Instead, in each of these cases there was evidence from outside the trials that justifiably reduced implementation of trial evidence. For example, uptake of a new method of varicose vein treatment was overtaken by the even more favourable results of a trial of a different treatment in Denmark.

Working with our Maternity theme, researchers then looked at the implementation of two intra-partum trials,[3] finding that while most staff interviewed were aware of the trials, very few practices had implemented the results. The reason for failed implementation in one of these trials, involving an alternative analgesic to pethidine, was particularly notable. The prize winning trial published in the BMJ showed that, while this alternative to pethidine was more effective in relieving pain, greater pain relief implies more respiratory suppression. It was the failure of the trial to reassure anaesthetists that the medicine was safe that hindered implementation. Yet another example where practitioners were following the evidence – just all relevant evidence not just the trial evidence in isolation.

While practice often changes in the direction indicated by clinical trials, evidence suggests that clinicians are influenced by the totality of the evidence, not just evidence of an effectiveness outcome on one treatment type. Our researchers suggest that the *Consolidated Framework for Implementation Research* (CFIR) may underemphasise the crucial role that evidence itself plays in implementation, and that informative Bayesian statistics is a more coherent approach than (mis) using hypothesis tests as decision rules.

Further Reading:

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Evaluation of Local Council Warm Spaces Programme

Rising global energy prices in Autumn 2022 created a serious public health concern: many households could not afford to heat their homes, increasing risks of cold-related illness and social isolation. Local authorities launched '**Warm Spaces**' programmes to provide safe, heated environments for vulnerable residents.[1]

ARC West Midlands worked with Sandwell Metropolitan Borough Council (SMBC) to rapidly evaluate its Warm Spaces programme during the 2022–2023 winter. A mixed-method approach was employed for this evaluation involving a quantitative survey of warm-space users and providers and in-depth qualitative interviews with warm-space users, providers, and community leaders.[2]

This evaluation enabled real-time improvements and informed the design of the 2023–2024 programme. The evaluation also strengthened SMBC's research culture through training, knowledge transfer, and collaboration on dissemination activities, contributing to their successful Health Determinants Research Collaboration bid.

The evaluation tools developed by ARC WM were adopted by Manchester City Council for their own programme and have been incorporated into the UK Health Security Agency's national Warm Spaces Evaluation Toolkit.[3] This means the work has influenced local delivery and national policy, ensuring future programmes are evidence-based and more effective.

Further Reading:

1. Sandwell Metropolitan Borough Council. Find a Welcoming Space in Sandwell. 2025.
2. Retzer A, et al. Evaluation of Sandwell Metropolitan Borough Council Warm Space Programme - Methods and Tools. 2023.
3. UK Health Security Agency. Warm spaces in England: an evidence review and toolkit for local organisations. 2023.

Improving Patient Safety Through Better Data Presentation

In 2017, our BMJ Quality & Safety review of hospital documents [1] highlighted a critical issue: unclear presentation of patient data was hindering effective decision-making in care. We engaged with NHS Improvement, and specifically with Samantha Riley who directed the '*Making Data Count*' initiative launched by NHS England. This initiative trains hospital staff to use Statistical Process Control (SPC) charts for clearer data presentation. By 2022, the Making Data Count initiative had trained over 15,000 staff at 170 board development sessions. Thanks to the Making Data Count training programme running in hospitals in England, many people are now ditching traditional red-amber-green (RAG) reports and adopting SPCs. Samantha Riley shared a testimonial detailing the importance of our review.[2]

The training programme effectively increased SPC usage, as demonstrated in our original research published in 2023.[3] A subsequent evaluation, published in BMJ Quality and Safety in 2024,[4] further indicated that contextual elements, such as the social media campaign, likely influenced the training's impact.

We co-created a video about the research with public contributors that is on YouTube (youtu.be/YkctipI9IEo) and has been viewed over 600 times. Recently, our publications were cited in training conducted in Australia for the Royal Australian College of Surgeons, who plan to adopt the SPC methodology. Clearer data improves decision-making, saves lives, and cuts the costs of providing care. This initiative exemplifies how improving data presentation can drive improvements in healthcare outcomes.

Further Reading:

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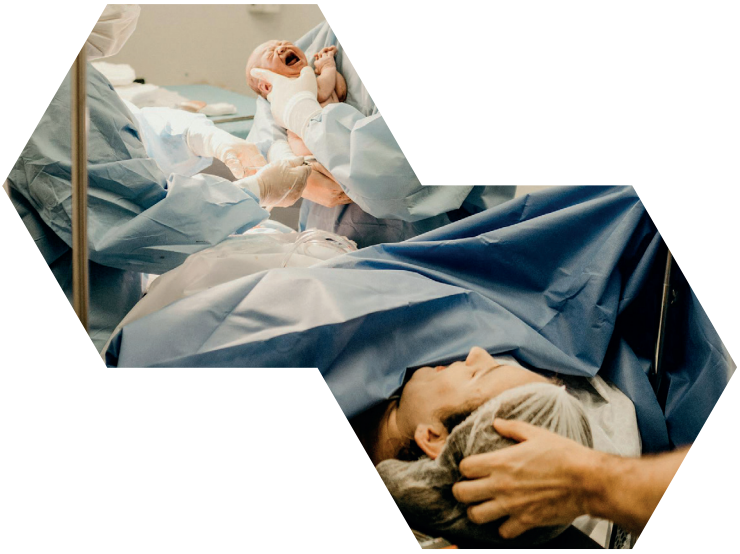
2. Riley S. Testimonial – Making Data Count. 2025. https://www.arc-wm.nihr.ac.uk/testimonial-making-data-count/
3. Schmidtke KA, et al. Considering chance in quality and safety performance measures: an analysis of performance reports by boards in English NHS trust. *BMJ Qual Saf*. 2017; **26**(1): 61-9.
4. Schmidtke, et al. Cluster randomised evaluation of a training intervention to increase the use of statistical process control charts for hospitals in England: making data count. *BMJ Qual Saf*. 2025; **34**: 621-30.

Improving Induction of Labour Pathways: Enhancing Safety and Experience

Across the UK, the rate of patients requiring **Induction of Labour (IOL)** has rapidly increased, from 25% in 2013/14 to 33% in 2022/23. This presents a critical challenge to patient safety and the quality of care in UK maternity services. The primary rationale for IOL remains the reduction of risks to both mother and baby associated with prolonged pregnancy, yet this significant increase in volume, compounded by severe midwifery and clinical staff shortages, is placing substantial pressure on patient flow and capacity within maternity units. Recognising the urgency of this issue, the ARC WM Maternity Theme initiated a national response aimed at mitigating risks and standardising practice.

Initial national data on local policies and practices for IOL was sparse. To address this, we undertook a national survey that confirmed substantial variation in induction rates, processes, and policies across UK maternity services.[1] The survey highlighted that delays were commonly reported, directly impacting women's experience and raising significant safety concerns.

Following the identification of IOL as a priority issue at the British Intrapartum Care Society (BICS) annual conference in September 2022, a national collaborative workshop was organised by our Maternity Theme, bringing together academics, obstetricians, midwives, and midwifery leads, alongside key regulatory bodies. Critically, service user representatives participated to ensure that women's personal experiences, views, and expectations directly informed the Quality Improvement work being shared. The collaborative workshop served as a vital mechanism for sharing local projects that tackle common operational and experiential problems within IOL pathways.



The submitted work was categorised into five key themes:

- improving women's experiences
- developing tools for informed consent or expectant management
- prioritising women within the queue
- reducing process delays
- using technology to support the pathway.

Following discussions, the most effective projects were shared nationally, and published as '*Ideas and resources for improving Induction of Labour Practices*' on the BICS website.[2] This document is the first of its kind, sharing practical ideas and resources to address common IOL challenges and offering solutions ranging from simple, easy-to-implement changes (such as developing decision aids and information leaflets for women or increasing outpatient induction) to system-level change (such as co-designing facilities, introducing a RAG rating system for prioritisation, or introducing a Flow and Capacity co-ordinator). The ultimate beneficiary of this initiative is the women who will experience reduced delays and improved care quality.

The impact of this collaborative effort is evident in its provision of the first national resource for standardising and improving IOL practices. Building on this work, further discussions at the BICS conference in November 2023 highlighted three persistent areas where professional consensus is lacking: defining delay for women awaiting admission for induction; defining delay once labour is progressing and transfer to the Delivery Suite is required; and determining the appropriate response when an induction is unsuccessful.

Further Reading:

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Promoting Mental Wellbeing in Schools: Breathe and SchoolSpace

Mental wellbeing is a critical component of individual mental health, and its promotion is key to preventing mental health problems. The consequences of poor mental health are severe, contributing to things like substance misuse and self-harm, impeding educational and vocational opportunities, and reducing adult resilience to stress, with significant financial costs borne by the NHS and the wider UK economy. While it is known that approximately one in five children and young people aged 8-16 years has a probable mental health disorder, only 40% of those access professional support when difficulties first emerge.

Schools are strategically well-positioned to promote mental wellbeing, but they require robust, strategic data and supporting resources to monitor implemented interventions and enhance mental health literacy among staff and pupils. Birmingham presents a particularly acute need, as it is the 2nd most ethnically diverse and 7th most deprived local authority in England, exhibiting the highest prevalence of probable mental health disorders among children and young people nationally.

Since 2021, our team has conducted yearly, systematic mental wellbeing assessments in Birmingham's primary and secondary schools to provide essential group-level data. The pilot phase in 2021 successfully reached 3,437 pupils across 16 schools.[1] This initiative has since scaled up significantly, engaging 10,432 pupils in 45 schools in 2022 and 12,592 pupils in 55 schools in 2023, effectively implementing and spreading good practice regionally. In total over 32,000 pupil wellbeing assessments have been conducted.

A core output of this work is the development of a bespoke data collection platform (breathe-schools.co.uk) and the provision of an annual Wellbeing Census via digital dashboards to participating schools. These dashboards clearly display pupil wellbeing according to socio-demographic characteristics, including gender, ethnicity, school year, free school meals status, and special needs status, allowing schools to benchmark against regional averages and their own previous data. This systematic capture of data on sub-groups can identify specific pupil populations with poorer wellbeing, thereby enabling the implementation of targeted or school-wide interventions.

Supporting this data-driven approach, the team developed Breathe Education (breathe-edu.co.uk), a responsive online resource for teachers and schools in Birmingham. This resource, continuously developed since 2020-21, provides lesson plans and activities that promote mental health and wellbeing, enhancing both the capacity and capability of teachers and improving health literacy among pupils. In 2022-23, a bespoke intervention and lesson plans focused specifically on emotional literacy were developed and added to the Breathe Education platform, targeting the mental health literacy of primary school pupils. The impact of this programme is already evident in its influence on local policy and practice. Participating schools have provided preliminary feedback indicating that the regular assessment can accurately capture changes in wellbeing within sub-groups of pupils who have benefited from targeted interventions. Furthermore, the overall assessment results have been shared with Public Health leads, allowing them to identify schools requiring additional support, thereby influencing local policy and the allocation of resources.

The findings have directly informed the Birmingham Joint Strategic Needs Assessment, and local authority Public Health and Education departments have integrated this data into their Healthy Schools and Early Years community programme. Our work is also expanding nationally, having been introduced to the Children's Hospital Alliance network of CAMHS centres, which have expressed active interest in collaboration. Additionally, the project is sustaining its academic rigour through multiple funded PhDs and is a collaborating partner with the recently launched UKRI Population Health programme Mental Health theme, ensuring knowledge translation and network expansion. Finally, supplementary research, conducted via an NIHR-funded PhD studentship, suggests that universal MHWB screening which identifies individuals is acceptable to most pupils, potentially opening up new avenues for intervention delivery.

Further Reading:

1. Palmer C, Patterson P, Tuomainen H. 1945 Breathe education: developing an annual census of wellbeing in pupils from schools in Birmingham UK. *BMJ Paediatrics Open*. 2022; 6.

Optimising NHS Performance: The Impact of Evidence-Led Targets

For the past 25 years, performance targets have been a key part of performance management, quality assurance and public accountability for NHS organisations. Despite the wide and ever-increasing range of these metrics, there has been relatively little insight into how they influence practice and hence how they may be designed for optimal effect. This knowledge gap is critical, as poorly set targets can lead to inefficiencies and perverse incentives. Through a series of studies, researchers at ARC WM have sought to address this knowledge gap using publicly accessible data from NHS Digital.

When looking at data we are looking for a 'bunching' or threshold effect where there are more organisations just above the target line and fewer just below. This indicates that many organisations have targetted their effort (or manipulated their data) to reach the target by 'a whisker'.

Our researchers initially looked at the response of organisations to financial incentives aimed at increasing the uptake of the influenza vaccine amongst staff over a ten year period.[1] Before targets (uptake rates that trigger the incentive) were set, there was no threshold effect. However, once targets were set, the threshold effect was observed. Over time the target level of vaccine uptake was altered; sure enough the threshold effect tracked the change in the level.

Our researchers then looked at cancer targets (2-week, 31-day and 62-day).[2] Here they found that targets did affect organisational behaviour but not equally. There was a greater threshold effect on the 62-day target than on other targets, likely due to a combination of more manageable number of patients to track, greater opportunities to intervene along the patient pathway, and higher penalties for poor performance.

With performance deteriorating and waiting lists increasing, ARC WM turned to the 18-week Referral to Treatment target for all referrals from primary care.[3] Again, implementation of the target induced a threshold effect. This continued until the COVID-19 pandemic, whereupon the target became unreachable for many organisations and ceased to prompt a threshold effect – a warning to policy-makers to be agile and adapt targets according to what the system can achieve. Unintended consequences of the target were also revealed, with organisations incentivised to treat short-wait, lower clinical priority patients at times in order to meet the target. This prompted an editorial [4] and media coverage.[5,6]

Our researchers also looked at the number of NHS operations cancelled at short notice,[7] finding that organisations initially responded to the target, but again the threshold effect disappeared after the COVID-19 pandemic when the target was no longer achievable or realistic (particularly for organisations with the added pressure of an A&E department). Persisting with targets when organisations do not have the resources or capacity to meet them is unfair.

In a subsequent study, researchers reviewed the statistical, economics and management literature regarding targets in response to the UK Secretary of State's plans for performance management of the health service.[8] They conclude that national incentivised targets should be used with caution and internal monitoring (using SPC charts) is generally a more principled performance management method.[9]

Further Reading:

1. Liaqat A, et al. Examining organisational responses to performance-based financial incentive systems: a case study using NHS staff influenza vaccination rates from 2012/2013 to 2019/2020. *BMJ Qual Saf*. 2021; **31**(9): 642-51.
2. Quinn L, Bird P, Lilford R. Effect of cancer waiting time standards in the English National Health Service: a threshold analysis. *BMC Health Serv Res*. 2024; **24**: 929.
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4. Edwards N, Black S. Targets: unintended and unanticipated effects. *BMJ Qual Saf*. 2023; **32**: 697-9.
5. Knapton S. NHS 18-week treatment target incentivises staff to ignore patients waiting longer. *The Telegraph*. 2023 Sep 06.
6. Pickles K. Hospitals decide who to treat based on set targets instead of actual need, study suggests. *Daily Mail Online*. 2023 Sep 05.
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8. Department of Health and Social Care. Zero tolerance for failure under package of tough NHS reforms. 2024 Nov 13.
9. Lilford R, Chen YF, Sutton M, Hofer T. Hospital league tables, targets, and performance incentives should be used with care. *BMJ*. 2025; **389**: e083517.

Strengthening Citizen Leadership in Health and Social Care

"I 'feel' heard... thank you! This topic is so important to be discussed"
-- Person with lived experience of health and social care

The active involvement of people who have experience of health and social care, including family carers ('*people with lived experience*') is now rightly seen as a fundamental principle. Despite its centrality, however, it is rare for policy makers and programme managers in the UK and internationally to truly demonstrate co-production in the design and implementation of care.

Co-production requires people with lived experience to be at the planning table from the outset, so they can shape not only how questions should be answered, but also what the questions should be. Limitations at the strategic level mirror the challenges that many people experience in their own care, with professionals and teams finding it difficult to reframe their thinking and practice to truly put people at the centre of decision making. Although similar challenges have been found in research, there is increasing commitment to engaging people with lived experience in designing, undertaking and interpreting research and not solely being the 'subject'.

ARC WM has sought to put people with lived experience at the heart of our research and helped to create a community advisory board to guide a new teaching and research centre focussed on better improving leadership across the system. The members of the board raised concerns that whilst there was a lot known about leadership by clinicians, professionals and managers, there was relatively little insights regarding how people who access health and care services lead design and delivery. To respond to this, we coordinated a research study that listened to people who have sought to influence health and care systems based on their lived experience and have heard their stories about being involved, including patients, family caregivers, and community members who engaged in health and care system design.

Following the research, as well as workshops at UK and international conferences, four roles were identified as being undertaken people with lived experience: community builder, improvement expert, disruptor/advocate, and citizen leader. Those who contributed were confident that recognising the distinct contribution and demands of their leadership will enable appropriate support and development for people with lived experience and the professionals and managers with whom they collaborate.

A common entry point for people with lived experience to influencing health and social care was sharing their story. The initial stories of participants had two common storylines - first, a crisis and/or chronic experience of health and social care services; and second, how participants subsequently looked to change what services are available and how these are delivered. People gained skills and confidence in story telling through practice and putting themselves in often uncomfortable situations and rarely received related support and development.

Influencing services required considerable personal cost but also led to new networks, skills development and satisfaction when change was achieved. The research has been influential within integrated health and social care contexts in particular, including those relating to research. For example, the *International Journal of Integrated Care* (the leading journal in the field) has now recruited five people with lived experience to be on their editorial board and are revising all their processes to put people and communities at the heart of reviews. Insights are also being taken forward through the Improving Adult Social Care Together Centre, which is running national networks to embed citizen leadership (impact.bham.ac.uk/delivery-models/networks/citizen-leadership/).

Further Reading:

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- Miller R, Jackson C, Ehrenberg N, Stein V, Van der Viegel W, Wojtak A. Citizen Leadership: Co-Creating Integrated Care. 2023. warwick.ac.uk/fac/sci/med/about/centres/arc-wm/news-events/citizen_leadership_and_integrated_care_report_accessible_pdf_may_2023.pdf

Financial Incentives to Improve Health and Wellbeing in the Workplace

Although the benefits, both economic and social, of promoting health and wellbeing in workers is widely recognised, small and medium enterprises (SMEs) are less likely to offer such programmes. At ARC West Midlands we published findings from a cluster randomised controlled trial of 100 SMEs,[1] where we evaluated a financial incentive scheme implemented by the Work and Health Unit of the UK central government.

The research found that while employees' perception of 'positive action' by their employer increased after the intervention, there was no discernible impact on health behaviour or wellbeing outcomes. Following on from this, we looked at uptake of programmes in SMEs according to worker demographic groups, finding employees over the age of 55 years had lower odds of uptake compared to those below the age of 24 (p=0.003).[2] There were no other significant differences by demographic.

Building on these studies, Dr Laura Kudrna and Prof Richard Lilford have been awarded a £3.7m NHS Programme Grant. They will work closely with Coventry City Council to roll out a programme to improve employee health over five UK areas.

Further Reading:

1. Al-Khudairy L, Akram Y, Watson SI, Kudrna L, Hofman J, Nightingale M, et al. Evaluation of an organisational-level monetary incentive to promote the health and wellbeing of workers in small and medium-sized enterprises: A mixed-methods cluster randomised controlled trial. *PLOS Global Public Health*. 2023; **3**(7): e0001381.
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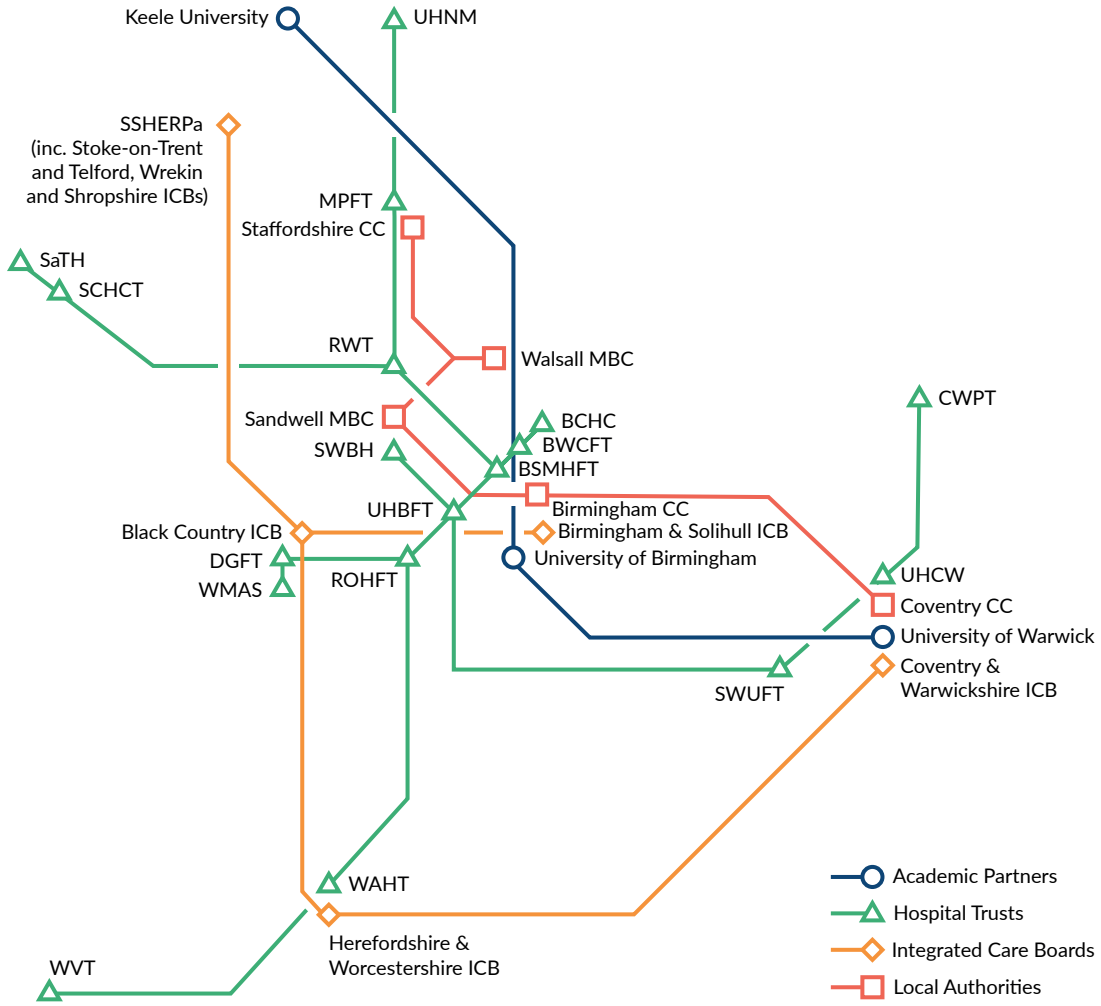

BCHC: Birmingham Community Healthcare NHS Foundation Trust;
BSMHFT: Birmingham & Solihull Mental Health NHS Foundation Trust;
BWCFT: Birmingham Women's and Children's NHS Foundation Trust; **CWPT**: Coventry & Warwickshire Partnership NHS Trust;
DGFT: Dudley Group NHS Foundation Trust; **MPFT**: Midlands Partnership University NHS Foundation Trust;
ROHFT: Royal Orthopaedic Hospital NHS Foundation Trust; **RWT**: Royal Wolverhampton NHS Trust;
SaTH: Shrewsbury & Telford Hospital; **SCHCT**: Shropshire Community Health NHS Trust;
SWBH: Sandwell & West Birmingham Hospitals NHS Trust; **SWUFT**: South Warwickshire University NHS Foundation Trust;
UHBFT: University Hospitals Birmingham NHS Foundation Trust; **UHCW**: University Hospitals Coventry & Warwickshire NHS Trust;
UHNM: University Hospitals of North Midlands; **WAHT**: Worcestershire Acute Hospitals NHS Trust;
WMAS: West Midlands Ambulance Service NHS Foundation Trust; **WVT**: Wye Valley NHS Trust.

ICB: Integrated Care Board; **SSHERPa**: Staffordshire & Shropshire Health Economy Research Partnership.

CC: City Council; **MBC**: Metropolitan Borough Council

Produced by the National Institute for Health and Care Research (NIHR) Applied Research Collaboration (ARC) West Midlands based at the University of Birmingham, University of Warwick, Keele University, and University Hospitals Birmingham NHS Foundation Trust.