Tensions Between Technocracy, Scientific Knowledge and Co-production in Collaborative Health and Care Networks

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Introduction

Since the late 1990s, a narrative of evidence-based decision-making or evidence-based practices has increasingly guided the modernisation and improvement of UK health and care services. Rather than decisions being based on the conventions of professional practice or the ideologies of government, the expectation is that decisions from macro policy-making through to micro service delivery should be based on the best available evidence of 'what works'. Although evidence-based policy-making (EBPM) might have come to the fore of UK public policy during the relatively affluent years of the early mid-2000s, it arguably has a much longer history in Western 'technocratic' public

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administration, and continues to act as a guiding principle in more current austere times, in which fiscal deficit reduction has become the dominant narrative amongst the governing elite in Westminster (Stanley 2016). Unlike other areas of public policy, the principles of 'evidence-based' decision-making or practice have a relatively developed influence on health care organisation and delivery, as found in the growth of evidence-based medicine (EBM) since the late 1960s and resulting in the creation of bodies such as the National Institute for Health and Clinical Excellence (NICE). As above, the guiding principle of this movement is that evidence-based decisions can result in reduced variations in care delivery, improvements in care quality, and more cost-effective resource allocation (Sackett et al. 1996).

However, the quality of this evidence is often judged by its 'scientific' merits with particular prominence given to evidence produced through randomised control trials, and increasingly health economic data. As such, particular epistemological and ideological imperatives seem to determine what counts as rigorous evidence. That is, within the broad principle of evidence-based decision-making there are arguably differing schools of thought about what counts as evidence, how it should be produced, and how it should be use. Add to this, the narrative of co-production has also come to re-shape policy decision-making (Bevir et al. 2019), with the idea that various stakeholder perspectives should be brought together to inform more relevant, legitimate and democratic decision-making, where 'evidence' and 'opinion' are seemingly brought together in an un-easy relationship (Crompton 2019). This means that decisions about the organisation and delivery of health and care services, although ostensibly based upon the ideals of evidence, are often sites for disagreement between varying bodies of technocratic, scientific and co-produced evidence.

Taking a decentred approach (Bevir 2013; Bevir and Waring 2018), our chapter examines how different approaches to 'evidence' and 'evidence-based practice' are manifest and reconciled in the production of applied health service research. For us, this approach foregrounds the meanings and beliefs that guide the situated practices of policy actors. These situated practices are seen, on the one hand, has guided by traditions or habitual ways of acting in the context of shared webs-of-meaning, but on the other hand, these practices are the sites for novel meanings and practices as they encounter new situations which

result in dilemmas for establish traditions. When addressing the significant pressures on healthcare, for example, a political contest arises over what constitutes the nature of the failings and what should be done (Bevir and Richards 2009). Dilemmas emerge when new ideas compete with existing beliefs or practices, forcing a reconsideration of existing beliefs and allied traditions. They can also arise from theoretical reflection, such as the merits of the implementation of scientific, technocratic or co-produced approaches to healthcare innovation. Our chapter draws upon these ideas through its analysis the situated experiences of actors conducting applied research in one regional Collaborations for Leadership in Applied Health Research and Care (CLAHRC) context. We first outline the different traditions of evidence-based decision-making and practice and show how, in different and sometimes competing ways, they have informed the formulation and implementation of health policies and changes in service organisation and delivery.

Technocratic, Scientific and Co-produced Evidence

In many ways, the current focus on evidence-based policy-making (EBPM) came to prominence in the UK in the late 1990s with the New Labour government's commitment to modernise government and improve policymaking (Parsons 2002). The emerging pragmatic narrative was that research-based evidence would inform policy making, thereby removing ideology and promoting systems of governance (Clarence 2002). This emphasised "what works" to produce better policy outcomes in the context of a performance management strategy for the regulation of public services (Sanderson 2003), bringing forth a new era of 'technocratic' governance. The term 'technocracy' was coined in the United States during the first half of the twentieth century, to describe a system of governance in which decision-makers give precedence to technological competence, and where expertise (and evidence) is recognised as the primary basis of authority. Such technocracy has much in common with the logic of bureaucracy, rational planning and administrative science, which since the late 1970s have been steadily surpassed by competitive markets and collaborative networks as models

of public governance (Bevir 2013). And yet, technocratic models of evidence-based decision-making are again advocated in the context of network governance (Newman 2001).

In the English health policy context, the technocratic narrative has persisted, albeit with different political intent and changed economic circumstances. The publication of the 2011 report *Innovation Health and Wealth, Accelerating Adoption and Diffusion in the National Health Service* (NHS), brought forth the Quality, Innovation, Productivity and Prevention (QIPP) Programme (Department of Health 2011) as major transformation initiative to improve the quality of care which simultaneously involved making up to £20billion of efficiency savings. The Health and Social Care Act 2012 further underlined the goal of making the NHS more responsive, efficient and accountable through the use of more competitive markets for care, combined with the 'scale-up and spread' of evidence-based innovations. At the same time, bodies such as NICE continue provide evidence-based recommendations and guidelines about cost-effective treatments and clinical services.

Unlike other areas of public policy, it might be argued that healthcare services have a longer history of evidence-based practice through the emergence of EBM from the late 1960s (Sackett et al. 1996). EBM emerged as an international priority to improve health and care quality based upon the best available evidence, typically produced through experimental randomised control trials (Adily and Ward 2005; McGinty and Anderson 2008; Melnyk et al. 2012). Where EBM differs from EBPM is that it more explicitly retains the notion of integrating individual clinical expertise with best-practice evidence, conceptualised as the proficiency and judgment that clinicians acquire through clinical experience practice. This expertise is reflected in effective and efficient diagnosis and is especially evident in the use of more empathetic insight into individual patients' predicaments, rights, and preferences in making decisions about their care (Sackett et al. 1996).

Whilst scientific and technocratic knowledge can sometimes become intertwined in dialogues about EBPM or EBM, they are produced through fundamentally different specialisms and disciplines of evidence or knowledge production. Biomedical scientific knowledge is frequently correlated with clinical expertise or the competency to undertake

reliable, replicable research and produce valid evidence, whilst technocratic knowledge is more commonly associated with the managerial and economic aspects of policy implementation. It can be argued that these different types of knowledge pull in different directions. Consider, for example, the rise of gene-therapy treatments, a potentially paradigm-shifting breakthrough that could treat or even cure an array of modern-day health problems from Alzheimer's and diabetes to cancer and heart disease. Clinical data may suggest this exciting new line of research should be developed; yet, breakthroughs are often expensive, making high demands on time and resources, meaning technical expertise might say it is impractical or too technical challenging.

In seeking to resolve inherent tensions between clinical and managerial imperatives, and ensure the relevance and legitimacy of policy decision-making, contemporary public and health policies also advocate the principle of co-production (Bevir et al. 2019). Co-production has its origins the work of Ostrom (1996), who in the 1970s, detailed a process by which contributions from individuals not 'in' the same organization are transformed into goods or services. It became intimately linked with the idea of using combinations of state and non-state actors to produce or inform public service delivery (Osborne 2006; Voorberg et al. 2015; Howlett et al. 2017). Over the past decade co-production has become a prominent topic in policymaking, governance and research (Sorrentino et al. 2018). In health and care, it has come to describe a way of collaborative working to improve processes by creating user-led, people-centred health and care services (Filipe et al. 2017). Thus, the ethos of co-production can be considered at odds with both the technocracy and scientific approaches, which rely exclusively on decision making based solely upon the possession of specific technical or scientific expertise.

Co-production in the design and delivery of healthcare has become an increasingly prominent policy narrative (Bevir et al. 2019), which has informed healthcare decision-making and practice in a number of ways. While not always defined in terms of co-production, the idea that service users should have a more meaningful say in shaping the services they receive has become entrenched in post-war welfare services (Department of Health 2012). Co-production represents an

alternate model for knowledge production, which entails ensuring the effective participation of those who use health and care services, carers and communities in equal partnership. Rather than simply transferring knowledge produce by technocrats and scientists to them. It is a way of day-to-day working that is far-reaching, engaging stakeholder groups in all stages of developing innovation, at many levels (Batalden et al. 2016), for instance the co-commissioning, co-design, co-delivery and co-assessment of services. Although the aim of co-production is usually taken to be enabling the diverse meanings of stakeholders to influence decision-making, questions remain as to whether this is meaningful to participants. An appraisal of the meaning of co-production must therefore reflect the cultural value judgments of individual actors (Crompton 2019).

Converging Traditions in Applied Health Research

One place where these different forms of evidence-based decision-making and practice have played out is in the area of applied and translational health research, which is increasingly organised through inter-organisational networks of the producers and users of evidence. In the UK, the Nation Institute for Health Research (NIHR) has funded a variety of networked infrastructure initiatives that cover the entire research lifecycle, from basic science and discovery through to applied and translational research concerned with the spread and adoption of proven intervention. These include, for example, Biomedical Research Centres (BRCs), CLAHRCs, Academic Health Science Networks (AHSNs) and Patient Safety Translational Research Centres (PSTRC) Med-Tech collaboratives and more recently Applied Research Collaboratives (ARCs). These approaches reflect national priorities for service improvement and reduced cost, whilst simultaneously responding to the needs of local decision-makers, commissioners and service providers (Harvey et al. 2011). The intention of the translational vehicles, in particular, is to ensure research relates to the difficulties faced by

care providers and the needs of patients, so that outputs are more suitable for implementation into care settings.

A series of influential reports published in the mid-2000s established a new agenda for applied health research, but in different ways these policies brought together the distinct traditions of technocratic, scientific and co-produced knowledge in sometimes a difficult balance. The Cooksey Review (2006) was one of the most significant documents calling for a new collaborative approach to applied health research, given the shortcoming of disciplinary specific and siloed research communities to address the contemporary challenges facing the NHS. Significantly it, presents a more technocratic narrative asserting that the streamlining of research was essential to the wealth of nations. The review noted the UK risked failing to receive the full economic, health and social benefits that public investment in health research should produce.

Technocracy was not the only important narratives shaping applied health research. The national health research strategy launched in January 2006 (Department of Health 2006) placed emphasis on the application of the scientific method to solving social problems. This was based around an elite of professionals and the desire to use resources more efficiently and effectively. The strategy set out five main goals: firstly, to stablish the NHS as an internationally recognised centre of research excellence. Secondly, to attract, develop and retain the best research professionals to conduct people-based research. Thirdly, the commissioning of research focused on improving health and social care. Fourthly, the better management of knowledge resources, to facilitate the application of research outcomes to improve health and delivery of services. Finally, to act as sound custodians of public money for public good. This trend towards EBP is likely to intensify with the *Health Trends* (Stanford Medicine 2017) and *Future of Health* (Corbett et al. 2017) reports both highlighting the potential of 'big data' to push the bounds of evidence based decision-making and clinical practice further and faster, including new approaches to prevention, diagnosis and treatment. Incorporating big data and next-generation analytics into clinical and population health research and practice necessitates employing such

things as machine learning, data mining, and machine-based algorithms (Krumholz 2014).

Alongside these technocratic or scientific narratives, there have also been calls for more inclusive models of evidence co-production This became an important policy narrative within the UK, the NIHR commissioned *Future of Health* report, for example, indicated that a key priority for health research funders is to strengthen patient and public engagement in health research (Corbett et al. 2017). Co-production was also a key policy issue identified in the *Best Research for Best Health* report, which stressed the need to involve patients and the public in research and recommending reforms in the structure of research throughout the NHS. The report contributed towards this by establishing the UK Clinical Research Network (UKCRN). In its Strategic Plan 2006–2008 the UKCRN set out its vision for active patient and public involvement (PPI) to become embedded as part of mainstream clinical research activity, delivery and performance (Miles 2006). While many health and care service users might welcome the opportunity to engage healthcare service professionals, there are, however, potential sources of tension. In particular, the notion of shared accountability for outcomes is contentious (Ewert and Evers 2014). Batalden et al. (2016) suggest it is neither possible nor desirable to share power and responsibility equitably between patients and professionals in all situations. They assert that the burden of responsibility for medical and surgical error, for instance, must fall predominantly on healthcare professionals.

These initiatives value and prioritise different forms of evidence, evidence production, and in turn reinforce particular traditions of evidence-based practice. Firstly, they are typically premised on the utilisation and expansion of clinical research through collaboration with research universities, which tend to prioritise and advance 'scientific' evidence through forms of scientific trials and associated scientific publications. Within this community it is often assumed service impact is made through national guideline development and changes in evidence-based clinical practice; and the pathways to knowledge mobilisation and implementation are a particular issue for translational research collaborations. Secondly, they are also expected to involve collaboration with service commissioners and providers, and also industry,

including technology and pharmaceutical firms. Such organisations clearly value the development and relevance of clinical evidence, but they are also more often orientated towards the operational costs and benefits of intervention development and application. As such, different forms of management, operational or technocratic evidence are expected to inform decision-making. Thirdly, it is also recognised that the ultimate beneficiaries of health research are patients and the public, and their involvement in research prioritisation, evidence production and implementation is now expected. From this perspective, evidence needs to be co-produced with service users and stakeholders to ensure its relevance and adoption. While the incorporation of all three forms of evidence into a networked model of health research might seem coherent to policy makers, at a local level they can present the basis for dilemma and anomalies as actors from different communities, following different traditions, seek to produce, translate and implement evidence into practice.

Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)

We now focus on the development of CLAHRCs as a major publicly-funded initiative to promote applied and translational health research, which represents a prominent case of the tensions described above. The need to reform the existing structure of health research was noted by the aforementioned Cooksey Review (2006). It highlighted that health providers and researchers were often disconnected having major cultural differences in terms of aims, language and incentives (Rowley et al. 2012). Equally, the Tooke report (2007) recognised that a new model of applied and translational health research was required that better acknowledged and reflected the actual needs of care providers. It indicated that this necessitated the re-connection of clinical practice with academic research, stating the need for community-wide academic health research collaborations to streamline the co-production of health research and the translation of evidence into practice.

Reflecting the recommendations of these expert reports, the NIHR sent out a call for proposals to create 'pilot' CLAHRCs in October 2007, to forge links between a University and the surrounding NHS organisations. Nine regional CLAHRCs were established, each receiving up to £10 million in funding between 2008 and 2013. The CLAHRCs have operated as partnerships between local providers of NHS services and NHS commissioners, universities, other relevant local organisations and AHSNs. The collaborations were intended to improve patient outcomes through the conduct and application of applied health research. One of their primary focuses has been contributing towards closing the 'second gap in translation', by reducing the time-lags between the development of proven interventions and the implementation of these into routine practice (Cooksey 2006). Hence, their early goals can be seen as focused towards a more scientific agenda.

In 2013 the NIHR allocated £124 million for 13 new CLAHRCs, these 'second generation' CLAHRCs were commissioned between 1 January 2014 and 30 September 2019. They still had the central aim of supporting applied health research and the translation and implementation of research evidence into practice. There were several changes to the policy narrative for the second generation CLAHRCs with technocracy now more on the agenda. Notably, more prominence was given to the importance of collaboration with industry and the contribution to the economy. There was a clearly stated expectation that they would "contribute to the country's growth by working with the life sciences industry". In addition, importance was attached to achieving economic growth through building 'a critical mass' of people involved in applied health research.

However, the CLAHRCs were also created to develop new organisational models and approaches to co-produce changes to frontline practices (Rowley et al. 2012). As can been seen from Table 1, the principles of collaboration and co-production have been clearly articulated as core aims by all thirteen of the second generation NIHR CLAHRCs. In particular, public involvement has been deemed a key priority area for many of them.

Hence, within the broad context framing the development and implementation of the CLAHRC networks were three narratives

Table 1 Declarations regarding collaboration and co-production from individual CLAHRCs

CLAHRC	Specified commitment to collaboration and co-production
East Midlands	From its inception, CLAHRC East Midlands has placed patient and public involvement (PPI) at the centre of all its activities, including both the generation of new research evidence, and efforts to translate findings from that research into practice
East of England	Service users and carers are at the heart of what we do, in parallel with an ambitious public health research programme. Co-production and collaboration at all stages of the research process are fundamental to making a positive impact through applied health research
Greater Manchester	NIHR CLAHRC Greater Manchester's vision is to create true and enduring partnerships that deliver high quality research which improves healthcare and has impact in Greater Manchester and beyond
North Thames	The applied health research we undertake with our partners and in response to their needs grouped into broad themes. The individual projects in each theme are designed with the close involvement of clinicians, patients and the public, and academics from across our region. We involve patients and the public in everything that we do
North West Coast	The mission of the NIHR CLAHRC NWC is to work collaboratively with Partner organisations and other stakeholders including members of the public to co-produce and conduct high-quality, leadership enhancing, applied research designed to decrease health inequalities and improve the health of the population of the NW Coast through applied health research
North West London	We use the skills, knowledge and expertise of researchers, health and social care professionals, managers, commissioners and patients to conduct high quality research projects to find new ways of improving healthcare
Oxford	We will continue to work with our existing partners and look to develop new partnerships. We will continue to provide high quality, collaboratively produced, research-based evidence from applied research to inform rapid implementation of new services, research and innovation

Table 1 (continued)

CLAHRC	Specified commitment to collaboration and co-production
South London	The Collaboration for Leadership in Applied Health Research and Care (CLAHRC) South London is a research organisation. It comprises researchers, health professionals and NHS managers working at universities and NHS organisations
South West Peninsula	In our view, the theory of co-production provides useful insights into what it is about the qualities of collaborative working that inspire the requisite mechanisms for generating knowledge that is translated into practice
Wessex	PPI engagement is actively encouraged in all CLAHRC Wessex applied health research projects
West	It has been shown that where genuine co-production has taken place, it can deliver better outcomes, support better use of scarce resources and improve the well-being of those involved—clearly a win/win situation for patients and the public, as well as health service providers
West Midlands	Our co-production model between clinicians, patients and academics has strengthened, and our drive to stay true to this model is crucial to our continued success and deepening engagement
Yorkshire & Humber	We will undertake high quality applied research and evidence-based implementation that is responsive to, and in partnership with, our collaborating organisation, patient, carers and the public

that were not always complementary. Firstly, the tradition of scientific knowledge as embodied by clinicians and researchers focusing on the production of research, trials and evidence. Secondly, technical or technocratic experts with separate jurisdictions, acting as managers and commissioners, allocating resources based on population data and economic outcomes. Thirdly, the idea of co-production, where multiple patient and professional perspectives inform both the production and use of innovation. The way in which these narratives were accommodated and expressed within the case study CLAHRC seem to have helped shape how it has evolved and developed.

The Example of One CLAHRC

Implementing the case study CLAHRC mandated an array of specialist knowledge. This was provided by agents who could be subdivided into three main categories: scientific experts, including the subcategories of (a) clinicians with specialist medical knowledge and academics with an understanding of conducting research, (b) technocrats, who were decision-makers and administrators tasked with the effective and efficient management of human and financial resources and (c) stakeholders, this subdivision encapsulated a wide array of people, some of whom like the above categories worked within the CLAHRC structure, such as patient and public representatives. While yet others were located in external organisations including Clinical Commissioning Groups (CCGs), research funding bodies or medical facilities. It is also worth acknowledging that these categories could be relatively fluid, with individuals holding hybrid or conjoint positions across different communities. That said, the following considers how these traditions were manifest within the evolution of one CLAHRC, and how situated agents responded to these traditions and tensions manifest between them.

The Prerequisite for Scientific Knowledge and Technocracy

The second CLAHRC call placed an emphasis on scientific knowledge within research teams, with the application process requiring them to have a proven track record of 'world-class' research (WCR). Thus, there was an expectation within the CLAHRCs that a primary goal was to be the production of high-quality publishable research. The vast majority of those interviewed noted the prominence given to academic research; some suggested this had the potential to create conflict within the network between partner universities and clinical institutions.

> I mean one tension is that for world-class research, well the easiest type of study to publish and if you do it well is always well-regarded and

always great to put on a university REF return and journals, it would be a well-conducted randomised controlled trial. But the normal Health Service does not ever do a randomised controlled trial, it's not a delivered way. And it uses evidence in different ways. So most of which would be seen as poor in terms of methodology. So there is a tension there. **Research Director**

Other participants suggested that prioritising research could result in the CLAHRC being forced in more of an academic direction, creating a tension with those having with a technocratic focus. One Programme Manager hinted at the frustrations evident at the outset of the case study CLAHRC caused by a lack of dialogue between research and clinical staff, saying '*its academics in their boxes that have decided these things, without reference to the clinical practice areas*'. This clearly represented a threat to the notion of collaboration and was in direct conflict with the intension behind establishing the CLAHRCs.

Even though the stated goal of the CLAHRCs was to develop and conduct applied health research and translate research findings into improved outcomes for patients; the observed governance structures continued to place great importance on academic research. One of the headline performance indicators in their Annual Progress Reports, for instance, was the number of publications they produced; with an emphasis placed on high impact journals such as Nature and The Lancet. For some participants this raised the question of academics being able to influence the agenda in a direction that suited their interests. This could be an obvious source of conflict with the network, as other actors' views or priorities were potentially side-lined. As one member of the CLAHRC, who did not categorise themselves as an academic, noted:

The academics … I mean again this is a generalisation and by no means true of everybody but there is you know, a predisposition for academics to focus on their interests. And if they're controlling the agenda of what happens in the … without having to engage with external influences, then as I said there's going to be a tendency that those silos, to a greater or lesser extent, will be sustained. **Programme Manager**

Technocratic Operations

Within the CLAHRC another set of actors believed that historical pressures would inevitably lead the network in more a technocratic direction, both in terms of research management, and in terms of its engagement with NHS commissioning bodies. In terms of research management, for example, a significant area of operational focus was given to prioritising the efficient allocation of research, and measuring research processes and outcomes, such as the number of projects completed, PhD students recruited or website hits. There was a wide-ranging acceptance within the case study CLAHRC that an element of technocratic governance was inevitable. This was based upon an understanding of the policy landscape, in which managerial and commissioning groups would ultimately decide what services to pay for. Hence, addressing their priorities was essential if the network was to be able to make an impact.

> There are ways of measuring performance, there are ways of making sure it's scientifically robust and sound and that everything's value for money. **Research Network Manager**

These views could partly be explained by the national narrative emphasising efficiency, return on investment and demonstrating the CLAHRCs contribution to the country's economic growth. Consequently, there was an expectation that they would have to demonstrate that public funding was being allocated prudently. Hence, from the technocratic perspective the drive for efficiency and cost effectiveness were prevailing concerns, especially if the CLAHRC was to form effective relationships with commissioners. As one senior manager noted:

> fundamentally we've got to be much better in developing our economic argument because whilst the quality is all very nice to have, the bottom line for commissioners is that if we can't demonstrate that we can take costs out of the system they will not be interested. And I still think there isn't enough recognition of that from people in CLAHRC. **Senior Manager**

Within the CLAHRC network actors performed specific technocratic roles, with some specialising in the efficient functioning of its operations, and others focusing on monitoring and compliance.

> And then you've got obviously Karen and Darren at senior levels and Karen's helping more on the operational side, actually making the CLAHRC work. And then you've got Darren who's more making sure our performance is doing what we said it would do in the tender document and reporting back. **Research Lead**

The competing scientific and technocratic tradition led to dilemmas in certain relationships within the network. One the one hand, academics had to focus upon WCR to remain within the network, as one senior academic asserted:

> we know as academics that's what keeps our tenure, that's what we have to do. And I do think that was a tension because I think the ethos behind what NIHR were trying to do with the CLAHRCs was actually to have more impact in the practice areas. **Programme Manager**

On the other hand, the technocrats were under pressure to more rapidly produce tangible results that would create efficiency and cost savings in clinical practice. Thus, a particular source of tension within the network were the differences timescales scientists and technocrats were working towards. While the technocratic aim of the CLAHRCs was to reduce the time taken to get evidence into practice. Producing WCR, however, would it would take several years to conduct and publish, therefore not yield immediate results.

> So there is this drive towards academic excellence and scientific rigor and so on. But what a lot of the purpose of CLAHRCs wanted were more shorter-term evaluative studies. We are thinking of making the change and we have just made the change to see have the improvements that we thought would come have been realised and can you deliver that in six months or 12 months rather than three years to five years? **Programme Manger**

Some participants suggested that the tensions between the scientific and technocratic actors could be found in the way that the operation of some CLAHRC teams played out. An Operations Manager, for instance, commented:

> Yeah, there have been challenges with projects where people are not necessarily in agreement about what they're in it for or they're in it to try and get something for themselves. So that's quite challenging to negotiate your way through that to manage those people's expectations and draw them back to the aims of the project. But I think that's the case with any kind of service implementation, redesign, development work. **Operational Manager**

Hence, situated agents' webs of belief represented a potential source of conflict within the enactment of the case study CLAHRC. If these were the only traditions providing a guidance for future action, there may well have been a strong dynamic tearing the network in different direction. As one faction dominated by technocratic traditions pushed in one direction and another focusing on academic or scientific knowledge pulled in another. However, there also was a third tradition evident within the CLAHRC, suggesting that co-production should be its guiding principle.

The Desire for Co-production

The CLAHRCs stated aims and mission repeatedly emphasised the importance of undertaking scientifically robust world class research that would importantly be implemented into practice, thereby making a tangible impact on frontline service delivery. For some within the CLAHRC, closing this 'translation gap' was best addressed through co-producing research between service providers and users, commissioners and researchers. However, this brought into stark contrast different viewpoints about the quality and value of different types of evidence. A prominent example was the idea that co-produced, service-facing research should be iteratively developed to meet real-world problems with learning feeding rapidly into how services are organised and

delivered. For those more accustomed to scientific methods, however, this type of iterative process compromised the controlled design of conventional research trials. While the need for scientific and techno-cratic expertise was a prerequisite for enacting and operationalising the CLAHRC, the extent of stakeholder engagement was a dilemma that would have to be resolved as the product of individual agency. As a Research Manager observed: '*All the CLAHRCs are doing different things, there isn't a remit for us to do the same things. So different CLAHRCs have different approaches*'.

The desire for co-production within the case study CLAHRC was clearly articulated by one Research Manager, who stated: "*And the whole idea of co-production and engagement or mode two research, well that's what CLAHRCs are for anyway*". While a Project Manager also asserted the belief that the purpose of the CLAHRC was to be inclusive:

> And spreading it out and networking and collaborating and joining up, which is getting all the relevant people in, not just academics you know, AHPs, nurses, PPI, we've got to get their views constantly about what's needed. **Participant 12, Project Manager**

It could have been the case that this desire for co-production would have been another source of tension within the network, attempting to take it in yet another direction. However, we argue this tradition, rather than being a source of conflict, helped to resolve tensions in the enact-ment of the CLAHRC.

Resolving the Tensions

The dominant discourse within the case study CLAHRC network was that collaboration, rather than conflict, was the underlying principle guiding their actions. This narrative was most strongly embodied in belief surrounding the value of co-production and PPI.

> Work with partners, both natural NHS partners, local authorities, the voluntary sector, industry and the HSNs. And generally, be seen … I mean the key vision I think from my point of view both internally and

externally was having impact within our projects and making a difference. **Performance Manager**

Everything must have a proper PPI involvement which is more than trivial, it's got to be more than just reading a patient information sheet and agreeing or changing a couple of words on it. It's got to be a meaningful sort of consultation and really through the whole project. **Research Director**

It appeared that the network was constructed in such a way that the social context in which situated agents thought and acted made cooperation and collaboration a primary concern. This helped to resolve the tension between technocratic, scientific and co-production approaches within the structure of the network, with a new emergent local narrative synthesising the three potentially competing priorities emerging.

In an idealised world, the CLAHRC is a unique vehicle for bringing together a whole range of different people who want to make a difference in making healthcare better through actually researching … doing research on interventions, on practices, on procedures, on anything that can make healthcare better. And it's almost like a hook or a nexus point and it brings all these people together and they should work in this kind of dynamic mode two way of kind of interdisciplinary problem-solving. **Research Lead**

So, it wasn't academics working in their silos, clinicians doing the job, the patients receiving the care all separate. The idea was if you got everybody together, then you'd do things smarter and quicker. So that was what I understood as sort of the main driver to do applied health research in a sort of more pragmatic way that could actually be rolled out rather than just sitting on an academic shelf in some library for years and years and not being picked up. **Research Coordinator**

This, however, had been an evolving process, participants noted the narrative around co-production had been developing since the previous iterations of the CLAHRC. During which time it became viewed as mechanism to ensure that the innovation they developed were appropriate for implementation into health and care settings.

The discourse enforcing collaboration and co-production originated in the responses of individual situated agents within the network. While there were forces pushing predominantly for scientific discovery, technocracy or co-production. The overall result was the construction of a new tradition, which exerted an influence on those being socialised into the CLAHRC. Meaning agents were not operating in a context that explicitly reinforce the potential tensions between within the network. Nevertheless, they would have to resolve this dilemma themselves when their own traditions and paradigms did not coincide with this background.

> People I would say when they come to work for us they either get it or they don't. So people that tend to like working within a CLAHRC study, as opposed to a more traditional study, they're the sort of people who have that already, who have that say for example the idea of making sure that if there is any way of working with the organisations that are going to be implementing the research, that they're the sort of people that want to do that anyway and that they don't have to be told to. And it's not a new thing to them. **Applied Researcher**

Conclusions

This chapter has drawn upon decentered theory to explore the ways in which collaborative healthcare research networks are made, and remade, through the activities of the individuals who compose them to resolve conflicts. It focused upon the potential tensions between technocracy, scientific knowledge and co-production in the context of the send iteration of a regional CLAHRC programme. The decentered approach provided an effective analytical lens through which to examine the views of situated agents and their perceptions of tensions within the enactment of the network.

While we expected people act on their beliefs, findings indicated these were construct against the background of tradition and discourse.

Hence, the way the tensions between technocracy, scientific knowledge and co-production were addressed within the CLAHRC was not simply a product of agents' roles within the network. However, these exerted an influence as the traditions associated with being an academic, manager or practitioner etc. resulted in dilemmas often manifest through particular network relationships. The relationships between those with having a scientific focus and those with a more technocratic mode of operating could come into conflict due to their priorities and goals. A particular issue arose from the tension between the competing aims of the CLAHRC, with a technocratic focus aiming to get research evidence into practice as soon as possible to produce greater efficiency and cost effectiveness, and the scientific objective of producing WCR. These conflicting priorities could lead to dilemmas as their realisation would occur on fundamentally different timescales.

Nevertheless, t was not the case that academics only prioritised world-class research or that commissioners only had economic concerns at the expense of each other interests. Nor was the desire for co-production sacrificed to prioritise technocratic or scientific objectives. Instead, the dilemma of how to ensure the effective participation of stakeholders in the network resulted in a tradition underlining the desire for collaboration.

The NHS habitually encounters the operational tensions of continually improving quality of care for people using their services while also delivering better-value care. It has been suggested EBP has the potential to address the quadruple aim of: improving the patient experience; improving the health of the population; reducing the per capita cost of healthcare; and improving the work life and conditions of clinicians (Bodenheimer and Sinsky 2014). This creates a powerful narrative suggesting the basic focus should be upon research the efficient translation of research-based advances into practice.

Research evidence indicates that a networked approach can be an effective way of sharing such learning and ideas. Also, that it is an effective means of building community and purpose, influencing new

solutions to entrenched problems, tapping into talent and knowledge, and providing a means to innovate and embed change (Provan et al. 2007). It is important that the push for technical expertise in the form of scientific knowledge or technocracy do not come to dominate such networks. As this could be at the cost neglecting co-production as a means of altering essential relationships and ongoing practices (Mitlin and Bartlett 2018). The knowledge derived from the experience of patients and service users and working with health and social care partners to design and disseminate research, can be invaluable in ensuring innovation is suitable for the health and care context. Thus, there is a potential tension between EBM and co-production because they serve different agendas within networks.

Decentred theory changes the conception of networks. It encourages networks to be treated as arising from the ways in which people act on beliefs they adopt against the background of traditions and in response to problems. As situated agents' beliefs and actions constructing the nature of networks, central to collaborative healthcare research networks is the creation of inclusive traditions. Our findings align with the proposition of decentred theory that a networks dimensions and characteristics are not given, rather they are constructed by individuals in the stories they hand down to one another. Within the case study setting the tensions between technocracy, scientific knowledge and co-production were recognised and addressed through the situated meaningful practices of local actors as networked practice was enacted. Change involved the push and pull of the dilemma between actors. The network became a nexus point that brought professional and private stakeholders together, it was able to include clinicians, policy experts, academics, patient, carers and communities as partners. So that they could work in a dynamic mode two way of interdisciplinary collaborative problem-solving. Consequently, the case study CLAHRC became a context in which dilemmas were resolved and new inclusive traditions formed.

References

Adily, A., & Ward, J. E. (2005). Enhancing evidence-based practice in population health: Staff views, barriers and strategies for change. *Australian Health Review: A Publication of the Australian Hospital Association, 29*(4), 469–477. Available at: http://www.ncbi.nlm.nih.gov/pubmed/16255712. Accessed 2 January 2019.

Batalden, M., Margolis, P., Seid, M., Armstrong, G., Opipari-Arrigan, L., & Hartung, H. (2016). Coproduction of healthcare service. *BMJ Quality & Safety, 25*(7), 509–517. https://doi.org/10.1136/bmjqs-2015-004315.

Bevir, M. (2013). *A theory of governance*. Berkley: University of California Press.

Bevir, M., Needham, C., & Waring, J. (2019). Inside co-production: Ruling, resistance, and practice. *Social Policy & Administration, 53*(2), 197–202. https://doi.org/10.1111/spol.12483.

Bevir, M., & Richards, D. (2009). Decentring policy networks: A theoretical agenda. *Public Administration, 87*(1): 3–14. https://doi.org/10.1111/j.1467-9299.2008.01736.x.

Bevir, M., & Waring, J. (2018). Decentring health policy: Traditions, narratives, dilemmas. In M. Bevir & J. Waring (Eds.), *Decentring health policy: Learning from British experiences in healthcare governance* (pp. 1–16). Routledge.

Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the patient requires care of the provider. *The Annals of Family Medicine, 12*(6), 573–576. https://doi.org/10.1370/afm.1713.

Clarence, E. (2002). Technocracy reinvented: The new evidence based policy movement. *Public Policy and Administration, 17*(3), 1–11. https://doi.org/10.1177/095207670201700301.

Cooksey, D. (2006). *A review of UK health research funding*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228984/0118404881.pdf. Accessed 25 July 2018.

Corbett, J., Batalden, P., Margolis, P., Seid, M., Armstrong, G., Opipari-Arrigan, L., & Hartung, H. (2017). *Future of health: Findings from a survey of stakeholders on the future of health and healthcare in England*. RAND Corporation. https://doi.org/10.7249/RR2147.

Crompton, A. (2019). Inside co-production: Stakeholder meaning and situated practice. *Social Policy & Administration, 53*(2): 219–232.

Department of Health. (2006). *Best research for best health*. Available at: www.dh.gov.uk/researchstrategy. Accessed 24 February 2019.

Department of Health. (2011). *Health and wealth: Accelerating adoption and diffusion in the NHS*.

Department of Health. (2012). *Liberating the NHS: No decision about me, without me*. London. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/216980/Liberating-the-NHS-No-decision-about-me-without-me-Government-response.pdf.

Ewert, B., & Evers, A. (2014). An ambiguous concept: On the meanings of co-production for health care users and user organizations? *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*. https://doi.org/10.1007/s11266-012-9345-2.

Filipe, A., Renedo, A., & Marston, C. (2017). The co-production of what? Knowledge, values, and social relations in health care. *PLOS Biology, 15*(5), e2001403. https://doi.org/10.1371/journal.pbio.2001403.

Harvey, G., Fitzgerald, L., Fielden, S., McBride, A., Heather, W., Bamford, D., et al. (2011). The NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRC) for greater manchester: Combining empirical, theoretical and experiential evidence to design and evaluate a large-scale implementation strategy. *Implementation Science, 6*, 96. https://doi.org/10.1186/1748-5908-6-96.

Howlett, M., Kekez, A., & Poocharoen, O.-O. (2017). Understanding co-production as a policy tool: Integrating new public governance and comparative policy theory. *Journal of Comparative Policy Analysis: Research and Practice, 19*(5), 487–501. https://doi.org/10.1080/13876988.2017.1287445.

Krumholz, H. M. (2014). Big data and new knowledge in medicine: The thinking, training, and tools needed for a learning health system. *Health Affairs, 33*(7), 1163–1170. https://doi.org/10.1377/hlthaff.2014.0053.

McGinty, J., & Anderson, G. (2008). Predictors of physician compliance with American heart association guidelines for acute myocardial infarction. *Critical Care Nursing Quarterly, 31*(2), 161–172. https://doi.org/10.1097/01.CNQ.0000314476.64377.12.

Melnyk, B. M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in US nurses. *The Journal of Nursing Administration, 42*(9), 410–417. https://doi.org/10.1097/NNA.0b013e3182664e0a.

Miles, M. (2006). *UKCRN patient & Public involvement strategic plan: 2006–2008*. Available at: www.ukcrn.org.uk. Accessed 24 February 2019.

Mitlin, D., & Bartlett, S. (2018). Editorial: Co-production—Key ideas. *Environment and Urbanization, 30*(2), 355–366. https://doi.org/10.1177/0956247818791931.

Newman, J. (2001). *Modernising governance: New labour, policy and society*. Sage.

Osborne, S. P. (2006). The new public governance? *Public Management Review, 8*(3), 377–387. https://doi.org/10.1080/14719030600853022.

Ostrom, E. (1996). Crossing the great divide: Coproduction, synergy, and development. *World Development, 24*(6), 1073–1087. https://doi.org/10.1016/0305-750X(96)00023-X.

Parsons, W. (2002). From muddling through to muddling up—Evidence based policy making and the modernisation of british government. *Public Policy and Administration, 17*(3), 43–60. https://doi.org/10.1177/095207670201700304.

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management, 33*(3), 479–516. https://doi.org/10.1177/0149206307302554.

Rowley, E., Morriss, R., Currie, G., & Schneider, J. (2012). Research into practice: Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Nottinghamshire, Derbyshire, Lincolnshire (NDL). *Implementation Science, 7*(1), 40. https://doi.org/10.1186/1748-5908-7-40.

Sackett, D. L., Rosenberg, W. M., Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't. *BMJ, 312*(7023), 71–72. https://doi.org/10.1136/bmj.312.7023.71.

Sanderson, I. (2003). Is it "what works" that matters? Evaluation and evidence-based policy-making. *Research Papers in Education, 18*(4), 331–345. https://doi.org/10.1080/0267152032000176846.

Sorrentino, M., Sicilia, M., & Howlett, M. (2018). Understanding co-production as a new public governance tool. *Policy and Society, 37*(3), 277–293. https://doi.org/10.1080/14494035.2018.1521676.

Stanley, L. (2016). Legitimacy gaps, taxpayer conflict, and the politics of austerity in the UK. *The British Journal of Politics and International Relations, 18*(2), 389–406. https://doi.org/10.1177/1369148115615031.

Stanford Medicine. (2017). *Harnessing the power of data in health* (Stanford Medicine Health Trends Report). Available at: https://med.stanford.edu/content/dam/sm/sm-news/documents/StanfordMedicineHealthTrendsWhitePaper2017.pdf.

Tooke, J. (2007). *Aspiring to excellence: Findings and recommendations of the independent inquiry into Modernising Medical Careers* (Interim report. MMC Inquiry). Aldridge Press.

Voorberg, W. H., Bekkers, V. J. J. M., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review, 17*(9), 1333–1357. https://doi.org/10.1080/14719037.2014.930505.