Social Science & Medicine 106 (2014) 101–109

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

# Changing policy and practice: Making sense of national guidelines for osteoarthritis

Bie Nio Ong [a,*], Andrew Morden [a], Lauren Brooks [b], Mark Porcheret [a], John J. Edwards [a], Tom Sanders [a], Clare Jinks [a], Krysia Dziedzic [a]

[a] Arthritis Research UK Primary Care Centre, Primary Care Sciences, Keele University, Keele ST5 5BG, UK
[b] Medical School, Keele Campus, Keele University, Keele ST5 5BG, UK

ARTICLE INFO

*Article history:*
Available online 30 January 2014

*Keywords:*
Complex interventions
Primary care
Osteoarthritis
Clinical guidelines
Normalisation Process Theory
Sense-making
England

ABSTRACT

Understanding uptake of complex interventions is an increasingly prominent area of research. The interplay of macro (such as changing health policy), meso (re-organisation of professional work) and micro (rationalisation of clinical care) factors upon uptake of complex interventions has rarely been explored. This study focuses on how English General Practitioners and practice nurses make sense of a complex intervention for the management of osteoarthritis, using the macro–meso–micro contextual approach and Normalisation Process Theory (NPT), specifically the construct of coherence. It is embedded in a cluster RCT comprising four control practices and four intervention practices. In order to study sense-making by professionals introduction and planning meetings ($N = 14$) between researchers and the practices were observed. Three group interviews were carried out with 10 GPs and 5 practice nurses after they had received training in the intervention. Transcripts were thematically analysed before comparison with NPT constructs. We found that: first, most GPs and all nurses distinguished the intervention from current ways of working. Second, from the introduction meeting to the completion of the training the purpose of the intervention increased in clarity. Third, GPs varied in their understanding of their remit, while the practice nurses felt that the intervention builds on their holistic care approach. Fourth, the intervention was valued by practice nurses as it strengthened their expert status. GPs saw its value as work substitution, but felt that a positive conceptualisation of OA enhanced the consultation. When introducing new interventions in healthcare settings the interaction between macro, meso and micro factors, as well as the means of engaging new clinical practices and their sense-making by clinicians needs to be considered.



## Introduction

Much has been written on the impact of the organisation of healthcare work on care delivery since the 1990s. As our starting point we place healthcare professionals at the centre of any attempts at understanding the implementation of new systems in healthcare settings. We also argue that in order to understand and implement change more effectively we need to move away from the rationalistic model which perceives the implementation of healthcare initiatives as a 'linear' and unproblematic process, and professionals as 'passive' agents of change exercising limited control over the implementation process. Professionals will use 'evidence' in their work but such evidence is not incontrovertibly translated into clinical practice. Whether or not new approaches to healthcare delivery are adopted depends, to an extent, on individual-level factors including psychological determinants such as personal beliefs, motivation and emotion (Michie, Van Stralen, & West, 2011). Moreover, one should not underestimate that professionals are also affected by broader policy (e.g. payment frameworks or national guidelines) and economic and resource pressures (Greenhalgh et al., 2004). It is, however, important to conceptualise professions as engaged in an iterative relationship with their environment. Professionals are motivated by their own frame of reference through which they are able to influence change (Kitchener & Mertz, 2012) whilst simultaneously being affected by broader factors at the meso and macro level.

In this paper we argue that the *connection* between macro influences such as the restructuring of health services; meso-level changes, such as the re-organisation of professional work through divisions of labour and audit cultures; and micro level factors, such as the routinisation and rationalisation of clinical work, together

* Corresponding author.
*E-mail address:* b.n.ong@keele.ac.uk (B.N. Ong).

0277-9536 
http://dx.doi.org/10.1016/j.socscimed.2014.01.036

influence adoption of new clinical practices or complex interventions. While this list of influences operating at the micro, meso and macro level is by no means exhaustive, taken together they create pressure on professionals to continuously redefine their work and professional boundaries, and pose a test of their ability to respond and adapt (Hartley, 2002). Recognition of these influences is increasing in the case of complex healthcare interventions (Crilly, Jashapara, & Ferlie, 2010; May et al., 2007; Swan, Bresnen, Newell, & Robertson, 2007), but to do date few concrete examples of empirical studies exist that have cogently accounted for these influences. We focus on examining how General Practitioners and practice nurses make sense of a complex intervention that is based on National Institute for Health and Clinical Excellence (NICE) guidelines, using the above contextual approach and the theoretical framework of Normalisation Process Theory paying particular attention to the importance of achieving 'coherence', or how practitioners make sense of interventions by piecing together its relevance, appropriateness, workability and added value to their existing practice (May & Finch, 2009).

The analysis centres on English primary care and in particular on the issue of how healthcare professions are affected by, and in turn affect, the interpretation and adoption of new services. We use the case of the implementation of evidence-based approaches for managing patients with osteoarthritis. This musculoskeletal problem occurs in a high proportion of GP consultations, and is projected to increase due to a rapidly ageing population in the western world (Jordan et al., 2010). We begin by discussing the three contemporary contextual levels to describe their effect on the adoption of a complex intervention by GPs and practice nurses. We conclude by presenting a specific case example from an empirical study illustrating the drivers and barriers to the adoption of a complex intervention and use NPT to illuminate how these contextual levels interrelate and influence 'sense-making'.

*The current healthcare context (macro level)*

In many professional organisational contexts the social structures that impact upon the uptake of new innovations or ways of working is poorly understood (Greenhalgh et al., 2004). A key macro factor impacting on the medical profession, including GPs, has been the change in the regulatory framework giving the NHS and the State greater control over medical work, in theory at least. Since the 1980s western health systems have undergone unprecedented reform and the English NHS is one example of continuous structural change. A number of features are important to note: the introduction of market mechanisms moving away from a state monopoly of healthcare provision to a mixed economy (Ham, 2009); the rise of the new managerialism (Ferlie, Pettigrew, Ashburner, & Fitzgerald, 1996) that impacted on professional status, working practices and the balance of power held by the medical profession (Freidson, 1984); the rise of 'confidence-engendering' regulatory policies and procedures to monitor and control the medical profession over the last few decades (Dixon-Woods, Yeung, & Bosk, 2011). Changing attitudes towards risk and expertise, and a number of high profile failures, means accountability structures are now 'state-directed bureaucratic regulation' (Waring, Dixon-Woods, & Yeung, 2010, p551). Thus, currently the power to define the content and conduct of medical work is shared between professionals, the NHS (through its managers) and the State. In summary, social and political conditions have bolstered the imperatives to alter the balance of power (Dixon-Woods et al., 2011) and opened up the medical profession to wider scrutiny.

Another influential factor is the 'constant revolution' in the English NHS with its latest organisational form of Clinical Commissioning Groups (CCGs), whereby GPs will need to balance the dual role of patient advocates – as providers of healthcare, and the rationers of care – as commissioners with limited resources at their disposal. Arguably, these influences point towards the gradual erosion of clinical freedom risking the possibility that GPs may become perceived as agents of the State which could damage the relationship of trust with patients (Howe, 2010).

In summary, GPs have to balance their everyday practice with the requirements of external bodies and manage a tension between acting as patient advocate and commissioner of limited resources. This brings regulatory, economic and professional concerns (macro) into focus for GPs and implementing a new intervention is not just the simple task of changing behaviour/adopting a new way of working.

*The organisational context of primary care (meso level)*

Currie, Dingwall, Kitchener, and Waring (2012) observe that organisational settings are often involved in a dynamic mediating relationship between macro structures and the agents that operate within them. In other words, organisations are often shaped by macro factors, which in turn impinge upon the working lives of those who work within them. However, this is arguably not a 'top down' relationship.

In England, GPs work predominantly in group practices and an important characteristic is their independent contractor status responsive to broader macro-policies. This, in tandem with the needs of the local population, means practices can vary in size, feature a wide range of healthcare professionals working within them, provide differing range of services, use different information technologies, possess multiple modes of internal/external communication, and many more characteristics. Thus, general practice itself is a multifaceted setting with no single dominant organisational model.

The core characteristics of a 'profession' as a group are: autonomy, specialist skill/knowledge, and control over the content of their work, though as noted above, macro factors have influenced this level of control and the content of healthcare professionals work (Freidson, 1984; Waring et al., 2010). Given the potential range of professionals working within primary care the definition of roles and responsibilities is therefore important. First, one needs to recognise the relationship between professions and the organisations within which they are located. The relationship is a dynamic one in which professionals are shaped by, but in turn shape, organisations.

Second, it is important to identify the mechanisms of knowledge translation from evidence to professional practice. Professionals play a central role in 'filtering' knowledge for use in the delivery of care within their organisations. Currie, Waring, and Finn (2007) suggest that professional cultures within organisations facilitate knowledge translation and diffusion, or conversely inhibit it because professions 'hoard' knowledge. Parent, Roy, and St-Jacques (2007) distinguish between the need to solve a problem that leads to the search for knowledge; the ability to contextualise, translate and diffuse knowledge through social and organisational networks and gain commitment; and the recognition and valuing of new knowledge and assimilation within existing clinical practices. While their model reflects the 'evidence pull' approach, it can be argued that a number of drivers are now coming together at the meso level that reflects this model. Current changes to English general practice means GPs require new knowledge about effective means of healthcare delivery, patient management, and political knowledge beyond the practice. While studies have shown that dissemination and absorption of new knowledge is far from straightforward (e.g. Glasziou & Haynes, 2005) it could be argued that this is changing, because of increased political pressure, and

because of different mechanisms, ranging from regulation, continual professional development and revalidation to the use of sophisticated information technologies. In summary, responses by healthcare professionals to organisational change and redefinition of professional jurisdictions can be unpredictable and fluid.

*The individual clinician (micro level)*

The impact of the aforementioned changes on everyday practice is profound where the balance between technicality and indeterminacy (Iles, 2011) is finely tuned. A health professional is someone who has to make decisions in the face of uncertainty, using their technical and tacit, embodied knowledge. As Currie et al. (2012) suggest, knowledge is not something people 'have', but something they 'do', i.e. it is not a codifiable entity, but embedded within and inseparable from practice. Mcnulty (2002) contends it is important to distinguish between 'knowledge' and knowing. Knowledge is defined as a resource to approach problems, whereas knowing refers to 'tacit knowledge generated and employed in situated practice' (p440). Using knowledge is a social process of sense making shaped by individuals' context, experience and background (Mcnulty, 2002). Thus, discretion in decision-making is necessary to account for the individuality of each patient, yet, at the same time clinicians are required to demonstrate their use of evidence which is demanded for transparency and audit.

The clinical context (macro and meso) is important for understanding the perspectives and actions of individual professionals (micro). When contemplating the adoption of a complex intervention these factors influence the reasoning and assessment of its worth by primary care professionals, and we will discuss how this is achieved below.

*The implementation of complex interventions: Normalisation Process Theory*

The notion of complex interventions in healthcare has been defined by the Medical Research Council as "interventions that contain several interacting components" (MRC, 2008). The emphasis of this approach is largely on systemic and organisational influences, alongside individual professional's psychological factors. A number of conceptual frameworks have emerged concerned with implementing complex interventions, first summarised by Greenhalgh (2004). Increasingly it is recognised that the use of clinical evidence should be augmented by consideration of organisational context, policy and structural aspects, social processes that define 'knowledge' and evidence, and drawing on a wider range of disciplinary perspectives (Crilly et al. 2010; May et al., 2007; Swan et al., 2007). Furthermore researchers are increasingly drawing attention to the need to understand how knowledge is utilised in practice and operates as a tool for everyday knowing (Gkeredakis et al., 2011). Mcnulty (2002) highlights gaps between 'knowing' and 'knowledge' and the need to examine the 'sense making' that HCPs engage in when implementing complex interventions.

Researchers are addressing the issue of sustainability and broadening attention from implementation to include the routinisation of interventions in clinical practice. This has led to new explanatory models and we will draw on Normalisation Process Theory (NPT) (May & Finch, 2009), when presenting the specific case. NPT focuses upon the collective, coordinated and cooperative social action in order to understand agents at work (in this case primary care professionals) within implementation processes (May, 2013). NPT draws on existing models, but integrates their different dimensions by examining the processes of change in context, considers the multi-layered reality and overlapping processes affecting behaviour change and attempts to capture the extreme ends of the process from sense-making to routinisation. NPT is built around four constructs (contextual integration, skill-set workability, interactional workability and relational integration) that are aligned to four generative mechanisms in NPT (May et al., 2009): coherence, that is, the work that defines and organises the objects of practice, or the sense making work that people participate in; cognitive participation, that is the work that defines and organises the enrolment of participants in a new practice; collective action, that is the work that defines and organises the enacting of a practice; and reflexive monitoring, that is work that defines and organises the knowledge on which appraisal of a practice is founded (Fig. 1).

May (2013) emphasises that the intentional actions of agents are achieved through joint enterprise, and this happens from the first stage of implementation: participants attribute meaning to a complex intervention and make sense of its possibilities within their field of agency. In our case, primary care professionals have to think through what the new intervention means for their practice, and how it differs. This 'sense-making' work can be formal or informal, but according to May (2013) makes everyday work into a coherent whole and gives it a sense of orderliness. This then frames

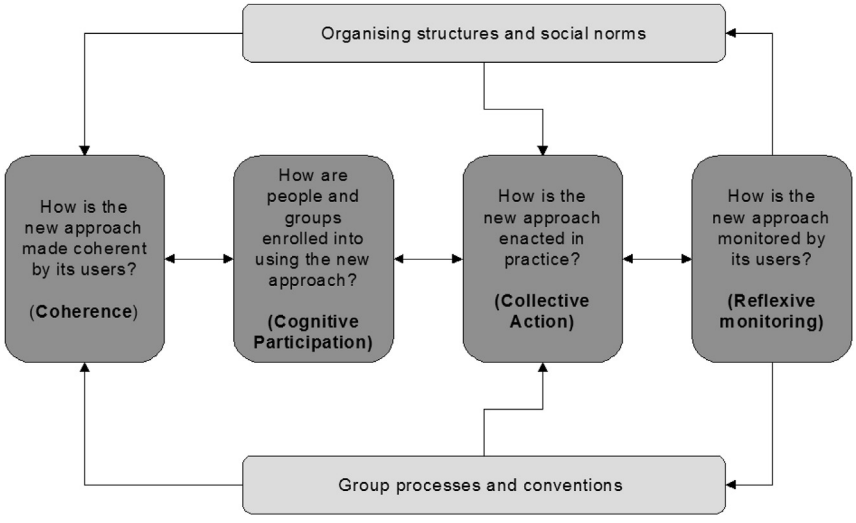


**Fig. 1.** Normalisation Process Theory – overall framework.

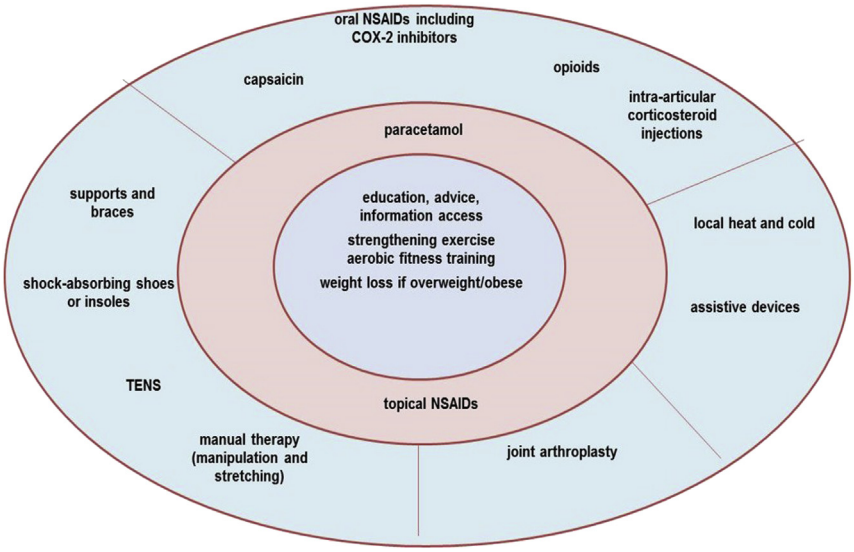


**Fig. 2.** NICE OA guidelines (2008).

how participants specify their involvement with the required change process.

NPT is particularly effective at unpicking if and how people make sense of complex interventions in primary care (Bamford, Heaven, May, & Moynihan, 2012). The mechanism of 'coherence', which is concerned with sense-making and giving meaning to a new intervention, is a pivotal first stage for implementation, and a focal point of our study.

## Design and methods

*An example from primary care and general practice: the Management of Osteoarthritis in Consultations Study*

The example presented highlights the multiple complexities of introducing a new intervention: the way it is interpreted by professionals, the influence of context and associated inter-professional relations, and the impact on professional knowledge and expertise. The Management of Osteoarthritis in Consultations Study: the development and testing of a complex intervention in primary care (MOSAICS) (http://www.controlled-trials.com/ISRCTN06984617) presents an on-going implementation project funded by the National Institute for Health Research (NIHR) which allows examination of professionals' sense-making processes as they occur rather than retrospectively (Kennedy et al., 2010). It can also be described as a 'best practice' initiative led by a group of researchers working in partnership with health professionals, and guided by patients. It represents 'evidence push' by researchers because the condition of osteoarthritis is not identified as a priority by GPs and commissioners. Consequently, the issue of 'coherence' becomes particularly salient in relation to how GPs integrate a new way of working that fits with current routines.

*Context*

Evidence-based medicine, standardising the quality of care and the increased scrutiny of clinicians has shaped the proliferation of clinical guidelines. The National Institute for Health and Clinical Excellence (NICE) developed Osteoarthritis (OA) Guidelines (NICE, 2008) that defined a set of core treatments for use within primary care, with particular focus on supporting self-management (Fig. 2). Research showed that patients with OA were not optimally treated (Porcheret, Jordan, Jinks, Croft, & with the Primary Care Rheumatology Society, 2007) and thus a study was designed to investigate the impact of a complex intervention to improve OA management based on the NICE recommendations. The aim of the intervention was to enhance supported self-management given by participating practices (discussed below) and promote the uptake of the core treatments recommended in the NICE OA guidance (NICE, 2008). The intervention was developed by researchers in close collaboration with primary care clinicians and patients, and consisted of a semi-structured GP consultation, provision of written information (OA guidebook) and referral to a nurse-led OA clinic. In addition a computer-based template that prompted and enabled GPs to code aspects of a consultation for OA was installed in both the intervention and control practices (see Fig. 3). The intervention was being tested in a cluster randomised controlled trial (RCT). Extensive training was delivered to the practices as a whole, and GPs and practice nurses as professional groups to implement this intervention. In other words, the research team acted as sense-givers providing 'knowledge' (Mcnulty, 2002). The study is concerned with the process of participants' 'sense-making' when presented with 'knowledge'.

*Sample selection, data collection and analysis*

The study was conducted between August 2011 and July 2012. Eight practices in the West Midlands and North West of England were recruited to take part in the study: four control practices and four intervention practices. Practices in the local Primary Care Research Network were approached by experienced network staff.

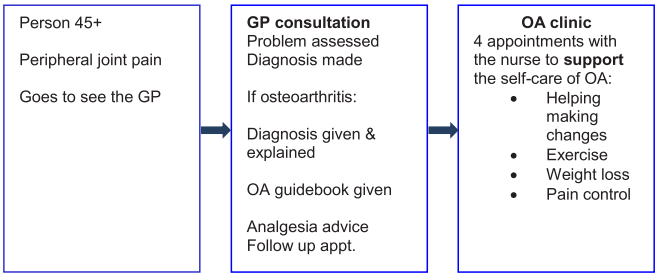


**Fig. 3.** The new intervention.

Those expressing an interest were visited by the research team when further information about the study was presented. Ten practices were visited and eight agreed to participate. All practices were given a detailed introduction to the study, and supported throughout by GP facilitators and regular meetings with the research team. NPT study was embedded within the RCT to follow the process from introducing the study prior to recruitment through to completion when the intervention had operated for nine months. Research ethics approval for the study was obtained from the NHS Local Research Ethics Committee (ref:10/H1017/76) and all participants gave informed consent for observations and interviews.

AM, BNO and LB observed all the introduction meetings researchers held with practices initially interested in the study ($N = 10$). Subsequent operational meetings in the intervention practices were also observed ($N = 4$). All observations were written up as detailed field notes. The aim of the observations was to assess coherence and build up a picture of each practice, including interrelationships and potential barriers and drivers. The intervention practices then engaged in GP and nurse training, at the end of which the NPT team conducted group interviews using the first element of NPT framework (coherence) as its organising device. Three groups of GPs were interviewed ($N = 10$) and one group of practice nurses ($N = 5$). All interviews (except one) were tape recorded and fully transcribed. All data were managed in NVivo9 and thematic analysis was conducted after AM, BNO and LB had developed a coding framework through iterative comparison of independently coded transcripts.

We focus on the early stages of introducing the study in order to discuss the key issues relating to sense-making by professionals. While NPT was adopted as the theoretical framework and informed the data collection, the analysis was done in two phases: first, thematic analysis allowing for themes to emerge from the data, and second, a comparison of the themes with the NPT construct of coherence. This approach was taken in order not to 'force' the data into pre-defined NPT categories (MacFarlane & O'Reilly-DeBrun, 2012). During analysis 'deviant cases' in the data were searched for to act as 'disconfirming' checks and balances (Green & Thorogood, 2004). While different degrees of coherence were identified (and reported below), no deviant cases were detected.

## Results

### *Introducing a new approach to general practices*

The research Centre has carried out a number of studies that preceded the MOSAICS study and the research team drew on lessons learned from those: GPs have to be convinced of patient need in terms of how common the problem is in practice and what they encounter in everyday consultations, particularly with regard to their own perceptions of being able to offer patients effective care. A new evidence-informed intervention needs to be believable (e.g. emerge from a credible source) and promise real benefit to either facilitating GPs' work or to patients. The symbolic significance of objects (Swan et al. 2007) such as the pop-up template is crucial because its 'fit' with clinical routines will determine uptake. In order to ensure that GPs understand the purpose of the intervention and what they are expected to do, sufficient time for training and ongoing support has to be agreed. Finally, the research team should demonstrate sensitivity to the local context, especially the unique characteristics of each general practice.

The MOSAICS team incorporated this learning into the design and conduct of their study set-up. In the first meeting to 'sell' the study it was emphasised that the study would be sensitive to local circumstances and clinician preferences. The case of need was also highlighted (e.g. high prevalence of OA but low priority in primary care, links with co-morbidity and understanding GPs' frustration about limited number of effective treatments), as was potential improvements in quality of care and continuing professional development. Explicit recognition was given to the fact that study participation required resources, so ongoing support by the team and GP facilitators was offered.

The template was installed on the computers of all participating practices which alerted GPs to ask six questions of patients who presented with joint pain. The MOSAICS team provided template training and held template review meetings where concerns and benefits were discussed with GPs. Thus, considerable attention was paid to the symbolic significance of objects (Swan et al., 2007) when introducing this new intervention.

Researchers requested that all practice staff should attend the introduction meeting so that administrative and clinical staff could share their perspectives on the impact of the study on their organisation. The purpose was two-fold: to engage the practice as a system and to adjust the study to the organisation and the preferences of its professionals. However, not all practices arranged for their full team to be present at the introduction meeting, and thus differences in the initiation of sense-making occurred. For example, one very large group practice brought together almost half of their GPs which they called 'great attendance for this meeting' and discussed the study and decided on participation. The observation notes summarised the meeting as follows:

> The GPs present all appeared positive about the study, mainly because it does not require extra time, can contribute to Professional Development Plans, highlights a condition that tends to be neglected. It was not clear how much they understood about the different approach or the nurse clinic. The idea of referring the patients to a nurse seemed to be received well. (Observation Practice 3, 8/6/2012).

These notes highlight that the GPs focused on the benefits for themselves as professionals, alongside identifying patient need. The potential of the nurse clinic was seen to be positive, but the actual content of the intervention and what it required from them in terms of changing their approach to OA consultations appeared to be much less clear at this stage. With no nurses present at the meeting the implications for their working practice could not be gauged. The GPs said in the interview that they decided to participate because they had been involved in a previous Centre study and they liked research, while the subject of osteoarthritis was of secondary importance to them. The practices felt that the study was GP-led which created a high degree of trustworthiness, which was reinforced by positive, existing relationships with the GP network team.

The introduction meeting at Practice 1 was with all GPs and the Nurse Practitioner leading the practice nurse team. The condition itself was central to the discussion:

> GP1 said that she felt positive about the underlying idea because "it is good someone does something about OA as it affects us all, myself included". GP2: "we see so many people with joint pain". […] Nurse practitioner thought that people 'feel special' if they get a series of dedicated consultations with the nurse. […] GP1 concluded that they would discuss the study with the practice. If the nurses were happy to increase their working time involvement might be possible. (Observation Practice 1, 6/12/2011)

This meeting highlighted that clinical need was established, but the participants realised that what was being introduced differed from current clinical practice and required buy-in from the whole team. At the same time, some GPs and practice nurses drew parallels with diabetes and asthma clinics identifying continuities. The

important benefit of this approach was that practice staff was exposed to the same explanation of the study's purpose, especially how it impacted on everyday operations such as appointment systems (the focus for the practice managers) and consultations (concern of GPs and practice nurses). This provided the initial, basic understanding of the purpose of the intervention and the different roles that GPs and practice nurses played.

Once practices had agreed to participate further meetings took place. Of particular importance was the session where the allocation to the intervention or control arm was revealed, and the training programme for GPs and practice nurses and the subsequent phase of running nurse-led OA clinics were explained. The scale of the study became apparent to the practices in terms of commitment to training (to be reported elsewhere), duration, operational arrangements and change in approach to OA treatment.

> The GP research lead explained that the intervention has to be understood as enhanced clinical care within the practice and Dr.1 said he welcomed that, and that he understood that it is provided under the practice's control. When the GP research lead started on the money slide [reimbursement to practices] Dr.1 turned round and said "that's you, J (practice manager)", and he nodded throughout the explanation, and mentioned the need to pay for locum practice nurses. (Observation Practice 2, 9/12/2011)

The interpretation of the roles within the practice became clear in this meeting in which the GPs controlled the decision that the content of the intervention fitted with their current approach; the lead nurse followed the GPs' lead and took charge of sorting the nurse clinics and indemnity, while the practice manager took responsibility for the financial aspects.

Practice 4 represented a somewhat different picture with on the one hand the GPs' interest in the intervention itself:

> The Chief Investigator [KD] described the process of the intervention. Dr. 2 said that he likes MOSAICs because he feels it offers OA care in a formalised structured manner. To him it takes what he feels they do already in a patchy way and enhances it. (Observation Practice 4, 3/2/2012).

Conversely, only one of the nurses had attended the introductory meeting, but she had not fully grasped what the training would involve. Nothing about the study had subsequently been communicated to the second nurse, thus the revelation that the practice would be in the intervention arm was 'a shock'. The practice nurses raised a number of practical and personal barriers. At this and subsequent meetings the research team had to reassure and accommodate the practice nurses so they could participate in the training and commit to running the clinics.

*GPs' perceptions of the new intervention after training*

The GPs from the four intervention practices participated in an intensive training programme about the new intervention and were interviewed afterwards. The assessment of the training will be reported elsewhere, while for the purpose of this paper the focus is on GPs' sense-making of the new intervention. The first theme centred around conceptualising the condition and treatment, and GPs mentioned that they made a 'mental shift' (MNPT15) and that the training 'opened our minds' (MNPT16) and was summarised by one GPs as follows:

> "I think first of all it made you try to take a more positive approach rather than just say "Well, you've got arthritis". And I think it also gives you a few more strings to your bow, really, in terms of what you can tell a patient, what you can inform them, what we'd be able to offer through a clinic. Yes, good." (MNPT28).

With the exception of one GP who thought that OA advice was 'common sense', all emphasised their thinking changed about osteoarthritis, felt that the NICE guidelines were more applicable as they were translated into a 'toolbox' (MNPT17), and that the opportunity to refer to the nurse clinic would support patients' self-management.

The second theme was whether professionals recognised that the intervention was new, and their responses followed on from thinking differently about OA. GPs discussed the approach to diagnosis and treatment:

> "You need to try and form a standard way of the process of treating osteoarthritis, to implement the NICE guidance, and empower the patients to look after themselves more and inform them better" (MNPT 16).

Not only was the link with policy guidance and how to facilitate implementation made by the above GP but also the 'new' element of empowering patients was mentioned. The main obstacle that GPs identified was the limited time available within the consultation, especially if patients presented with multiple conditions.

How the intervention made sense because it fitted with, or did not disrupt current practice emerged as the third theme. GPs emphasised how using the template fitted with their existing work patterns, made them more pro-active, and alerted them to checking on pain relief. This was presented as "I just do a bit more than I used to" (MNPT27). Arguably the template made sense to current practices because it did not ask them to go 'case finding':

> "[…] You can barely get through the presenting problems without hunting for lots of other things […] I wouldn't start offering screening for OA at this stage, no, because everybody's got OA." (MNPT26).

Equally, most GPs were comfortable giving patients the guidebook when referring to the nurse clinic, but a couple expressed reservations that patients wanted to read the amount of information contained within it.

The final theme covered the issue of roles within the study, and GPs presented a particular interpretation of the practice nurses' remit and how this shaped their own thinking:

> "And as I read it if for us being here the object was for us to be able to be funnel patients into the clinic.… for this the agenda was just to channel people in" (MNPT15).

However, this GP questioned the amount of training needed just in order to refer patients. The idea of referring patients seemed coherent and attractive to a number of GPs so the approach made sense and gained their interest, but others realised that their contribution was part of a continuum of care:

> "[…] either we're just the people that let patients into the clinic, and in that case it doesn't matter whether I know anything about it or not, or we're an active part of that treatment journey." (MNPT16).

Not all GPs were clear about the link between the GP and nurse consultations, or some appeared to think about their part in a minimal way which allowed them to shift the work to the nurse.

However, this arguably made sense to the GPs as it fitted with how they wished to organise their work load, thus facilitated 'coherence'.

In conclusion, the template was welcomed by the GPs in helping them to be more systematic in assessing a patient's needs. Conversely, the guidebook was viewed more sceptically with a minority judging it not patient-friendly. At the level of the organisation, the division of labour with the nurses was agreeable to GPs. Reference to macro level factors was only made indirectly with GPs highlighting changing population needs with the increase of OA in older people, and that the study made the NICE OA guidelines concrete. Thus, the intervention held 'practical coherence' (Sanders, Foster, & Ong, 2011) for the GPs because it was seen as relevant and manageable within current practice.

*Practice nurses' perceptions of the new intervention after training*

The nurses from the intervention practices participated in four days' training (to be reported elsewhere) and were interviewed as one group at the end of their last day. Their sense-making can be presented under the same four themes as in the discussion of the GPs. The first theme relating to how the nurses thought about OA included improved knowledge of the condition itself:

> "I thought well actually I really do need to know about this because I couldn't answer much about that, not an area I'd been involved even from my days in training" (P6).

> "It gives you sort of the evidence base for things that you're actually doing in that clinic, you know, it gives you the knowledge and the skills" (P2)

The other elements the nurses highlighted concerned their ability to offer patients alternatives, especially to surgical interventions, and strengthening their approach to holistic care:

> "Well, I mean if you've got a patient coming in who's diabetic, coming for his annual review and he's limping a bit, he's not doing a lot of exercise, we're not focusing on the OA […] whereas now we're looking at it a whole lot differently." (P1)

The above statement initiated further discussion about the transferability of the new skills acquired to other conditions, thus allowing them to support patients with multiple conditions and/or treat them as a whole person.

Recognising the new elements of the intervention centred primarily on strategies and tools, in particular with regard to goal setting:

> "I think it was more formalised with the SMART and setting the objectives because we'd got it down on paper, probably in the other clinics it's not sort of set in stone perhaps quite as much is it, it's less formal, you know, sort of chat about how patients can change things and that but this is probably a little bit more formalised than that" (P4).

The philosophy of patient-centred care was not seen as something new as all the practice nurses claimed that they worked in that way already, particularly in their clinics for long-term conditions.

In relation to changes in current practice the nurses described a shift to being more pro-active and confident. This is borne out in offering patients options and clearer explanations, with one of the nurses making early use of her knowledge in a chronic disease clinic:

> "I had a lady in that was – I can't quite remember what she came for but she asked me about some nodes on her hand and it was, you know, the shape of her hand and arthritic pain and you could see that it was arthritis. So I was able to tell her a bit about it and even give her a couple of exercises to do." (P4)

Thus, the nurses felt able to extend their scope of practice and take on more responsibility, or as one nurse put it 'taking the lead' and not referring back to the GP.

This leads into the final theme of the division of labour, where the group interview discussions confirm that some GPs may use their clinic to dispose of patients:

> P4: "it'll be 'oh yeah I've got this clinic, go and see the nurse' that's what it'll be like"

> P3: "oh yeah, that's what's happening now"

> P5: "It's almost become an escape actually for the GP, 'oh well I've got somebody else I can send this one to"

This was not necessarily seen as negative in that it gave them the opportunity to enhance their work. One issue raised in relation to assessing the value of their input was the following:

> "[…] how can they measure that because you can't measure the skill of listening to a patient […]. But that takes a lot out of a nurse, really, the skill of listening in terms of psychologically and emotionally, but it takes time" (P3).

The importance of the 'giving of yourself' (Iles, 2011) was seen as central to the OA consultation and a core attribute of nurses. Yet, the difficulty of measuring this contribution caused the nurses to worry that this would go unrecognised.

In summary, the intervention achieved 'coherence' with the nurses because it was a confirmation of their individual-oriented approach to care, but also that they acquired knowledge and a wider range of tools applicable to both OA and other chronic conditions. Their professional standing could be enhanced by their increased decision-making power and responsibility. But this needed to be recognised beyond the boundaries of their own profession with reinforced formal recognition of newly acquired skills if it was to contribute to their status.

## Discussion: the impact of macro–meso–micro influences on everyday clinical practice

The importance of understanding how policy (macro) (Greenhalgh et al., 2004), organisational and professional factors (meso) (Currie et al., 2007; Kitchener & Mertz, 2012; Muzio & Kirkpatrick, 2011), and the individual clinician (micro) (Currie et al., 2012; Mcnulty, 2002) influence the introduction of new complex interventions is recognised. However, less attention has been paid to how these factors *inter-relate*. The purpose of this paper was to explore the *connections* between macro, meso and micro contexts and their influence on the uptake of a complex intervention. In particular, we focus on the sense-making by professionals within these wider *interconnected* contexts.

Macro level factors such as NICE guidelines influence the behaviour of organisations and individual clinicians, but only if it is 'translated' into a workable form such as in the example of the MOSAICS study. Certain government policies filter through, for example, patient-centred care is considered to resonate with professional philosophies. While not acknowledged explicitly, the MOSAICS approach may fit current quality and innovation agendas, and thus can possibly assist with achieving strategic goals.

The pressure on healthcare professionals to deliver cost-effective care may act as an incentive to adopt new ways of

working that potentially leads to improved efficiency and quality of care. The changing organisational context may therefore drive the implementation of new initiatives. At the meso level general practice is experiencing turbulence, and the effect of GPs having to reconcile their role as commissioner and provider of care is not yet fully known. Many GPs appear to feel more comfortable to focus on provision, and thus are interested in demonstrating how they are improving the quality of care. Implementing new interventions that are also backed up by research evidence through evaluation of practice is a positive strategic choice. Organisationally, the MOSAICS intervention is primarily interpreted as work substitution with the GP referring the largest part of the complex intervention to the practice nurse (Nancarrow & Borthwick, 2005). This is seen to have mutual benefit with GPs being able to effectively refer patients, and nurses enhancing their role vis-à-vis the patient, and potentially within the practice team.

The meso level also relates directly to the micro level, especially in terms of how preferred roles relate to the desire to gain knowledge. At the micro level both professions state that their perceptions of the condition and its treatment have changed, but with more far-reaching implications for the nurses as they have extended contact with patients through the OA clinic. They have gained confidence through knowledge, evidence-based care and a wider array of strategies that are applicable to both OA and other chronic conditions. The opportunity to up skill through training and mentoring may have incentivised them to adopt new ways of working (e.g. Sanders et al., 2011). Thus, it is important to distinguish creating spaces for professional innovation and change, from 'one size fits all' top-down approaches to reshaping practice.

With regard to the NPT concept of coherence, the sense-making of the new intervention can be considered along four dimensions: first, the majority of GPs and all nurses distinguished the MOSAICS intervention from current ways of working. This is in terms of their perception of the condition itself, and pro-active, positive management and support to patients. Second, from the introduction meeting to the completion of the training the purpose of the intervention increased in clarity, and in particular, is interpreted as a work-able application of NICE OA guidelines. Third, GPs vary in their understanding of what is required from them, ranging from disposal to playing a specific part within an OA management pathway. The practice nurses are clearer as the care given in the OA clinic builds on their professional approach of holistic care, supplemented by increased knowledge and armoury of tools. Fourth, the value of the intervention is considered highly by practice nurses as it also strengthens their professional expert status. GPs see the potential value in an instrumental sense as work substitution, but feel that a positive conceptualisation of OA contributes to the consultation.

We conclude that the interplay of the macro, meso and micro level factors shape the specific context of primary care. The effects on new interventions vary depending factors such as timing (e.g. a change in policy), actors involved and practice dynamics, perceptions of own professional identity, patient needs and demands. The manner of introduction appears to be highly relevant, with levels of flexibility and negotiation being crucially important. The concept of receptive contexts of change (Pettigrew, Ferlie, & Mckee, 1992) is relevant as it highlights policy, strategic, processual and interpersonal factors as central to facilitating change. Our paper extends the concept of receptivity by drawing on NPT to suggest the *interactions* of macro, meso and micro factors influence not only practice specific contexts, but also the motivations and actions of primary care professionals. Given that interventions are shown to fail at the first hurdle if they do not make sense (achieve coherence) to participants (Bamford et al., 2012), such an understanding will help to better design and test interventions that have a greater chance of success in offering high quality care to patients.

## Acknowledgements

We want to thank all the practices and their staff who participate in the MOSAICS study, the Centre's network staff and the PCRN West Midlands North. We are grateful to Angela Pushpa-Rajah for her co-ordination of the study and to Chris Main, Gretl McHugh, Sarah Ryan and Emma Healey. This paper presents independent research commissioned by the National Institute for Health Research (NIHR) under its Programme Grants for Applied Research funding scheme (grant number RP-PG-0407-10386). The views expressed in this paper are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

## References

Bamford, C., Heaven, B., May, C., & Moynihan, P. (2012). Implementing nutrition guidelines for older people in residential care homes: a qualitative study using Normalization Process Theory. *Implementation Science, 7*(106).
Crilly, T., Jashapara, A., & Ferlie, E. (2010). *Research utilisation and knowledge mobilisation: A scoping review of the literature*, 08/1801/220. NIHR Service Delivery and Organisation Programme.
Currie, G., Dingwall, R., Kitchener, M., & Warin, G. J. (2012). Let's dance: organization studies, medical sociology and health policy. *Social Science & Medicine, 74*, 273–280.
Currie, G., Waring, J., & Finn, R. (2007). The limits of knowledge management for UK public services modernization: the case of patient safety and service quality. *Public Administration, 86*(2), 363–385.
Dixon-Woods, M., Yeung, K., & Bosk, C. L. (2011). Why is U.K. medicine no longer a self-regulating profession? The role of scandals involving "bad apple" doctors. *Social Science & Medicine, 73*(10), 1452–1459.
Ferlie, E., Pettigrew, A., Ashburner, L., & Fitzgerald, L. (Eds.). (1996). *The new public management in action*. Oxford University Press.
Freidson, E. (1984). Changing nature of professional control. *Annual Review of Sociology, 10*, 1–20.
Gkeredakis, E., Swan, J., Powell, J., Nicolini, D., Scarbrough, H., Roginski, C., Taylor-Phillips, S., & Clarke, A. (2011). Mind the gap. Understanding utilisation of evidence and policy in health care management practice. *Journal of Health Organisation and Management, 25*(3), 298–314.
Glasziou, P., & Haynes, B. (2005). The paths from research to improved health outcomes. *ACP Journal Club, 142*(2), A-8–A-10.
Green, J., & Thorogood, N. (2004). *Qualitative methods for health research*. London: Sage.
Greenhalgh, T., Robert, G., Bate, P., Kyriakidou, O., Macfarlane, F., & Peacock, R. (2004). *How to Spread Good Ideas. A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation*. London: NHS Service Delivery and Organisation Programme.
Ham, C. (2009). *Health policy in Britain*. London: Palgrave.
Hartley, H. (2002). The system of alignments challenging physician professional dominance: an elaborated theory of countervailing powers. *Sociology of Health and Illness, 24*(2), 178–207.
Howe, A. (2010). *Response to the Department of Health consultation on equity and excellence: Liberating the NHS*. London: Royal College of General Practitioners.
Iles, V. (2011). *Why reforming the NHS doesn't work: The importance of understanding how good people offer bad care*. London: Reallylearning.
Jordan, K., Kadam, U., Hayward, R., Porcheret, M., Young, C., & Croft, P. (2010). Annual consultation prevalence of regional musculoskeletal problems in primary care: an observational study. *BMC Musculoskeletal Disorders, 11*, 144.
Kennedy, A., Chew-Graham, C., Blakeman, T., Bowen, T., Gardner, C., Protheore, J., et al. (2010). Delivering the WISE (Whole Systems Informing Self-Management Engagement) training package in primary care: learning from formative evaluation. *Implementation Science, 5*(7).
Kitchener, M., & Mertz, E. (2012). Professional projects and institutional change in healthcare: the case of American dentistry. *Social Science & Medicine, 74*, 372–380.
Macfarlane, A., & O'reilly-De Brun, M. (2012). Using a theory-driven conceptual framework in qualitative health research. *Qualitative Health Research, 22*(5), 607–618.
May, C. (2013). Towards a general theory of implementation. *Implementation Science, 8*, 18.
May, C. R., & Finch, T. (2009). Implementation, embedding and integration: an outline of Normalization Process Theory. *Sociology, 43*(3), 535–554.
May, C., Finch, T., Mair, F., Ballini, L., Dowrick, C., Eccles, M., et al. (2007). Understanding the implementation of complex interventions in health care: the normalization process model. *BMC Health Services Research, 7*, 148.
May, C. R., Mair, F., Finch, T., Macfarlane, A., Dowrick, C., Treweek, S., et al. (2009). Development of a theory of implementation and integration: Normalization Process Theory. *Implementation Science: IS, 4*, 29.
Mcnulty, T. (2002). Reengineering as knowledge management. *Management Learning, 33*(4), 439–458.
Medical Research Council. (2008). *Developing and evaluating complex interventions. New guidance*. London: Medical Research Council.

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science: IS, 6*, 42.
Muzio, D., & Kirkpatrick, I. (2011). Introduction: professions and organizations – a conceptual framework. *Current Sociology, 59*(4), 384–405.
Nancarrow, S. A., & Borthwick, M. (2005). Dynamic professional boundaries in the healthcare workforce. *Sociology of Health and Illness, 27*, 897–919.
National Institute for Health and Clinical Excellence. (2008). *Osteoarthritis. The care and management of osteoarthritis in adults*. London: NHS NICE.
Parent, R., Roy, M., & St-Jacques, D. (2007). A systems-based dynamic knowledge transfer capacity model. *Journal of Knowledge Management, 11*(6), 81–93.
Pettigrew, A., Ferlie, E., & Mckee, L. (1992). *Shaping strategic change. Making change in large organisations: The case of the NHS*. London: Sage.
Porcheret, M., Jordan, K., Jinks, C., Croft, P., & with the Primary Care Rheumatology Society. (2007). Primary care treatment of knee pain a survey in older adults. *Rheumatology, 46*, 1694–1700.
Sanders, T., Foster, N. E., & Ong, B. N. (2011). Perceptions of general practitioners towards the use of a new system for treating back pain: a qualitative interview study. *BMC Medicine, 9*, 49.
Swan, J., Bresnen, M., Newell, S., & Robertson, M. (2007). The object of knowledge: the role of objects in biomedical innovation. *Human Relations, 60*(12), 1809–1837.
Waring, J., Dixon-Woods, M., & Yeung, K. (2010). Modernising medical regulation: where are we now? *Journal of Health Organisation and Management, 24*(6), 540–555.