The role of the multidisciplinary team and its effect on the clinical roles of community pharmacists

Final Report
May 2014

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Disclaimer and acknowledgements

Pharmacy Research UK commissioned and funded the research on which this report is based. The research was undertaken by a project team at the University of Bath and a researcher at the University of Alberta, Canada, who are the authors of this report. The views expressed here are those of the authors and not necessarily those of the commissioning body.

The research team acknowledges the support of the National Institute for Health Research, through the Primary Care Research Network, who assisted with recruitment. We would also like to extend thanks to the other individuals and organisations who helped with recruitment, including the PSNC, RPS Local Practice Forum Great Western branch, the Pharmaceutical Journal online and Practice Nurse journal. Our grateful thanks also go to all the participants and project advisory group members.

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Executive summary

Background

There are many different professionals involved in delivering primary care and often they need to collaborate with each other in addressing a patient's needs. This collaboration can take the form of multidisciplinary teams (MDTs), where members of different professions communicate and work together to meet a particular need. Primary healthcareteams that involve many different professions have been shown to deliver higher quality and more innovative patient care.

In response to increasing life expectancy and numbers of people living with long term conditions, the NHS needs to shift its focus away from acute, secondary care and towards prevention and self-care, necessitating more co-ordinated primary and community care provision. With the increased workload for general practice, community pharmacists (CPs) are being encouraged to take on more clinical tasks in order to release capacity in general practices. Previously, the role of nurses working in general practices (PNs) was also extended to take on more of the routine care of patients. The extension of the PN role has now been widely accepted and strong collaborative relationships exist between general practitioners (GPs) and PNs. However, as yet the development of the CP's role has not been as extensive as hoped and one suggested reason for this is the generally poor integration of CPs on primary care teams.

Many factors have been shown to influence integration on teams. These factors relate to the organisational context (e.g. management styles, mutual support between members and communication processes) and the individual (e.g. personal perceptions of teamwork and roles, individuals' personalities). This study aimed to explore the factors that affect the integration of CPs into the primary care MDT and identify what support is required to improve multidisciplinary collaboration.

Method

A survey was conducted across the South West of England from 27th June to 22nd November 2013. CPs, GPs and PNs were invited to participate and the survey was available both online and in paper format. The survey comprised 4 main sections:

- Section 1 sought demographic and descriptive details of respondents and their organisations (general practices or community pharmacies).
- Section 2 comprised two sections of a standardised, pre-validated questionnaire – the Organisational Climate Measure (Patterson, West, Shackleton et al, 2005). Questions related to respondents' perceptions of how they and others are treated within their organisations and what their organisations' expectations are.
- Section 3 was a standardised, pre-validated questionnaire – the Big Five Inventory (John, Donahue & Kentle, 1991) – which measures five stable personality traits: agreeableness, conscientiousness, extraversion, neuroticism and openness.
- Section 4 included a variety of questions to ascertain respondents' views on multidisciplinary working and whether they felt part of a MDT.

- CP respondents were also asked about the current extent to which they were engaged in an extended, clinical role.

A variety of recruitment methods were employed in order to reach a diverse sample: advertisements for the study were placed in professional journals and were distributed by NHS research and professional networks via email, website posts and Twitter; flyers were posted to practices and pharmacies; and telephone calls and visits were made to practices and pharmacies.

A project advisory group, comprising CP, GP and PN representatives, met in early 2014 to discuss the results of the preliminary analysis. This was to help ensure that the practice and policy implications drawn from the study would have face validity and relevance for practitioners.

Participants

Completed surveys were received from 214 GPs, 147 PNs and 162 CPs. Respondents were reasonably representative of the spread of practitioners throughout the South West, however, due to the undirected recruitment methods used, precise response rates cannot be calculated.

Main results

Perceptions of teamwork

Nearly all PNs (98%) and GPs (99%) considered themselves to be part of a MDT compared to 78% of CPs. Working in isolation, being unable to build relationships due to a lack of time and a lack of information sharing were the most commonly cited reasons for not feeling part of a MDT.

There was very little difference between the GPs and PNs in terms of who else they considered to be part of their team, with other members tending to be practice based (e.g. other GPs, PNs, receptionists) or community healthcare providers who visit the practice (e.g. district nurses, physiotherapists). Over 70% of GPs reported regularly working with CPs but only 55% included CPs on their MDT. Roughly 40% of PNs reported regularly working with CPs and 56% included a CP on their MDT. About 80% of CPs reported working with GPs and a similar proportion considered GPs to be on their MDT. Over 60% of CPs worked with PNs and 72% considered them to be on their MDT. The main reason cited by GPs and PNs for not considering CPs to be part of their MDT was little or no contact, particularly a lack of face-to-face contact, with the pharmacist.

Various barriers and facilitators to multidisciplinary team working were identified. Good communication was seen by all groups as the most important facilitator of teamwork, although this was variously defined. GPs seemed to place a higher emphasis on face-to-face meeting (and being based on the same site) than CPs and PNs. All groups also recognised the importance of understanding the roles and responsibilities of other team members. The importance of team members all working towards a shared, clearly acknowledged goal was

also highlighted. For all professional groups the main perceived benefit of multidisciplinary work was being better able to meet a patient's needs by pooling the expertise of various professionals.

We also asked respondents whether they felt they could have a better working relationship with their local GP practice/community pharmacy team. The vast majority (74%) of CPs felt their relationships with local GP practices could be improved, whereas only 55% and 37% of GPs and PNs, respectively, felt their relationships with local community pharmacies could be improved.

The workplace

Interesting differences between the different professions were revealed; GPs and PNs rated their organisations significantly higher, compared to CPs, on variables relating to support, integration of staff, individual autonomy, staff welfare, training opportunities, emphasis on quality, organisational efficiency and staff motivation. However, when the CP group was separated according to pharmacy type (independent vs multiple (chain) pharmacies)[1], the differences with GPs and PNs only remained for CPs from multiples, with independent CPs' ratings on a par with GPs' and PNs'. The different professions reported similar levels of workload pressure.

Respondents in top level management positions tended to perceive their organisations more favourably than those lower in the organisational hierarchy. This is possibly because those in managerial positions have more control over the workplace environment and are likely to be responsible for setting standards of, for example, quality and welfare.

Organisational factors, as measured by the standardised questionnaire, were not found to be related to whether or not CPs felt integrated in a MDT. Other organisational factors, such as type of pharmacy, location etc., were also unrelated to being part of a MDT. It was not possible to conduct comparative analyses for GPs or PNs since too few in these groups did not feel part of a MDT. However, statistical comparisons were conducted between GPs and PNs who included a CP on their MDT and those who did not. GPs who were co-located with a community pharmacy were significantly more likely to count a CP among the members of their MDT.

Individual personality

Interestingly, GPs and CPs did not significantly differ on any of the 5 personality traits. PNs, on the other hand, scored significantly higher than both GPs and CPs on agreeableness and conscientiousness.

For CPs, only agreeableness was associated with being on a MDT, with more agreeable CPs being more likely to feel part of a MDT.

The clinical role of pharmacists

[1] Independent pharmacies with those with 5 community pharmacy sites or less whereas chains were described as those with 6+ sites to include large chains and supermarkets.

There was evidence of confusion among CPs as to what constituted clinical work with a wide range of definitions of clinical work being given. A rating of the extent of CP respondents' clinical role was taken based on how frequently they delivered certain advanced and locally commissioned services. Level of clinical role was not found to be related to any organisational or demographic factors, or whether or not a CP felt part of a MDT. However, CPs who scored higher on the personality trait of conscientiousness were more likely to be engaged in more clinical work.

Discussion

There was widespread acknowledgement among respondents of the benefits of multidisciplinary working and mostly MDTs were seen as something to aim for. However, the concept of MDTs in primary care is not as well defined as it is in secondary care, leading to wide variation in respondents' definitions of a MDT. We would suggest that the key goals are mutual acceptance and recognition of all professionals (including CPs) involved in providing care in the local vicinity, and willingness of them all to communicate and work together. This research has highlighted a number of ways in which this could be encouraged and these are discussed in 'Implications for practice' (below).

CPs' perception of being on a MDT was not related to their engagement in clinical services, suggesting that CP integration is not essential for them to take on an extended role. However, the important question here is how useful the clinical services are when delivered in isolation rather than as part of a holistic package of care; this is an area for future research.

The standardised questionnaires used in the survey highlighted some interesting similarities and differences among respondents. The greater similarity between independent pharmacies and general practice than between independent and multiple pharmacies in terms of organisational climate is particularly noteworthy. This could help to explain the preference some GPs reported for working with independent CPs rather than those at multiple pharmacies; they may be more comfortable working with organisations that run in a way they are familiar with from their own practices.

The poorer ratings of organisational climate given by CPs at multiple pharmacies lends support to previous research showing CPs at large chain pharmacies feel more stressed in their work than CPs at independent pharmacies and have high levels of dissatisfaction with the management. This could be cause for concern since pharmacists facing high levels of stress may be more likely to make dispensing errors, and low job satisfaction is associated with high employee turnover and less efficient organisational functioning.

Implications for practice

- There is a need to improve understanding among all people (professionals and support staff) working in primary and community care about each other's roles, training and expertise. Some written guides have already been created for this

purpose, however many practitioners are not aware of them and many professions are not covered by them. National and local level campaigns are needed to debunk myths about other professions and promote multidisciplinary working.

- Face-to-face contact between professionals will also be important in improving understanding and building trust. Joint training and education between different professionals, both at pre-registration level and for continuing professional development (CPD), should be encouraged. Work-shadowing days could also be incorporated in training and form part of CPD; work-shadowing has been a successful element of nurse and pharmacist independent prescribing training. It is recognised, however, that joint meetings and work-shadowing require time, money and organisation and so support may be needed from commissioning groups.
- Local professional committees (e.g. Local Medical Committees) and/or CCGs should encourage and help initiate small, multidisciplinary groups of healthcare providers to meet and discuss topical issues on patient care that are relevant to their local population and share good practice. These group meetings would likely need to take place outside normal working hours and participation would be voluntary; attendance could be encouraged if the meetings was accepted as a CPD exercise.
- Guidance may be needed for general practices and community pharmacies on how to initiate and maintain relationships with community pharmacies/general practices. Sharing experiences with local peers may be one way to learn how to overcome issues of time, communication and management. Written guidance from professional organisations could also be helpful.
- Encouragement for integration of CPs also needs to come from pharmacy managers. In particular, non-pharmacist managers at large chain pharmacies need to be made more aware of the benefits of multidisciplinary working and support their pharmacists to engage with local HCPs.
- Better use needs to be made of technology, such as teleconferencing, to enable direct communication between practitioners.
- There is also a need for greater public awareness of the CP role, particularly the extended services they offer, in order that other HCPs feel able to refer their patients to the CP. In order to reach as wide an audience as possible there needs to be a national campaign using popular and social media channels.

1. Background to the project

1.1 The role of the community pharmacist

Over recent years the role of the community pharmacist (CP) has been expanding beyond the traditional duties of dispensing prescription medication and selling over-the counter (OTC) medicines. In 2005 the New Community Pharmacy Contractual Framework (CPCF) was introduced, which divided services into three tiers:

1) Essential - comprising the standard dispensing tasks, disposal of medicines waste, support for self-care, clinical governance but also formally stipulating the provision of opportunistic promotion of healthy lifestyles and signposting to services;
2) Advanced – including medicines use reviews (MURs), appliance use reviews (AURs), stoma appliance customisation and, from October 2011, new medicines service (NMS) consultations;
3) Locally commissioned (formerly 'enhanced') - including independent and supplementary prescribing by a pharmacist, minor ailments services and public health services e.g. needle exchange services, smoking cessation, supply of emergency hormonal contraception, brief alcohol advice.

CPs can complete training courses to become accredited in delivering specific advanced and locally commissioned services and the majority of community pharmacies are now registered to provide MURs and NMS consultations. The aim of the new contractual framework was to improve access to health services for patients, making better use of CPs' convenient location in the community and their expertise, gained through their undergraduate education and training. It was intended that by enabling CPs to provide some of the routine services usually carried out by general practitioners (GPs) and practice nurses (PNs), the burden on GP practices would be reduced and so support the newly introduced GP contract of 2004 (Bond, Blenkinsopp, Inch, Celino, & Gray, 2008).

However, although MURs and the NMS have been widely adopted, the development of the CP's role has not been as extensive as hoped. With the recent shift in focus away from acute care and towards primary care in order to address the rise in life expectancy and increase in people living with long-term conditions (LTCs) in the UK (Goodwin, Smith, Davies et al, 2012), there have been repeated calls for better use of community pharmacy (Smith, Picton & Dayan, 2013). CPs are seen to be in an ideal position to take on the routine management of patients with LTCs in the community and there is strong evidence that CPs can effectively, and cost efficiently, contribute to the management and prevention of diabetes and coronary heart disease (Fajemisin, 2013). Even more recently, the lack of CP engagement in public health was highlighted in the NHS Alliance's response to the parliamentary inquiry into winter pressures on the NHS (NHS Alliance, 2014). The response stated that although some community pharmacies delivered services, such as flu vaccinations, to support the NHS winter pressure initiative, the projects were *'all too late, too small and poorly publicised to make any difference at all' (*NHS Alliance, 2014, para. 6).

There are several possible reasons why CPs' uptake of more clinical[2] services, such as those included in the advanced and locally commissioned tiers of the CPCF, has thus far been poor, especially in comparison to hospital pharmacists. Dispensing remains the key income source in community pharmacy and thus limits the time that CPs can devote to non-dispensing tasks. Also, treating and monitoring patients with LTCs necessitates a certain level of collaboration with other healthcare professionals (HCPs) involved in a patient's care in order to share information on the patient's progress. For example, if CPs were to take on monitoring of people at risk of heart attacks or strokes they would need to communicate with the patients' GPs and possibly PNs (who often take responsibility for patients with these conditions) in order to, say, inform them of blood pressure results and help plan the patient's future care. Having shared access to patients' medical records (held by the GP practice) might make this transfer of information between professionals easier, however CPs are often not able to access these records. The NHS Alliance's response to the Winter Pressures Inquiry suggested that the poor connections community pharmacies have with general practice limits their ability to provide minor ailments services (NHS Alliance, 2014).

A study in New Zealand (Bryant, Coster, Gamble & McCormick, 2009) found significant differences between GPs' and CPs' perceptions of the pharmacists' clinical role. The authors reported that there was a perceived lack of a mandate, by both GPs and CPs, to carry out a more clinical role. Bryant and colleagues (2009) concluded that greater attention should be paid to principles of change management when implementing practice innovations. Specifically, individual roles in the new practices need to be clearly defined and attitudes need to be changed to accept the legitimacy of new CP roles. It is likely that in order for CPs to fulfil a more clinical role, other healthcare professionals must accept their legitimacy to undertake such a role and be willing to collaborate with them in providing patient care.

1.2 The multidisciplinary team

The delivery of healthcare in the UK is a complex process. Often a number of HCPs will be involved in the care of groups of patients or individuals - each making a contribution commensurate with his/her competence (Muller, 2006). Pilot work (see section 1.4) has shown that the multidisciplinary team (MDT) can mean different things to different people. For some the team is defined by its purpose (e.g. patient specific, where the MDT consists only of those directly involved with a certain patient), for others the team is context-based (e.g. all HCPs who work in a particular practice). While hospital pharmacists will tend to have relatively stable MDTs and a clear role – directly working with other HCPs on regular ward rounds and specialising in a particular clinical area – community pharmacists are likely to be working remotely and may not have a clearly defined team to call upon.

[2] In this context 'clinical' services are those involving direct (face-to-face) patient contact that also require the application of the professional's expert knowledge. No authoritative definition of 'clinical work' could be found and so our understanding is based upon the Academy of Medical Royal Colleges' definition of non-clinical work (*Any work undertaken by a doctor that does not involve direct face to face patient contact* (AoMRC, 2009, p.6)) and the European Society of Clinical Pharmacy's description that in clinical pharmacy '*the focus of attention moves from the drug to the single patient or population receiving drugs*' (Beney, 2010)

Quinlan and Robertson (2010) suggest that in most industrialised countries healthcare has been delivered according to the 'solo practice model' (p.566) where boundaries between the knowledge and skills of different HCPs are acknowledged and maintained. They suggest that the multidisciplinary model of healthcare delivery may disrupt those boundaries and lead to role ambiguity. In a national research project of team effectiveness in the NHS, Borrill and colleagues (Borrill, Carletta, Carter et al, 2000) concluded that effective teamwork is dependent on the full involvement of all team members: they must all understand how the team works and be committed to common goals. Quinlan and Robertson (2010) further proposed that mutual understanding is an essential element of MDT working but that this only comes with time and that mutual understanding 'ebbs and flows' during the course of the team members' interactions. Inherent in what Quinlan and Robertson (2010) describe is the notion of support both for the team itself, by the organisation in which it functions, and for the individual members of the team, giving mutual support to each other. It is only when this is achieved that each individual can function as an effective member of the team, with their unique skills and knowledge being recognised and respected by other team members. This links to Bryant et al's suggestion that understanding of the CP's capabilities and role is required in order to support the extension of the CP role.

It seems possible therefore that integration of the CP into the primary care MDT may act as a support mechanism for the extension of the CP's role. In an effective MDT all team members will understand their own and others' capabilities and roles and thus be better able to share information effectively, refer patients to the most appropriate HCP and recognise when and how other team members may need help.

1.3 Organisational climate and individual differences

Individuals cannot grow and develop in their job without support from their organisation. The 'atmosphere' in the organisation can be described as its climate and the concept of 'organisational climate' has often been used in research. For example, Katz and Kahn (1978) found that the atmosphere in the workplace could affect personal (e.g. job satisfaction) and work outcomes (e.g. absenteeism and turnover) thus making it an important factor when examining the structures and processes underpinning organisational development. Support for personal development is one facet of organisational climate.

However, the concept of organisational climate has been much debated over many years, with Argyris (1958) first discussing some problems with its conceptualisation, such as the risk of presenting an over-simplified picture of a complex interplay between many structural and personal component variables. It is recognised that people vary in how they respond to their jobs (Hackman and Oldham, 1976) and whilst some may seek personal growth and development and be stimulated by challenging work, others may feel de-motivated or stressed by extensions to their job role. For this reason it is important to examine individual differences to see if these provide explanations for different responses to changes in job role.

Demographic information, such as education and work setting, may go some way to explaining differences in, say, CPs' engagement in a clinical role but the CP's personality may also have an effect. Studies of personality suggest that it is made up of traits that are possessed by individuals to a greater or lesser degree (John et al, 1991; McCrae & Costa, 1987). There is extensive evidence for the existence of the five personality traits - neuroticism, extraversion, openness to experience, agreeableness and conscientiousness – which form the basis of the Five Factor Model of Personality (McCrae & Costa, 1987). It is probable that personality has an effect on the way pharmacists respond to innovations in their jobs. Work with Canadian CPs (Rosenthal, Austin & Tsuyuki, 2010) has found them to lack confidence, have a fear of responsibility, be paralysed in the face of ambiguity and have an aversion to risk. It may be that these observed behaviours are state (or transient) manifestations of personality traits. Exploration of personality traits alongside organisational factors, such as climate, may provide evidence for strategies to encourage CPs and their employing organisations to increase their integration into the MDT and take on a greater clinical role.

1.4 Pilot study

From September 2011 to March 2012 two members of the research team (JS and HF) conducted a pilot study into the MDT, what it is, who forms part of the team and how it functions, from pharmacists' perspectives. With data from 115 pharmacists across the UK this pilot study identified differences in the definition of the MDT between community, primary and secondary care. This work showed that the MDT is contextual in nature and means different things to different people. Some of these differences may explain why CPs are reluctant to take on a more clinical role. Whereas the MDT described by hospital pharmacists included a range of health professionals working together as part of a stable team, CPs' descriptions included a less diverse range of professionals. This may be indicative of a more polarised MDT and, as a result, CPs might feel unsupported by other clinicians and may not have pursued relationships that would integrate them more into a MDT. However, there may be other reasons for a lack of integration. Researchers in Canada, who have explored this issue among Canadian pharmacists, suggest that organisational culture/climate and individual differences (i.e. personality traits) amongst pharmacists may help identify those who are ready to expand their role and those pharmacy organisations that would support this (Rosenthal et al, 2010).

1.5 Study rationale

The extension of the CP's role is encouraged both for the benefits it can bring to patient care and workforce efficiency, and for the survival of the profession. It is recognised that the traditional model of community pharmacy is unlikely to withstand the multiple challenges of: competition from new alternative suppliers (internet and mail-order pharmacies); the demise of the high street; economic austerity in the NHS; and wholesalers passing on the financial pressures they face from the rise in generic forms of many of the current blockbuster medicines (Anscombe, Plimley & Thomas, 2012). Integration of the CP into the primary care MDT may act as a support mechanism for the extension of the CP's role.

Although the benefits of collaboration between community pharmacy and general practice are well recognised (Royal Pharmaceutical Society and Royal College of General Practitioners joint statement, 2011; Department of Health (DoH), 2003) establishing collaborative relationships has proved difficult (DoH, 2008; Bradley, Elvey, Ashcroft et al, 2008). Organisational climate and individual difference factors may affect the extent to which CPs can integrate into primary care MDTs and take on a more extended role.

This study sought to further our understanding of primary care MDTs, specifically looking at organisational factors in community pharmacies and general practices, and the individual perceptions and personalities of GPs, PNs and CPs. Through a better knowledge of the barriers and facilitators to CP integration on MDTs, ways to better support CP integration can be identified and policy and practice implications drawn.

2. Aims and objectives

This study aims to:

1. Explore the factors that affect the community pharmacists' integration into the multi-disciplinary team (MDT) and engagement with wider clinical and public health roles.
2. Identify the support required by community pharmacists to enable them to integrate into the MDT.

2.1 Objectives:

1. Measure the extent to which CPs, GPs and practice nurses (PNs) perceive themselves as part of an MDT.
2. List the members of the MDT as perceived by participants.
3. Compare the MDT members in each participant group.
4. Measure the organisational climate of the healthcare setting in which participants work (as perceived by participants) using two sections (the *human relations* and *rational goal* dimensions) of the previously validated questionnaire, the Organisational Climate Measure (OCM).
5. Evaluate the support provided by organisations, as captured in the OCM, for the extension of the clinical role of community pharmacists.
6. Evaluate the contribution of individual difference factors (e.g. age, sex, work setting and location, level of experience and personality traits) to integration into the MDT.

3. Methodology

3.1 Overview

This research was survey-based, collecting a mixture of quantitative and qualitative data through closed- and open-ended questions. Qualified CPs, GPs and practice nurses (PNs) were recruited in 21 Primary Care regions of south west England: Bath and North East Somerset; Berkshire East; Berkshire West; Bournemouth and Poole; Bristol Teaching; Cornwall and the Isles of Scilly; Devon; Dorset; Gloucestershire; Hampshire; Isle of Wight; North Somerset; Oxfordshire; Plymouth Teaching; Portsmouth; Somerset; Southampton; South Gloucestershire; Swindon; Torbay; Wiltshire. Two hundred respondents from each professional group (i.e. 600 in total) were originally sought.

The survey aimed to address the following specific research questions:

- What are the perceptions of community pharmacists, general practitioners and practice nurses of the MDT?
- Do community pharmacists include GPs and practice nurses in their MDT?
- Do GPs and practice nurses include community pharmacists in their MDT?
- What are the community pharmacists' perceptions of the barriers and facilitators to becoming part of the MDT?
- What are the GPs' and practice nurses' perceptions of the barriers and facilitators to becoming part of the MDT?
- What is the current extent of the clinical role of community pharmacists?
- Are there differences in community pharmacist perceptions of what constitutes clinical work?
- Does support from employers affect integration into the MDT?
- Are community pharmacists in rural locations less integrated into their MDT than those in urban locations?
- What organisational factors affect the development of the clinical role of community pharmacists?
- Do personality differences amongst participants affect the extent to which they recognise and support their own and colleagues' personal development?

Surveys included two standardised instruments, to assess organisational climate and personality traits, as well as questions designed specifically for this study, to explore perceptions of the MDT and the CP's clinical role. Demographic details were also sought. The surveys were available both in paper format and online and a variety of recruitment methods were employed, including advertisement by professional bodies and research networks, Twitter feeds and visiting local practices and pharmacies to hand deliver surveys. Respondents were offered a £10 shopping voucher as incentive to complete the survey. The survey ran from the 28th June until 25th November 2013. Fully completed surveys were received from 151 CPs, 203 GPs and 139 PNs.

Quantitative survey data were analysed in SPSS v20 and qualitative responses were subject to a content analysis to identify key themes. Following the main data analysis, a Project Advisory Group (PAG) meeting was held in February 2014, where representatives of the three professional groups (5 GPs including one trainee, 2 nurses and 2 pharmacists) surveyed discussed the findings with the research team. The purpose of the PAG meeting was for the research team to hear how key stakeholders interpreted the survey results and what they felt were the implications for practice.

3.1.1 Project management

The project was overseen by the Project Steering Group (PSG) consisting of the lead researcher (Marjorie Weiss), the research officer (Elisabeth Grey), a lecturer in health psychology (Hannah Family), and an academic pharmacist (Lynette James) based at the University of Bath. Also on the PSG were a chartered psychologist and former lecturer at the University of Bath (Jane Sutton) and a professor of medicine, based at the University of Alberta (Ross Tsuyuki). The PSG has met six times; once before the study began (11.03.13) and five times since the start of the project on 8th April 2013 (01.05.13, 14.08.13, 16.10.13, 23.01.14 and 05.03.14). Not all members of the PSG have been able to be present at every meeting; contact with RT has mostly been via email except for a 3-day visit to the University of Bath in early November 2013. During this visit, results (as they stood at the time) were discussed with reference to RT's work in Canada, and plans for analysis and dissemination of findings were made. Day to day oversight of the project was conducted by the lead researcher and the research officer, who frequently met to discuss study progress.

3.2 Ethical and R&D approval

Internal ethical procedures in the Department of Pharmacy and Pharmacology were followed and approved in October 2012. As the study does not involve patients, only health professionals, NHS ethical approval was not required.

The study was portfolio adopted by the Western Clinical Research Network in May 2013 (see section 3.3.3). Approval for the study was initially sought and granted from the following research and development departments in the South West:

- Bath and North East Somerset (14.05.13)
- Bournemouth and Poole (25.06.2013)
- Bristol teaching (28.05.13)
- Cornwall and the Isles of Scilly (23.05.13)
- Devon (17.05.13)
- Dorset (14.06.13)
- Gloucestershire (05.06.2013)
- North Somerset (23.05.13)
- Plymouth teaching (20.05.13)
- Somerset (03.06.2013)
- South Gloucestershire (23.05.13)
- Swindon (17.05.13)

- Torbay (02.07.13)
- Wiltshire (20.05.13)

Following slower than expected recruitment rates, possibly due to the survey taking place during the summer holiday season, it was decided to expand the recruitment zone to include Berkshire East, Berkshire West, Hampshire and the Isle of Wight, Oxfordshire, Portsmouth and Southampton former PCT areas. R&D approval was sought on 1st August 2013 for these further 7 regions and was granted on 16th August.

3.3 Method

3.3.1 Materials

Two surveys were designed: one for GPs and PNs, and one for CPs. Copies of the final surveys can be found in appendices 1a (GP/PN) and 1b (CP). The GP/PN survey comprised four sections:

- **Section 1** asked respondents for demographic details about themselves and their practice, using a mixture of multiple choice and open-ended questions. This section also had questions relating to the management structure of the GP practices in which respondents were employed and the nature and extent of support that respondents received in their practice.

- **Section 2** comprised the human relations and rational goal domains of the Organisational Climate Measure (Patterson et al, 2005). The human relations domain assesses the sense of belonging, trust and cohesion within an organisation (from the respondent's perspective). Items for this dimension are grouped in six factors:

- involvement
- autonomy
- supervisory support
- integration
- welfare
- training

The rational goal domain taps into the organisation's control orientation (rigid internal control varying to flexibility in relation to the environment) and focus on pursuit and attainment of well-defined goals with items on six factors:

- pressure to produce
- clarity of organisational goals
- performance feedback
- quality
- efficiency
- effort

These two domains were chosen for the current survey as they were thought most likely (out of the 4 domains in the OCM) to show respondents' perceptions of how they are treated by their employing organisations, thus addressing the research questions relating to employer support. The OCM has been designed so that the various domains can be used in isolation (Patterson et al, 2005); the two other domains of the OCM - internal process and open systems - were deemed to be less relevant to the current study and so, in the interest of keeping the number of questions to a minimum and avoid respondent fatigue, these

dimensions were omitted. For all 57 items in section 2, responses are made on a 4-point Likert scale (definitely false to definitely true).

Several items on the original OCM refer to the 'company' and 'products' and it was felt that these terms were inappropriate for use in GP practices. After consultation with the authors of the OCM it was agreed that these terms should be changed to 'Practice' and 'services' respectively. The OCM also makes reference to 'management' and 'supervisors'; given that many respondents were likely to be partners in a practice and thus be managers/ supervisors, the following advisory note was added at the start of section 2:

> *Some of the items in this section refer to 'management' and 'supervisors'; for these items please consider 'management' and 'supervisors' as those people responsible for your day-to-day role. It may be the case that you are a manager or supervisor and have no management level above you in the organisation. If so, please respond with respect to how you perceive your own management style.*

- **Section 3** was the Big Five Inventory (BFI; John et al, 1991), comprising 44 items to assess five aspects of personality: agreeableness, conscientiousness, extraversion, neuroticism and openness. Respondents rated their agreement with each item on a 5-point Likert scale (from disagree strongly to agree strongly).

- **Section 4** related to the multidisciplinary team and consisted mainly of open-ended questions to garner respondents' views on multidisciplinary working. Respondents were asked to define a 'multidisciplinary healthcare team' and to state whether or not they considered themselves to be part of a MDT. Based on their responses to the latter, respondents were directed either to questions ascertaining who else they considered part of the MDT or whether they would like to be part of an MDT, why/why not, and, if they would, who else they would like on the team. Benefits and barriers to multidisciplinary work were also explored. In the GP/PN survey, section 4 also contained questions relating to the respondent's communication with CPs and their perceptions of the relationship they have with CPs.

The CP survey contained the above 4 sections (with some question wording altered to make it relevant to the community pharmacy setting e.g. 'Practice' changed to 'pharmacy') plus a fifth section relating to their clinical role: the extent to which they feel they have a clinical role, how they define clinical work and if/where they can seek advice regarding clinical matters. Questions relating to communication and relations with GP practices were also included in section 5 (the equivalent of those included in section 4 of the GP/PN survey).

The surveys were available as paper booklets or online via SurveyMonkey. The first pages of both introduced the study and the survey, explaining that by completing and returning the survey respondents would be giving their consent for their data to be used in the study. The final page of the online version of the questionnaire asked respondents whether they wished to receive the £10 shopping vouchers and, if so, to give their address. Respondents were also asked if they would like to receive a final report of the study. For respondents

wishing to complete the paper version of the survey, a separate form for payment details and report requests was posted along with the survey booklet and freepost return envelope. The online version of the survey was set up so that respondents were automatically directed to the relevant follow-up questions in section 4 based on their responses (i.e. irrelevant questions were not seen by the respondents). Otherwise the paper and online versions did not differ – they contained the same questions in the same order, with the same response formats (tick-boxes and free text). Appendices 1a and b are copies of the paper-format survey.

A website for the study was also made as an easy-to-access information source for potential respondents. The website comprised the following pages:

- *About the Study*: containing information about the purpose and scope of the study and who funded the study
- *How to take part*: Information about what participation would involve, eligibility for participation, and a link to a form where a survey could be requested
- *Meet the research team*: Details about the members of the study team
- *Contact us*: Contact details for the PI and research officer.

3.3.2 Pilot survey

To help ensure the surveys would be comprehensible for the target audience and to gain an idea of how long they would take to complete, the surveys were pilot tested with a small group of local GPs, PNs and CPs. The Primary Care Research Network (PCRN) South Western branch helped identify a GP and a PN who were willing to test the initial draft of the survey. A further GP and PN, known to members of the PSG, were also approached and agreed to test the survey. A local GP practice was also contacted directly by the researcher but the practice manager declined on behalf of the GPs and PNs. Two CPs working in the University as teacher practitioners agreed to test the CP survey. In total, therefore, 2 GPs, 2 PNs and 2 CPs agreed to pilot test the surveys. Two further CP members of the Project Advisory Group (a local CP and the chief executive of a community pharmacy professional organisation; see section 3.4) also commented on the initial draft.

Following the pilot responses and feedback, changes were made to the wording of some of the questions and more response options were added to a few of the multiple choice demographic questions, in order to encompass the wide variety of practice and practitioner types available.

The final survey went 'live' on 27th June 2013.

3.3.3 Procedure

Individuals requested surveys via direct email or telephone contact with the research officer, sending a request through their local PCRN (see section 3.3.4), or by completing the request form on the study website. Participants who requested the online survey version were emailed a unique link to the appropriate survey (GP/PN or CP) – the unique nature of the link allowed participants to exit the survey before completing it and then return, using

the link, to finish the survey at a later time. This method of online survey delivery was chosen over an open access survey (where respondents do not have to contact the research team to gain access to the survey but the survey must be completed all in one session and from the same computer) as it was thought that the greater flexibility of when to complete the survey would better suit the busy schedules of healthcare professionals. This method also allowed individuals at one practice/pharmacy to use the same computer to complete individual surveys.

Where paper versions of the survey were requested, respondents were posted a survey, payment form and freepost reply envelope for returning the completed survey. On receipt of completed paper surveys, shopping vouchers (£10), if requested, were sent and survey responses were entered manually into the SPSS database.

The SurveyMonkey account was regularly checked and respondents of any newly completed surveys were sent payment vouchers if requested. Results from SurveyMonkey were downloaded in an SPSS format and entered into the study database.

In order to comply with the Integrated Research Application System's (IRAS, see section 3.3.4) requirements for submitting monthly accrual reports of recruitment, a separate database of respondents was kept in Excel software. IRAS required the names of practices that had taken part in the study and the number of respondents from each practice. The Excel database therefore contained practice/pharmacy addresses and the dates on which individuals had completed the survey. The database was also used to keep track of which practices/pharmacies had been contacted and when, to aid the efficiency of recruitment, and keep track of payments to respondents.

3.3.4 Recruitment

The original plan was to recruit 600 respondents (200 of each professional group) by the end of October 2013 and a variety of recruitment methods were employed to help reach this target. Several adverts were placed through different organisations (as detailed below) but, in order to both make the adverts more noticeable and improve potential participants' familiarity with the study, the same colour scheme and images were used throughout all adverts where possible. An example flyer is given appendix 2.

Portfolio adoption was sought through the Integrated Research Application System (IRAS) at the same time as R&D approval application. Once R&D approval had been granted the study portfolio was adopted by each local NHS R&D department. With portfolio adoption, the local Primary Care Research Networks (PCRNs) were able to help recruit respondents. PCRNs hold lists of 'research active' GP Practices in their districts and make contact with designated people in these practices to inform them of opportunities to participate in research. The Practices receive credits for each research activity they take part in, and practices then receive a payment based on their credits (in addition to any incentives given by the study team).

Each PCRN had slightly different recruitment procedures. The South Western branch (covering primary care in Bristol, Cornwall, Devon, Dorset, Gloucestershire, Hampshire, Somerset and Wiltshire) sent monthly e-bulletins to all research active practices with information about current studies, although these e-bulletins went out at different times in the 3 separate regional hubs of the branch. The Thames Valley branch (covering Oxfordshire and Berkshire) did not send regular e-bulletins but did send separate emails about specific studies. PCRNs also operated different protocols for expressing interest in a study – some preferred potential participants to contact the research team directly, others preferred to receive expressions of interest themselves and pass these on the research team. It was thus necessary to liaise with the different PCRNs in order to design appropriate flyers or email messages to advertise the study. All adverts gave a brief background to the study, eligibility criteria, details of participation including the incentive offered, assurance of confidentiality, instructions for how to request a survey and contact details for the research officer.

There was no comparable 'research active' list of community pharmacies and so PCRNs tend to have few CP contacts. However, the South Western PCRN put the study team in touch with the Pharmaceutical Services Negotiating Committee (PSNC) who agreed to email study flyers to their members and post adverts for the study on relevant Local Pharmaceutical Committees' (LPCs) websites. The adverts directed potential participants to the study website and also gave contact details for the research officer. In addition, the study team placed messages on the RPS Local Practice Forum, Great Western branch (15.07.13 and again on 12.09.13) and contacted the Peninsula branch to upload the message on their site too. In September, a contact at the RPS kindly agreed to post information about the study on all relevant LPF sites and promoted the study through the RPS Twitter account.

Several professional journals were contacted by the study team to ascertain if they could help with recruitment. *Practice Nurse* journal printed a half-page advert for the study in their August edition and also placed a short 'News' article on their website that directed their readers to the study website. The *Pharmaceutical Journal* online placed a notice asking for participants on their 'Wanted' page (June 2013). The *British Journal of General Practitioners* and *Nursing in Practice* Journals were also contacted but were unable to help.

Twitter was also used to promote the study: separate messages were posted in July and again in August calling CPs, GPs and PNs to participate. Requests were made to the Royal College of Nurses, Royal College of General Practitioners, Mr Dispenser and Pillman (CP tweeters), and Pharmacy Voice to re-tweet the posts. Tweets were made from HF's Twitter account to best make use of the many CP contacts she made from previous research Links to the study website were also posted on HF's LinkedIn profile and MCW's University website profile page.

The NHS Contact, Help, Advice and Information Network (CHAIN) was contacted in August; they sent out an email message giving information about the study to 287 people in their Primary Care Interest Group (03.09.13). This group consists of practitioners, researchers and members of the public and so the email asked recipients to forward the message to eligible participants if possible. The National Institute for Health Research (NHIR) were contacted

regarding using their National Academic mailing list service (JISC mail) for research nurses as a means of recruitment however, after deliberation, they felt this would not be a correct mode of advertising studies.

Peninsula and Severn Deaneries were contacted in July to try to gain their support with recruitment of GPs and practice nurses. However, general email enquiries did not elicit any response. An email to a personal contact of JS' in Severn Deanery did result in an advert for the study being placed in their newsletter to GP training practices (01.10.13).

In August, as recruitment figures were behind schedule to meet the targets, particularly for practice nurses, the research team decided to try direct contact with GP practices and sent flyers, advertising the study, to all practices in regions where recruitment was particularly poor. Databases of GP practice addresses were compiled, using the Association of Public Health Observatories (APHO) and NHS Choices websites, for BANES, Cornwall, Devon, Dorset, South Gloucestershire and Wiltshire. Flyers were sent to all practices in these regions except those that had already participated.

In September and October, GP practices and community pharmacies in regions where response rates were low were telephoned. Databases of telephone numbers were made for GP practices in BANES, Berkshire East and West, and Bournemouth and Poole, and for community pharmacies in Oxfordshire, Portsmouth and Southampton. These sites were phoned by two members of the research team giving brief details of the study, informing the sites of the study website and asking if they would like to be sent surveys.

Teacher-practitioners (TPs) working in the Pharmacy department at Bath kindly forwarded emails about the study to their contacts in community pharmacy and one TP also circulated flyers for the study at CPPE training events that she holds in the South West.

It was decided to extend recruitment until late November (25.11.13) as responses, particularly from PNs and CPs, were around half of the target figures in mid-October. All PCRNs were asked to circulate an updated flyer/advert, which thanked those practitioners who had already completed a survey and invited those who had not yet participated to request a survey. EBG and HF also visited local GP practices and CPs to hand out surveys directly. In the last three weeks before the deadline reminder emails were sent out weekly to all online participants who had not fully completed the survey.

3.3.5 Analysis

Survey data were entered into a SPSS statistics 20 database for analysis. Descriptive statistics (frequencies, means, SD, medians) were used to provide an overview of the data and bivariate comparisons (Mann Whitney, chi-square, Spearman's Rank) and logistic regressions were performed to explore the relationships between variables. Confirmatory factor analysis was conducted with the BFI results to ascertain if the five factor structure of personality, assumed by the inventory, was supported in the sample.

Content analyses were conducted separately for open-ended questions to identify key themes. The research officer (EBG) initially read through all responses for a question to

identify recurring themes/issues. Using Excel, descriptive thematic matrices (Miles & Huberman, 1994) were then made with separate columns for each theme and individual responses represented by a separate row. From these tables it was possible to see how often different themes occurred and, by including other respondent variables (e.g. years of experience in practice), it was also possible to compare groups of respondents. Summary tables listing the frequency of occurrence of each theme for the separate professional groups were then made. In these tables, each theme was listed under broader categories (e.g. all those relating to communication or organisational structure). To ensure help rigour, themes were discussed among the PSG to ensure that they made sense and MCW read through the raw responses for a subsection of open-ended questions to check the coding.

An exception to this form of analysis was question 1.13, an open-ended question asking what support respondents received from their organisations (see appendices 1a and b). Since this question was to be used in statistical analyses it was necessary to categorise and code responses into one variable. For this, EBG read through all responses in order to determine appropriate criteria for separate categories then coded the responses accordingly into a new variable. For reliability purposes, MCW read through the raw response data and checked the coding against the category criteria.

3.4 Project Advisory Group

The PSG decided early in the study that it would be helpful to consult key stakeholders for their interpretations of the survey results. This would help ensure that the practice and policy implications drawn from the study would have face validity and relevance for practitioners. Therefore a Project Advisory Group (PAG) was set up and a meeting held in February 2014 to discuss the findings from the survey analysis and possible ways to improve practice.

3.4.1 Recruitment

In June, prior to the survey going live, a local CP, nurse practitioner and retired GP (currently working in the Severn Deanery), and the chief executive of a community pharmacy professional organisation were contacted to see if they would be interested in joining the PAG and also to give their comments on the initial drafts of the survey. Those contacted had all previously worked with members of the research team. The CP, GP and nurse practitioner responded immediately, expressing their interest in the PAG, subject to the meeting time being convenient. The chief executive of the community pharmacy organisation responded in August, also expressing an interest in participating.

Further members for the PAG were sought while the survey was in progress. Survey respondents from five local GP practices were contacted directly following their completion of the survey; 2 practice nurses were recruited by this method. A GP known to one member of the research team was also contacted and agreed to participate. A board member of the Pharmaceutical Services Negotiating Committee (PSNC), who was initially contacted regarding recruitment for the survey, expressed an interest in helping with the study and so was invited and agreed to take part in the PAG. Further participants were sought through

the local Clinical Commissioning Group (CCG): a member of the CCG, known to one of the PSG, forwarded an email recruitment call (drafted by the research officer) to local GP practices. Three further GPs (one in training) were recruited through these means.

The nurse practitioner, originally contacted in June, was unable to attend the PAG meeting at the time that was most convenient to all other members and so the eventual PAG consisted of 5 GPs, 2 PNs, 1 CP and the 2 representatives of pharmacy organisations. On the day of the meeting, however, the chief executive of the community pharmacy organisation (who was going to join the meeting via Skype) was delayed and so MCW and EBG held a teleconference with him a week later, to discuss both the survey results and the proceedings of the PAG meeting.

3.4.2 Procedure

In early January 2014, all those who had expressed an interest in taking part in the PAG were emailed a list of possible dates on which to hold a meeting. The 19th February was chosen as the most convenient date. One week prior to the meeting participants were sent briefing information, which gave a brief background to the study, details of how the study had been conducted, demographic statistics describing the survey sample and brief summaries of the main findings. The briefing document is given in appendix 3.

The meeting was held on the University campus and lasted two and a half hours. MCW and EBG hosted the meeting, which began with a brief presentation giving the study rationale and method and then discussing the survey results in more detail. Throughout the presentation, participants were encouraged to ask questions or comment on the findings. Participants were then given pads of sticky-notes and for the next half hour were asked to read the posters displayed around the meeting room (each of which gave specific results from the surveys) and write any comments/responses they had about the posters on their sticky-notes then attach the notes to the poster. Some of the posters simply gave the results (e.g. a table displaying the top 5 barriers to MDT work, as perceived by each professional group) while other posters listed results alongside a question (e.g. alongside results relating to the importance of shared goals among members of a team coupled with perceptions of conflicting interests between professions, we asked ‘What needs to be done to enable practices and pharmacies to form and maintain shared goals in the face of these (perceptions of) conflicts of interests?’).

For the remainder of the meeting the group re-joined and discussed, first, the posters and whether the findings resonated with the participants, and then what the participants felt was needed to support multidisciplinary team working between GP practices and community pharmacies. Ideas for dissemination of findings were also discussed.

4. Results

4.1 Participants

In total 523 responses were received: 214 from GPs, 147 from PNs and 162 from CPs. These figures include some unfinished online surveys, responses from which were included in the analysis. Table 1 gives a breakdown of completed and partially completed surveys according to professional group. The vast majority of respondents chose to complete the survey online with only 32 (15%) GPs, 16 (11%) PNs and 14 (9%) CPs completing paper surveys.

Table 1. Total numbers of completed and partially completed surveys received according to survey professional group.

	GP	PN	CP
Completed survey	203	139	151
Partially completed	11	8	11
Total	214	147	162
Overall total		523	

Table 2 gives a breakdown of respondents according to the different primary care regions. As can be seen from the table, a few responses were received from people in regions outside those targeted (in italics in table 2). This was despite respondents being asked on the survey request form to state which of the study regions they practiced in. It is possible that these respondents worked in several regions but only gave the address of one of their practices. In the interests of not wasting data, it was decided that these responses should be included in the analyses.

Table 2. Total numbers of completed surveys received according to primary care region and professional group.

	GP (*N*=214)		PN (*N*=147)		CP (*N*=162)		**Total (*N*=523)**	
	N	*%*	N	*%*	N	*%*	**N**	**%**
BANES	11	*5.1*	14	*9.5*	11	*6.8*	**36**	***6.9***
Berkshire East	2	*0.9*	9	*6.1*	10	*6.2*	**21**	***4.0***
Berkshire West	-	-	2	*1.4*	1	*0.6*	**3**	***0.6***
Bournemouth and Poole	1	*0.5*	1	*0.7*	3	*1.9*	**5**	***1.0***
Bristol	20	*9.3*	9	*6.1*	12	*7.4*	**41**	***7.8***
Cornwall	18	*8.4*	12	*8.2*	8	*4.9*	**38**	***7.3***
Devon	19	*8.9*	18	*12.2*	25	*15.4*	**62**	***11.9***
Dorset	7	*3.3*	3	*2.0*	11	*6.8*	**21**	***4.0***
Gloucestershire	26	*12.1*	18	*12.2*	11	*6.8*	**55**	***10.5***
Hampshire and Isle of Wight	21	*9.8*	5	*3.4*	5	*3.1*	**31**	***5.9***
North Somerset	18	*8.4*	5	*3.4*	7	*4.3*	**30**	***5.7***
Oxfordshire	9	*4.2*	7	*4.8*	10	*6.2*	**26**	***5.0***
Plymouth	2	*0.9*	4	*2.7*	2	*1.2*	**8**	***1.5***
Portsmouth	1	*0.5*	2	*1.4*	5	*3.1*	**8**	***1.5***
Somerset	16	*7.5*	6	*4.1*	6	*3.7*	**28**	***5.4***
Southampton	2	*0.9*	1	*0.7*	6	*3.7*	**9**	***1.7***
South Gloucestershire	15	*7.0*	8	*5.4*	8	*4.9*	**31**	***5.9***
Swindon	6	*2.8*	3	*2.0*	1	*0.6*	**10**	***1.9***
Torbay	6	*2.8*	10	*6.8*	5	*3.1*	**21**	***4.0***
Wiltshire	13	*6.1*	8	*5.4*	11	*6.8*	**32**	***6.1***
Birmingham	-	-	-	-	1	*0.6*	**1**	***0.2***
Manchester	-	-	-	-	1	*0.6*	**1**	***0.2***
Nottingham	-	-	-	-	1	*0.6*	**1**	***0.2***
Surrey	-	-	-	-	1	*0.6*	**1**	***0.2***
Buckinghamshire	1	*0.5*	2	*1.4*	-	-	**3**	***0.6***

It was not possible to calculate response rates since the recruitment methods used meant we could not know how many individual practitioners had seen the recruitment materials (flyers, PCRN e-bulletins, Twitter feeds etc.) However, table 3 displays the numbers of online surveys that were requested and sent out via email link and the numbers of paper versions of the survey that were distributed (either in response to a request or through researchers visiting the practices/pharmacies). In some cases several paper copies of the survey were requested by one GP, practice nurse or practice manager to distribute to their colleagues and so it is not possible to tell how many were for GPs and how many for nurses.

Table 3. Numbers of surveys requested and sent according to survey type and professional group.

	GP	PN	CP
Links to online surveys sent	233	164	192
Paper surveys sent	175 to GP practices		44
Total surveys sent	**572**		**236**

4.2 Demographics and descriptive results

Demographic information for the sample, categorised according to professional group, is displayed in table 4. There was a roughly 1:1 ratio of male to female GPs, which is representative of the UK GP workforce (50.8% female in September 2013, Health and Social Care Information Centre (2014)). Only 2% of the current PN sample was male; however there are no nationally collected data on the gender ratio for practice nurses in the UK with which to compare the current sample. Men are known to be under-represented in the nursing workforce at large; about 9.9% of the secondary care nursing workforce is male and the proportion is thought to be even lower in primary care (Drennan & Davis, 2008). The slight majority of females in the current CP sample (57.4%) is comparable to that found nationally among CPs in the latest available pharmacy workforce census (53% female; Phelps, Agur, Nass & Blake, 2014).

As can be seen in table 4, CPs were on average slightly younger (mean age 39.8 years) than the GPs (45.2 years), who were in turn younger than the PNs (48.9 years), and this was reflected in the groups' respective average years of registration. However, all groups had spent a similar time on average in their current practice settings – general practice or community pharmacy. This would suggest that the nurses in this sample may have spent a longer time practising in secondary care before converting to primary care or, given the high proportion of females in the PN group, the group's average years in practice may have been more skewed by maternity leave and career breaks to raise children.

Respondents were asked if they had undertaken any further qualifications or postgraduate training (defined as those that develop the professional's role and are not compulsory e.g. certificates, diplomas, further degrees). Significantly fewer CPs had postgraduate qualifications than GPs ($\chi^2(1)=74.0$, $p<.005$) and PNs ($\chi^2(1)=56.4$, $p<.005$). GPs and PNs did not significantly differ. From the responses to the further qualifications question it was possible to see how many PNs and CPs were independent prescribers. Although precise figures are not known for independent nurse and pharmacist prescribing specifically in general practice/community pharmacy, about 2-3% of the overall nursing and pharmacist workforces can prescribe and most of nurse and pharmacist prescribers are known to work in GP practices (Latter & Blenkinsopp, 2011). The proportion CP prescribers in the current sample is thus fairly representative of the national workforce, however the proportion of PN prescribers would seem higher than average.

Table 4. Sample demographics according to professional group.

	GP (*N*=214)	PN (*N*=147)	CP (*N*=162)
Gender			
Male	105 *(49.1%)*	3 *(2.0%)*	69 *(42.6%)*
Female	109 *(50.9%)*	144 *(98.0%)*	93 *(57.4%)*
Age (in years)			
Mean *(SD)*	45.2 *(8.8)*	48.9 *(8.3)*	39.8 *(11.3)*
Range	25 - 63	27 - 70	23 - 69
Year of registration			
Mean *(SD)*	1992 *(9.3)*	1987 *(9.5)*	1997 *(11.7)*
Range	1970 - 2013	1964 - 2009	1968 - 2013
Years in practice*			
Mean *(SD)*	15.0 *(8.6)*	13.6 *(8.1)*	14.3 *(10.8)*
Range	0 - 35	.25 - 40	0 - 51
Postgraduate further qualifications	(*N*=212)	(*N*=146)	
One or more qualification(s)	171 *(80.7%)*	116 *(79.5%)*	60 *(37.0%)*
Qualified prescribers	N/A	29 *(19.7%)*	13 *(8.0%)*

* This refers specifically to time spent in general practice/community pharmacy (rather than, say, time working in hospitals after qualifying). 0 years was put when a respondent had just qualified. Professions did not significantly differ for years in practice ($H(2)=3.36$, $p>.05$).

Table 5 gives details of respondents' geographic locations and workplace types. The majority of respondents reported that their practices/pharmacies were in an urban setting (city, town, suburban), with a slightly higher proportion of CPs (81%) in urban locations than GPs or PNs (both 69%). Over half the GP and PN respondents worked in practices that were co-located with a pharmacy. In contrast, the majority of CPs (75%) were not co-located with a GP practice. Just over a third of CP respondents were based in independent pharmacies, which is slightly higher than the figure obtained in the national census (29%, Phelps et al, 2014), although pharmacy types were defined slightly differently in this study. The majority of respondents in each group worked at only one practice or pharmacy site; slightly more PNs split their time across two or more sites compared with GPs and CPs.

Table 5. Workplace location and type according to professional group.

	GP (*N*=214)	PN (*N*=147)	CP (*N*=161)
Location of practice/pharmacy			
City	40 *(18.7%)*	23 *(15.6%)*	24 *(14.9%)*
Town	67 *(31.3%)*	62 *(42.1%)*	74 *(45.9%)*
Suburban	40 *(18.7%)*	16 *(10.9%)*	33 *(20.5%)*
Semi-rural	49 *(22.9%)*	31 *(21.1%)*	16 *(9.9%)*
Rural	18 *(8.4%)*	15 *(10.2%)*	14 *(8.7%)*
Co-location with practice/pharmacy			
Not co-located	103 *(48.1%)*	61 *(41.5%)*	121 *(75.2%)*
Co-located, under same ownership	26 *(12.1 %)*	34 *(23.1%)*	7 *(4.3%)*
Co-located, under different ownership	85 *(39.7%)*	52 *(35.4%)*	33 *(20.5%)*
Type of pharmacy			
Independent, single site	-	-	32 *(19.9%)*
Independent, 2-5 sites	-	-	26 *(16.1%)*
Small chain, 6+ sites	-	-	22 *(13.7%)*
Large chain	-	-	72 *(44.7%)*
Supermarket	-	-	9 *(5.6%)*
Number of sites worked at			
One practice site/pharmacy	153 *(71.5%)*	86 *(58.5%)*	112 *(69.1%)*
2+ sites belonging to same practice	36 *(16.8%)*	44 *(29.9%)*	-
2+ sites, different practices	25 *(11.7%)*	17 *(7.9%)*	-
2+ pharmacies	-	-	50 *(31.1%)*

Significantly more CPs (123, *76.4%*) reported having managerial/supervisory responsibilities over other members of staff than either GPs (134, *62.6%*; $\chi^2(1)=8.09$, $p<.005$) or PNs (78, *53.1%*; $\chi^2(1)=18.5$, $p<.001$). However, as can be seen in table 6, of those respondents who reported having managerial/supervisory responsibilities, GPs had responsibility for significantly more people than either CPs (U = 11,691, $p<.001$, r = .41) or PNs (U = 2,085, $p<.001$, r = -.50). CPs also had responsibility for significantly more people than PNs (U=3,155, $p<.001$, r = -.29).

Table 6. Managerial/supervisory responsibilities of respondents

Managerial/supervisory responsibilities	GP (*N*=214)	PN (*N*=147)	CP (*N*=161)
None	80 (37.4%)	69 (46.9%)	38 (23.6%)
Have responsibilities	134 (62.6%)	78 (53.1%)	123 (76.4%)
Number of people responsible for (Median)	15	4	6

Respondents were also asked to report what level they occupied in the hierarchy of their organisation; results from this question are displayed in table 7. As would be expected, the majority of PNs were not in top management level positions (the manager or one of a team of managers). The reverse pattern was seen among GPs, who traditionally become 'partners' in a general practice. Roughly a quarter of GP respondents were not in top level

management positions and were likely to be salaried or locum doctors. For CPs, management level was significantly related to pharmacy type, with 27 of the 58 (46.6%) CPs in independent pharmacies being in the top hierarchical level of the business, compared to only 6 of the 103 (5.8%) CPs in multiple pharmacies (X^2 (5) = 56.1, p<.001, Cramer's V = .59).

Table 7. Hierarchical level occupied in the organisation reported by respondents.

	GP (N=211)	PN (N=147)	CP (N=161)
The manager	34 (*16.1%)*	5 (*3.4%)*	26 (*16.1%)*
One of a team of managers	121 (*57.3%)*	9 (*6.1%)*	7 (*4.3%)*
The is one management level above respondent with management located on site	44 (*20.9%)*	73 (*49.7%)*	26 (*16.1%)*
One management level above, management located remotely	2 (0*.9%)*	4 (*2.7%)*	27 (*16.8%)*
>1 management levels above, management located on site	8 (*3.8%)*	51 (*34.7%)*	32 (*19.9%)*
>1 management levels above, management located remotely	2 (0*.9%)*	5 (*3.4%)*	43 (*26.7%)*

An open-ended question was included at the end of the first section of the survey, asking participants what support they receive, if any, from the pharmacy business/practise at which they worked. Responses were coded into the following 4 categories:

- No support
- Little support – only one type of support mentioned (e.g. only study leave or only peer support)
- Moderate – from more than one source or more than one type, some training/support for training (e.g. protected time) provided, possibly evidence of dissatisfaction with training or support (e.g. it is all driven by company targets rather than in an area pharmacist is interested in)
- Extensive – both support/advice and training was provided, available from many sources and easily accessible, evidence of satisfaction with level of support

Results are displayed in table 8. Level of support was significantly related to professional group (χ^2 (6, N=513) = 114.00, p<.001) and the association was of a moderate size (Cramer's V = .33). PNs reported significantly more support than GPs (χ^2 (3) = 55.8, p<.001; Cramer's V = .40) and CPs (χ^2 (3) = 78.2, p<.001; Cramer's V =.51). GPs reported significantly more support than CPs too (χ^2 (3) = 28.9, p<.001; Cramer's V =.28).

Table 8. Level of support reported according to professional group.

	GP (*N*=209)		PN (*N*=147)		CP (*N*=157)	
	N	*%*	*N*	*%*	*N*	*%*
None	11	*5.3*	0	*0*	26	*16.6*
Little	50	*23.9*	12	*8.2*	57	*36.3*
Moderate	108	*51.7*	55	*37.4*	43	*27.4*
Extensive	40	*19.1*	80	*54.4*	31	*19.7*

Level of support was also found to be significantly related to pharmacy type, with CPs at multiple pharmacies reporting significantly more support than CPs at independent pharmacies (χ^2 (3, N=157) = 28.91, p<.001; Cramer's V =.43). Table 9 displays the frequencies of CPs in level of support according to pharmacy type. Comparing the different pharmacy types with GPs and PNs the significant differences remained except between CPs at multiple pharmacies and GPs (p>.05). PNs' reported level of support was higher than both independent CPs (χ^2 (3, N=205) = 107.8, p<.001; Cramer's V =.73) and, to a lesser extent, CPs at multiples (χ^2 (3, N=246) = 36.3, p<.001; Cramer's V =.40). GPs also reported significantly higher levels of support than independent CPs (χ^2 (3, N=267) = 56.5, p<.001; Cramer's V=.46).

Table 9. Level of support reported by CPs, according to pharmacy type

	CP independent (*N*=58)		CP multiple (*N*=99)	
	N	*%*	*N*	*%*
None	18	*31.0*	8	*8.1*
Little	28	*48.3*	29	*29.3*
Moderate	7	*12.1*	36	*36.4*
Extensive	5	*8.6*	26	*26.3*

4.2.1 Organisational climate

The survey included two domains of the Organisational Climate Measure (Patterson et al, 2005): the human relations domain, which assesses the sense of belonging, trust and cohesion within an organisation (from the respondent's perspective); and the rational goal domain, which taps the respondent's perception of their organisation's control orientation and focus on pursuit and attainment of well-defined goals. Respondents rated items in the measure on a 4-point Likert scale to show the extent to which they felt the statements were true or false of their organisation (1 = definitely false, 4 = definitely true). Each item in the measure related to one of the 12 factors within the two OCM domains. Factor scores for each participant were calculated by taking the mean of the relevant item ratings (N.B. some items were first reverse-scored before calculating the mean factor score).

Kruskal-Wallis tests indicated that scores in every factor except pressure to produce differed across the professional groups and so *post hoc* Mann-Whitney tests were conducted, taking a Bonferroni corrected critical value of .017 (.05 divided by three to account for the three group comparisons). Median[3] scores for the six factors within each of the two domains are given separately for each professional group in table 10.

[3] As per convention when using non-parametric tests, median scores for each group are reported. However, it should be noted that the analyses were conducted on overall factor scores, which are means of item ratings.

Table 10. Median scores for human relations and rational domains of the Organisational Climate Measure for each professional group.

Human relations domain	GP (*N*=209)	PN (*N*=147)	CP (*N*=155)
Involvement*ˆ˚	3.17	3.00	2.83
Autonomyˆ˚	2.80	2.80	2.60
Supervisory supportˆ˚	3.20	3.20	3.00
Integrationˆ˚	3.20	3.20	3.00
Welfare*ˆ˚	3.75	3.25	3.00
Trainingˆ˚	3.25	3.25	2.75
Rational goal domain	**GP (*N*=206)**	**PN (*N*=147)**	**CP (*N*=154)**
Pressure to produce	2.80	3.00	3.00
Clarity of organisational goals˚	3.00	3.00	2.90
Performance feedback˚	3.00	3.00	2.80
Qualityˆ˚	3.75	3.75	3.25
Efficiencyˆ˚	2.75	3.00	2.25
Effortˆ˚	3.40	3.40	3.20

**GP-PN significantly differ p<.017*
ˆPN-CP significantly differ p<.017
˚GP-CP significantly differ p<.017

On the human relations domain, GPs reported the greatest organisational involvement, with PNs reporting significantly less and CPs significantly less than the PNs. The same pattern occurred for organisational welfare (see table A in appendix 4 for test statistics). These results indicate that the GPs felt their organisations were better at involving staff in decision making and were more caring and fair towards staff compared to how PNs and CPs perceived their organisations.

GPs and PNs did not significantly differ on any other human relations variables but both reported significantly higher autonomy, supervisory support, integration and training in their organisations compared to CPs. This suggests that CPs feel less able to take their own decisions, less supported and able to approach their supervisors, that there is less sharing of information and respect between different departments and that training is not extensive or strongly encouraged.

GPs and PNs did not significantly differ on any of the rational goal factors and there were no differences between any of the different professionals on the pressure to produce factor. Compared to CPs, GPs reported their practices to have significantly clearer organisational goals, give better performance feedback, place more emphasis on quality, run more efficiently and have better levels of motivation and commitment among staff (effort). There were also significant differences between PNs and CPs perceptions of their respective

organisations' emphasis on quality, efficiency of service and effort among staff, with PNs rating their practices more favourably. Table B in appendix 4 displays test statistics for group comparisons on the rational goal domain.

It was suggested that the pattern of results on the OCM might be linked to size of organisation and so it was decided to split the CP group according to pharmacy type: independent (< 6 sites) vs multiple (6 sites or more). It was thought that independent pharmacies tend to be more similar to GP practices in terms of business models and this may be reflected in the practitioners' OCM responses. For all factors of the human relations domain, CPs in independent pharmacies rated their organisations significantly higher than those in multiple pharmacies (taken as small chain, large chain and supermarket) – see table 11 for median factor scores in each group. CPs at multiple pharmacies significantly differed from GPs and PNs on all factors but no significant differences were found between independent CPs and GPs or PNs, taking a more conservative critical value of .013 to correct for multiple comparisons between four groups (test statistics are given in table C of appendix 4).

Table 11. Median scores on human relations factors for CPs from independent and multiple pharmacies. Groups significantly differed on all factors (p<.013).

	CP independent (*N*=56)	CP multiple (*N*=99)
Involvement	3.17	2.50
Autonomy	2.80	2.40
Supervisory support	3.20	3.00
Integration	3.40	2.80
Welfare	3.75	3.00
Training	3.00	2.50

On the rational goal domain factors, the two CP groups significantly differed (p<.013) on pressure to produce (with CPs at multiples reporting feeling more pressure), clarity of organisational goals (with CPs at multiples reporting less clarity) and efficiency (with CPs at multiples reporting lower organisational efficiency)[4] – see table 12 for median factor scores in each group and appendix 4, table D for Mann Whitney test statistics.

Table 12. Median scores on rational goal factors for CPs from independent and multiple pharmacies.

	CP independent (*N*=56)	CP multiple (*N*=98)
Pressure to produce*	2.40	3.40
Clarity of organisational goals*	3.00	2.80
Performance feedback	2.80	2.80
Quality	3.25	3.00
Efficiency*	2.63	2.25
Effort	3.30	3.00

*Groups significantly differed, p<.013

[4] Taking a less conservative critical value of .05, independent and multiple CPs also differed on quality (with CPs at multiples reporting less emphasis on quality) and effort (with CPs at multiples reporting lower levels of motivation and commitment among staff)

CPs at multiples rated their organisations significantly lower than GPs did theirs on all rational goal factors (more pressure, less clarity, worse performance feedback, less emphasis on quality, less efficiency and poorer staff motivation). Compared with PNs, CPs at multiples also gave significantly lower ratings on all factors except clarity of organisational goals and performance feedback, where the two groups did not significantly differ. Test statistics are given in appendix 4, table D. CPs at independent pharmacies reported significantly less pressure than either GPs or PNs and significantly less emphasis on quality than GPs.

Overall these results suggest that independent pharmacies are more similar than multiple pharmacies to GP practices. Furthermore, professionals at GP practices and independent pharmacies seem to perceive their organisations' climates more favourably than do professionals at multiple pharmacies.

Respondents' status within their organisations and whether they had any managerial responsibilities were thought to be likely to affect their perceptions of organisational climate. It was further acknowledged that the significant differences between groups in terms of management level and responsibilities might help explain the group differences on the OCM variables. Mann Whitney tests were thus used to explore differences between those with and without managerial responsibilities and compare those at the top with those in lower levels of management. Significant differences are discussed below.

GPs without managerial responsibilities (N = 76, Median = 3.00) were significantly more likely than those with managerial responsibility (N = 130, Median = 2.80) to perceive more pressure to produce (U = 3919.50, p<.05, r = -.17). Those with managerial responsibilities (Median = 3.75, Mean = 3.66) were significantly more likely than those without (Median=3.75, Mean = 3.53) to perceive a higher emphasis on quality (U = 5871.00, p<.05, r=.16).

GPs with no management level above them were significantly more likely to perceive better welfare (N = 153, Median = 4.00) in their organisation than those with managers above them (N = 53, Median = 3.50; U = 3481.50, p<.005, r = -.24). Those with management levels above them reported feeling more pressure to produce (N= 51, Median = 3.00) than those at the top management level (N = 152, Median = 2.80; U = 4979.00, p<.005, r = .22). Those at the top management level were significantly more likely to perceive better performance feedback (Median = 3.00) in the organisation than those with managers above them (Median = 2.80; U = 2896.00, p<.05, r = -.19).

PNs with no management level above them were significantly more likely to perceive better welfare (N = 14, Median = 4.00) and training (Median = 4.00) in their organisation than those with managers above them (N = 133, welfare median = 3.25; U = 635.50, p<.05, r=-.17: training median = 3.25; U = 589, p<.05, r = -.19). Those with no management level above them reported significantly higher clarity of organisational goals (Median = 3.20) than those with managers above them (Median = 3.00; U = 559.50, p<.05, r = -.20). They also rated their performance feedback (Median = 3.40) significantly better than those with no

managers above them (Median = 2.80; U = 543.50, $p<.05$, $r = -.21$). Finally, PNs at top management level reported a higher emphasis on quality in the organisation (Median= 4.00) than those with managers above them (Median = 3.50; U = 501.00, $p<.005$, $r = -.24$). However, comparisons for PNs are less robust due to so few being in the top level of management.

CPs at top level management ($N = 32$) significantly differed from those with managers above them ($N = 122$) on all human relations subscales and on the rational goal subscales pressure to produce and clarity of organisational goals ($p<.05$). Those with no managers above them gave more favourable ratings on all factors, as shown in table 13.

Table 13. Comparison of CP ratings of OCM factors (median) according to level in management.

	Top management (N=32)	Managers above (N=122)	Mann-Whitney U (r)
Involvement	3.17	2.67	1,019.00 (-.34)
Autonomy	2.80	2.40	1,378.00 (-.21)
Supervisory support	3.20	3.00	1,209.50 (-.28)
Integration	3.40	3.00	1,210.00 (-.27)
Welfare	3.75	3.00	1,005.50 (-.35)
Training	3.25	2.75	1,079.00 (-.32)
Pressure to produce	2.30	3.10	3,175.00 (.44)
Clarity	3.00	2.80	1,123.00 (-.30)

4.2.2 Personality traits

The Big 5 Inventory (BFI; John et al, 1991) was included in the survey to measure the extent to which respondents expressed the five personality traits of extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. Confirmatory factor analyses (CFAs) were conducted for each professional group to ascertain whether the results supported the five factor model of personality. The results supported the model, with a five factor structure clearly emerging; most items loaded highly (structural coefficients > .4) only on their relevant factors (i.e. the trait they were measuring), although some items had only weak structural coefficients (.2 – .4) for one of the professional groups. Cronbach's α values indicated good scale reliability (all but two were in the range of .70 - .89 and all were >.63).

Median scores for each group on the five personality factors are given in table 14. Kruskal-Wallis tests revealed that there were differences between groups on agreeableness, conscientiousness and neuroticism traits. Mann-Whitney tests were conducted to further examine these differences and showed that PNs scored significantly higher than both GPs and CPs on agreeableness and conscientiousness, and significantly lower than CPs on neuroticism (Bonferroni corrected p<.017). GPs and CPs did not significantly differ on any of the traits.

Table 14. Median scores of BFI personality traits for each professional group

	GP (*N*=204)	PN (*N*=146)	CP (*N*=153)
Extraversion	3.63	3.75	3.63
Agreeableness*^	4.22	4.56	4.22
Conscientiousness*^	4.33	4.56	4.33
Neuroticism^	2.38	2.13	2.50
Openness	3.60	3.50	3.60

**GP-PN significantly differ, p<.017 (Agreeableness: U = 20,314.50, r = .31; Conscientiousness: U = 19,491.00, r=.26)*

^ PN-CP significantly differ, p<.017 (Agreeableness: U = 7,142.00, r = .31; Conscientiousness: U = 8,019.00, r=-.24; Neuroticism: U = 13,327.00, r = .17)

4.3 Multidisciplinary work

A key part of this project was looking at multidisciplinary team working: to assess the extent to which multidisciplinary team working currently exists for GPs, PNs and CPs and explore respondents' perceptions of the MDT. A variety of closed- and open-ended questions were used to do this.

4.3.1 Defining the team

Respondents were first asked for their definitions of 'multidisciplinary healthcare team'. Responses mentioned factors that related to three broad categories: 'who' (people included on team), 'how' (processes of teamwork) and 'why' (purpose of the team). Some definitions mentioned factors in all three categories while others only one or two categories. An example definition that covers all three categories is:

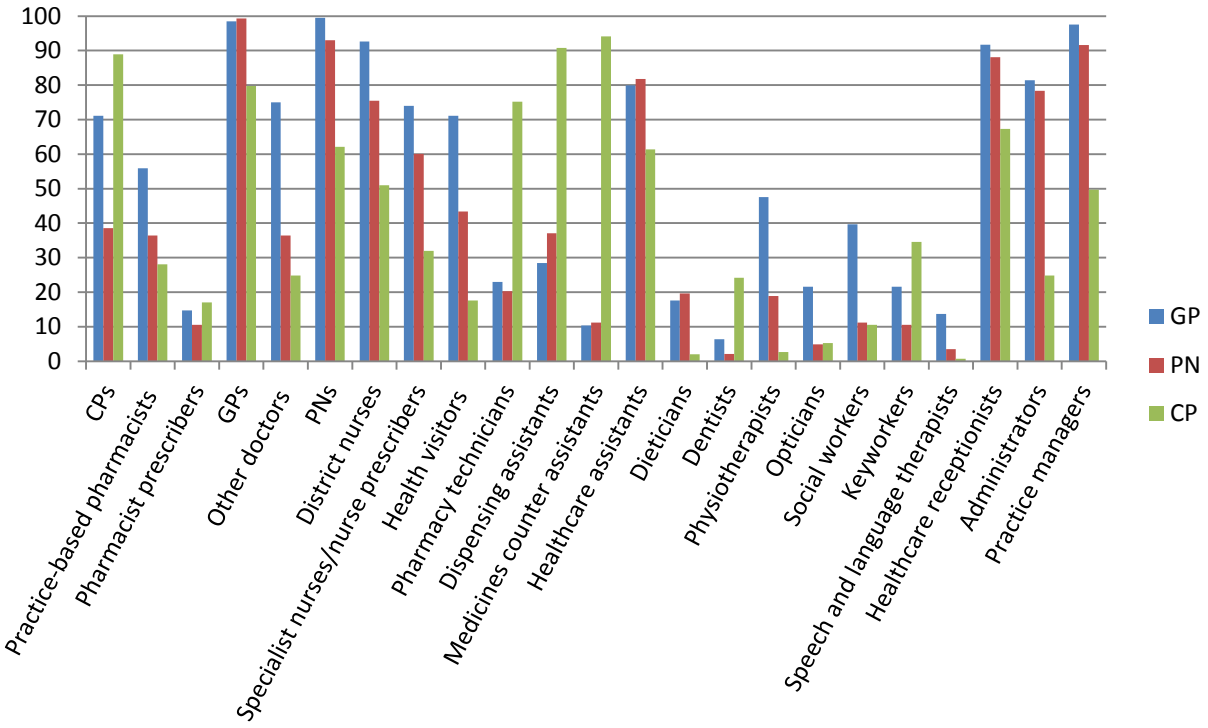
> *A team made up of lots of different healthcare workers, who all have different roles but with the same aim in treating patients in a holistic manner and providing a seamless service. [PN]*

In terms of who is included on the MDT, definitions variously mentioned different healthcare professionals, support staff or, non-specifically, different disciplines. CPs were more likely to specify different professionals in their definitions and less likely to mention support staff than either GPs or PNs. A few GPs and CPs stated that the composition of the team would be dependent on the case at hand. In terms of how the MDT works, roughly half of the respondents in each group included reference to co-operation, collaboration or working together in their definitions. Relatively more GPs (18%) than PNs (10%) or CPs (13%) specified the MDT would be working towards shared goals. Mutual respect and trust, and communication between members were mentioned by a minority of all groups. PNs were more likely to mention providing support for each other in their definitions than either GPs or CPs. Within the 'why' category factors ranged from the very general (e.g. 'to provide care') to the more specific (e.g. 'to provide a contemporaneous evidenced based health care and social support package specific to each patient'). The most commonly included purpose of the MDT, for all groups, was combining the varied skills and expertise of different members. Appendix 5 gives a table of factors included in respondents' definitions.

4.3.2 Members of the MDT

In order to gain a picture of the day-to-day working relationships of the respondents, a question was included in the survey asking respondents to indicate which healthcare workers, from a list, they worked with 'directly on a regular basis'. Results are given in chart 1, with each column representing the percentage of respondents who reported working with a particular healthcare worker. As can be seen from the chart, 80% of CPs reported working with GPs and 62% with PNs, whereas 71% of GPs and only 39% of PNs reported working with CPs. Unsurprisingly, relatively more GPs and PNs than CPs reported regularly working with those allied health professionals and support staff who typically work in (or visit) the GP practice (e.g. specialist nurses, practice managers). Similarly, more CPs reported working with pharmacy-based staff (e.g. dispensing assistants).

Chart 1. Bar graph showing the percentages of GPs, PNs and CPs who reported working with various other healthcare workers 'directly on a regular basis'.



Respondents were then asked whether or not they perceived themselves to be part of a MDT – results are given in table 15. Significantly more CPs did not consider themselves to be part of a MDT than either GPs (χ^2 (1) = 43.2, p<.001) or PNs (χ^2 (1) = 26.9, p<.001). GPs and PNs did not significantly differ. 16.4% of independent CPs did not feel part of a MDT compared to 25.5% of multiple CPs, however this difference was not significant (p>.05).

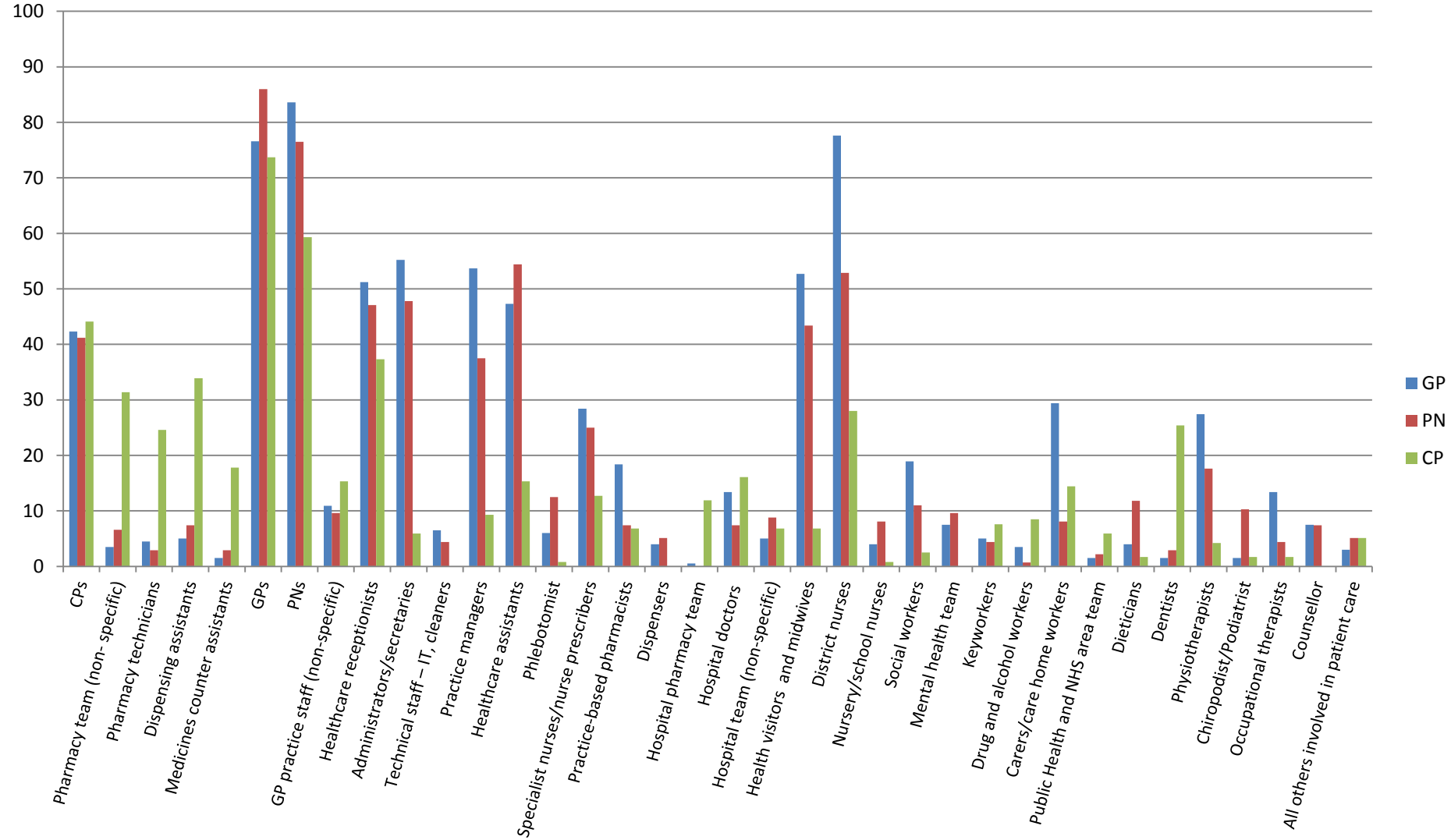
Table 15. Numbers of respondents (%) who felt part of a MDT by professional group.

	GP (*N*=204)	PN (*N*=143)	CP (*N*=153)
No	2 (*1.0*)	3 (*2.1*)	34 (*22.2*)
Yes, I feel part of MDT	202 (*99.0*)	140 (*97.9*)	119 (*77.8*)

Those respondents who did feel part of a MDT were asked to state who else they regarded to be on their team. Note that this question was subtly different from that asking who they regularly worked with, although several respondents did answer something similar to 'all

those ticked in previous question'. Results are displayed in chart 2; only the other members of the team that were mentioned by at least 5% of one of the professional groups are included in the chart. In general GPs and PNs were more likely to have larger, more varied teams. This possibly reflected the fact that GP practices tend to have a diverse staff, including administrative personnel and a variety of HCPs as well as sessional allied health professionals, such as physiotherapists. CPs' MDTs tended to be smaller and mainly included the prescribers and, to a lesser extent, the pharmacy team and practice receptionist.

Chart 2. Bar graph showing who GPs, PNs and CPs included on their MDTs; the columns represent the percentages of each group who included the other member on their team.



Looking specifically at the three professional groups involved in this study, 15.3% of those CPs who considered themselves to be part of a MDT did not include either GPs or PNs on their team. Both GPs and PNs were mentioned as part of the team by 71.2% of CPs, a further 12.7% only included GPs and the remaining 0.8% included PNs but not GPs. As shown in chart 2, 42.3% of GPs and 41.2% of PNs mentioned CPs when listing the members of their MDTs. However, in the GP/PN survey, respondents were also specifically asked if they considered a CP to be part of their team and here 55.7% of GPs and 56.8% of PNs stated yes, sometimes also stating that they had forgotten to include CPs in their earlier list but, on reflection, would count a CP as part of the MDT. Overall, however, CPs seemed more likely to include GPs and PNs on their MDTs than GPs and PNs are to include CPs.

Of those GPs and PNs who did not consider a CP to be part of their MDT the most commonly cited reason for this was that they had no or little contact with CPs, with some specifically mentioning a lack of face-to-face contact or regular meetings. Five GPs considered CPs to be external to the NHS and a further three considered the CP to be more commercially focused and less interested in patient care. Seven PNs felt they had no need for contact with CPs. Table 16 lists the various reasons given by GPs and PNs for not including CPs on their MDTs.

Table 16. GPs' and PNs' reasons for not including CPs on their MDT (Frequencies, by profession. N.B. more than one reason could be given by each respondent)

	GP (*N* = 80)	PN (*N* = 50)
No/little contact with CP – only when necessary	26	17
Lack of face-to-face contact/meeting with CP	15	8
Have a practice-based or PCT pharmacist advisor, so little need to contact CP	9	5
CP not on site/part of Practice	7	4
CP's dispensing role seen as separate from actual patient care	6	
Dispensing practice, therefore little need for contact	5	6
No need for contact		7
Do not consider CP to be part of NHS	5	
Too many locum pharmacists – difficult to build a relationship	4	1
Not sure how to access them/not easily accessible	4	1
CP considered to focus on money rather than patient care	3	
Too many pharmacies – difficult to build a relationship with all	2	
Do not have a local CP	2	
Local CP unfriendly		1
Did not know about them		1
Did not consider them	2	
Not specified	2	2
CPs overlooked in healthcare set up	1	
Unsure of CPs' role	1	

Of the GPs who did include a CP on their MDT, most stated this was because they valued the CP's expertise in medicines and knowledge of the patients. About a quarter also reported that the CP had an important role in the planning and delivery of patients' care. PNs valued the educational and support services that CPs offered for their patients. Table 17 gives the various reasons GPs and PNs listed for including CPs on their MDTs.

Table 17. GPs' and PNs' reasons for including CPs on their MDT (Frequencies, by profession. N.B. more than one reason could be given by each respondent)

Reason	GP (N = 112)	PN (N = 79)
Value CP's expertise in medicines and the patients	38	6
Not specified	31	16
CP has an important role in deciding , carrying out and monitoring care for Practice's patients/share the care of patients	25	13
Is in regular contact with CP	23	6
CP vital for patient safety (detecting errors/monitoring repeat prescribing)	18	8
CP can provide useful feedback regarding patient (e.g. adherence)	12	6
CP valuable source of information/education/support for patients	11	24
CP has a role in meeting the practice's business needs/cost effectiveness	8	2
Is approachable and actively engaged with practice team	8	7
CP updates practice regarding prescribing issues/availability	6	3
They offer many supporting services e.g. smoking cessation, MUR		2
Dispensing role seen as integral part of care	6	6
CP is understanding and willing to help in urgent cases	3	
CP attends practice meetings	2	
CP helps improve prescribing	1	4
CP is co-located	1	1
Medicines management seen as important	1	2

Working with someone 'directly on a regular basis' did not necessarily lead to including them on the MDT. A small minority of CPs reported directly working with GPs (11.8%) and PNs (9.2%) but did not include them on their MDT. Similarly, 16.8% of GPs and 7.1% of PNs reported working with CPs yet did not perceive them to be part of their MDTs.

4.3.3 Perceptions of MDTs

Respondents who did not consider themselves to be part of a MDT were asked why not. The most commonly cited reason (1 GP, 1 PN and 14 CPs) was that the respondent worked in isolation and had little contact with other HCPs. Several CPs (*N*=9) also mentioned that it was difficult to communicate with other HCPs due to a lack of time and inability to leave the pharmacy in order to attend practice meetings. Six CPs stated the lack of information sharing between the GP practices and pharmacies precluded their being part of the MDT and 4 CPs and 1 PN felt they lacked understanding of other HCPs' roles. These respondents were also asked if they would like to be part of a MDT. Only 1 GP and 3 CPs replied that they would not; the GP's reason for this was their current high workload prohibiting further commitments. The CPs responded that they were unsure how their role could fit into the current framework and one was also unwilling to work with other HCPs whom the CP did not respect.

Those respondents who indicated that they would like to be part of a MDT (but were not already) gave several reasons for this, as shown in table 18. Overall, respondents felt that multidisciplinary team working would provide better patient care, improve service delivery and benefit staff.

Table 18. Reasons for wanting to be part of a MDT, if not already on one. (Frequencies, by profession. N.B. more than one reason could be given by each respondent)

	GP (*N* = 1)	PN (*N* = 3)	CP (*N* = 31)
Better patient care/outcomes (non-specific)			13
Sharing information – better able to do job			5
Allow better use of the person's skills			5
No duplication of roles	1	2	4
Improves knowledge/good learning experience	1		3
Job satisfaction		1	3
More holistic treatment	1	1	2
Better patient safety	1		2
More coordinated, seamless care			2
'More professional'			2
Will improve patients' perception of healthcare system and HCPs			2
Better communication	1		
Shared workload/support/teamwork		1	2
Interest/motivation		1	
Not specified			2
Improved patient compliance			1
Good for career/personal development			1

A corresponding question was posed to those who did feel part of a MDT: what benefits, if any, do you feel being part of a MDT brings? Results are displayed in table 19. Again, the benefits of multidisciplinary team working related to providing better patient care, more efficient service provision and personal benefit for the staff. Relatively more GPs and PNs reported support for other team members as a benefit of MDTs, compared to CPs. The CPs were more likely to highlight the MDT's potential to generally provide safer patient care and specifically identify problems sooner, by the increased contact with patients from various HCPs.

Table 19. Perceived benefits of multidisciplinary team working. (Frequencies, by profession. N.B. more than one reason could be given by each respondent)

	GP (*N*=201)	PN (*N*=139)	CP (*N*=119)
Better able to meet patient's needs by pooling knowledge and skills – holistic treatment	123	88	64
Shared workload/support	53	35	15
Increased workforce efficiency – using appropriate professional for the task	35	30	20
Better patient care/outcomes (non-specific)	25	15	9
More coordinated, seamless care	25	3	17
Better communication/information sharing	24	19	22
Feel valued/happier work environment	12	5	4
Job satisfaction	5	7	9
More services available to patient (different professionals have access to different resources)	5	2	1
Shared objectives	4	1	11
Easier access for patients to HCPs	4		
Better customer service/patient experience	2	1	2
Increased patient choice	2		
Better patient safety	2	2	12
Early problem identification and faster resolution	2	1	12
Good for personal development	2		1
Ability to be innovative	1		1
Work better (non-specific)	1		1
Better able to adapt to changing needs	1	1	
Increased professional confidence			5
Improved patient adherence			1
Helping patients be more health conscious			1
Increased patient numbers/income			1
Improved information governance			1
None			1

All respondents were asked what they considered to be the most important components of being on a team. A great variety of answers was received, some giving more general characteristics of teamwork and some listing specific individual characteristics. Responses were categorised into the following groups: processes of team work (e.g. good communication between team members, sharing information); the structure of the team (e.g. diversity of skills, clearly defined roles); personal attributes (e.g. reliability, open-mindedness); and interpersonal/team attributes (e.g. trusting each other, co-operation). A full list of the important components for team work is given in appendix 6. Table 20 gives the top 5 most reported components for each professional group. Good communication among team members was the most important component of team work for all three professional groups. Some participants further listed what constitutes 'good' communication, for example it should occur regularly, through clear and easy channels and be bidirectional rather than one-way. Several GPs (6.5%) and PNs (5.0%) specified that there should be face-to-face meetings but this was not mentioned by any CPs. Again, support for team members was reported more often by PNs (27.1%) and GPs (17%) than by CPs (4.6%). Interestingly, a much higher proportion of GPs specified co-operation as an important component of team work (29.5%) than either CPs (9.2%) or PNs (9.3%).

Table 20. Top 5 most important components of being on a team, as reported by each professional group.

	GP (*N*=200)	PN (*N*=140)	CP (*N*=153)
1	Communicating with other team members (41.5%)	Communicating with other team members (43.6%)	Communicating with other team members (45.1%)
2	Co-operation (29.5%)	Supporting each other (27.1%)	Openness, ability to share concerns/ideas (14.4%)
3	Supporting each other (17.0%) and	Listening to each other (13.6%) and	Understanding each other's roles (13.7%)
4	Listening to each other (17.0%)	Sharing information (13.6%)	Shared goals (11.8%)
5	Shared goals (13.0%)	Openness, ability to share concerns/ideas (10.0%)	Sharing information (9.8%)

4.3.4 Barriers and facilitators

All respondents were asked to state what they perceived to be the barriers to being part of a MDT. Results covered a broad spectrum of issues from inadequate resources and lack of managerial support to personality clashes and professional silos. Responses fell under the following broad categories:

- Resources – e.g. insufficient time, space for meetings
- Policy and contracts – e.g. CP inability to leave pharmacy premises
- Culture – e.g. inter-professional rivalry , professional silos
- Personal characteristics – e.g. closed mindedness, low self-confidence
- Interpersonal relationships – e.g. lack of co-operation, personality clashes
- Organisational – e.g. lack of shared goals, over-lapping roles
- Processes – e.g. inaccessibility of team members, poor communication

These categories were chosen as they related to key themes present in existing literature on inter-professional teamwork and GP-CP relations, however, several of the barriers could belong to two or more of the categories. A table of all the barriers listed is given in appendix 7. The top 5 most frequently reported barriers for each professional group are given in table 21. Insufficient time for meetings and communicating with other team members seemed an important barrier to all professions but particularly GPs. Poor communication, on the other hand, was mentioned more by PNs and CPs than GPs. Lack of access to patient medical records (PMRs) was, understandably, more of an issue for CPs, who do not usually share a computer system with GP practices and so cannot view or update a patient's records, for example after a MUR. Several CPs particularly mentioned their frustration at the lack of understanding of the CP's role evinced by receptionists. In these cases the receptionists occupied gatekeeper roles, denying CPs access to prescribers when there were queries with prescriptions.

Table 21. Top 5 barriers to being part of a multidisciplinary healthcare team, as reported by each professional group.

	GP (*N*=201)	PN (*N*=140)	CP (*N*=152)
1	Insufficient time (55.7%)	Poor communication (34.3%)	Poor communication (32.9%)
2	Geographic separation (25.3%)	and Insufficient time (34.3%)	Lack of understanding of each other's roles (21.1%)
3	Lack of face-to-face contact (16.4%)	Lack of face-to-face contact (12.9%)	Insufficient time (20.4%)
4	Poor communication (15.9%)	Prohibitive workload (12.1%)	Geographic separation (18.4%)
5	Prohibitive workload (12.4%)	Lack of understanding of each other's roles (10.0%)	Lack of shared access to patients' medical records (13.8%)

Respondents were also asked what they thought facilitates multidisciplinary healthcare teamwork. Mostly responses corresponded with the barriers and could be grouped under the same headings:

- Resources – e.g. shared location, sufficient time
- Policy and contracts – e.g. shared contractual framework, policy support for MDTs
- Personal characteristics – e.g. friendliness, honesty
- Interpersonal relationships – e.g. co-operation, respect for each other
- Organisational – e.g. shared goals, continuity of staff
- Processes – e.g. joint clinics
- Communication – e.g. clear communication channels, face-to-face meetings

A table of all facilitators is given in appendix 8 and the top 5 most frequently cited are displayed in table 22, below. Although many respondents simply stated 'good communication' as a facilitator for multidisciplinary teamwork, there were also more specific responses of what constitutes 'good communication'; for this reason communication was listed as a separate category. For example, several respondents specified that communication needs to be regular and that there should be clear, easy channels of for communication between team members. Regular multidisciplinary meetings seemed more important to GPs than CPs: they were mentioned more frequently by GPs (22.8%, compared to 9.2% of CPs), who also listed the need for protected time for meeting (11.4%). 19.3% of PNs listed regular MDT meetings as facilitators but only 2.9% mentioned a need for protected meeting time. Ease of communicating with other HCPs also came across as a more important issue for GPs than the other two groups and this was possibly linked to their perceived lack of time for multidisciplinary work: the need for easy and clear communication channels was mentioned more often (GPs – 11.4%, PNs – 4.3%, CPs – 4.6%) as was the need for sufficient time (GPs – 14.9%, PNs – 9.3%, CPs – 2.6%). Shared location or close proximity of the GP practice and community pharmacy was also an important facilitator for GPs (19.8%) but mentioned much less by PNs (3.6%) and CPs (5.9%). This likely reflects both the GPs' perceived need for formal meetings and their scarce time.

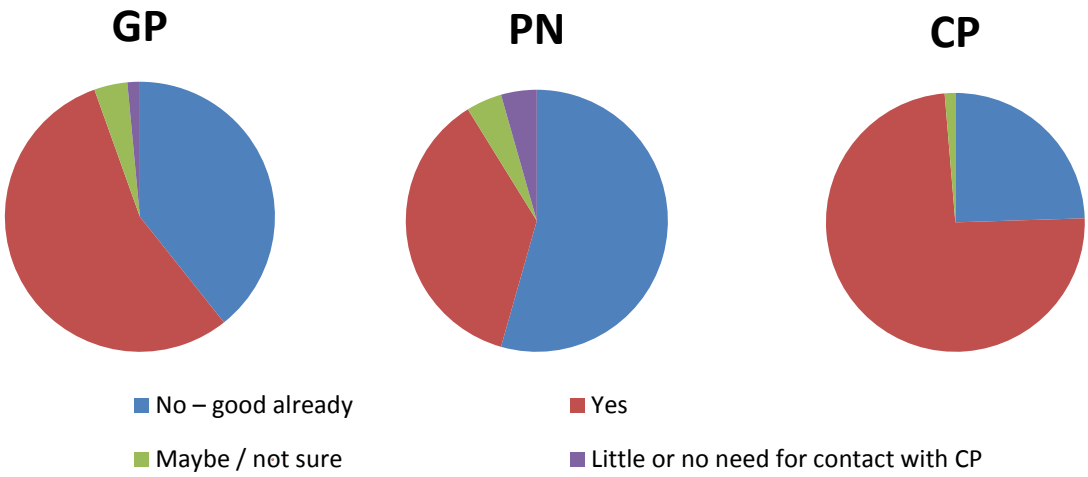
Relatively more PNs than either GPs or CPs reported a need for leadership and/or a designated leader for the multidisciplinary team (Good leadership: PNs – 10.7%, GPs – 7.4%, CPs – 2.6%. Designated leader: PNs – 7.9%, GPs – 2.5%, CPs – 3.3%).

Table 22. Top 5 facilitators to being part of a multidisciplinary healthcare team, as reported by each professional group.

	GP (*N*=202)	PN (*N*=140)	CP (*N*=152)
1	Good communication (23.8%)	Good communication (45.0%)	Good communication (29.6%)
2	Regular multidisciplinary meetings (22.8%)	Regular multidisciplinary meetings (19.3%)	Knowing each other's roles and responsibilities (17.1%)
3	Shared location/close proximity (19.8%)	Mutual respect and valuing each other (14.3%)	Shared goals (11.2%)
4	Sufficient time (14.9%)	and Knowing each other's roles and responsibilities (14.3%)	Mutual respect and valuing each other (10.5%)
5	Mutual respect and valuing each other (11.4%)	Good team leadership (10.7%)	Willingness to work together (9.2%) and Regular multidisciplinary meetings (9.2%)

Finally, with regards to multidisciplinary team work, respondents were asked whether they felt they could have a better working relationship with their local GP practice/community pharmacy team and, if so, how. As shown in charts 3-5, the vast majority of CPs (74.2%) felt their relationships with local GP practices could be improved, whereas GPs and PNs seemed more content with their relationships with local community pharmacies. Over half of the PNs (54.4%) felt their relationships with pharmacy teams could not be improved and over a third of GPs (39.3%) felt likewise. Some respondents in each group were unsure as to how their relationships could be improved, which seemed mainly due to unsurmountable barriers (e.g. geographical separation). A few GPs and PNs were based in dispensing practices and felt there was no need to work with community pharmacies and a couple of PNs stated that they personally had no cause to be in contact with CPs and knew little about their practice's relationship with the local pharmacy.

Charts 3 – 5. Pie charts displaying the responses of each professional group to the question 'Do you feel you could have a better working relationship with your local general practice/community pharmacy team?'



Suggestions as to how relationships could be improved covered 5 broad areas: communication, process, attitude, education, and policy and contracts. A detailed table of suggestions for improvements can be found in appendix 9. Overall, similar issues to those covered in the barrier and facilitator questions emerged. Again the importance of good communication came across; interestingly though, relatively more CPs than GPs or PNs emphasised a need for face-to-face meetings (CP – 32.1%, GP – 17.1%, PN – 8.0%). A few GPs (5.4%) and PNs (6%), however, mentioned that having the CP based in their practice, even just for one session a week, would help improve relations, and this is probably linked to the increased face-to-face contact that this would bring. Only GPs and PNs mentioned the importance of team members 'knowing' each other (i.e. being familiar with each other's background and personality) and, related to this, the need for continuity of CP in order to build a relationship.

Repeat prescribing systems were mentioned by a few GPs and CPs as a process that could be improved in order to better relations – each group, however, seemed to see the other as responsible. The CPs highlighted poor processing of repeat requests at GP practices, whereas GPs reported pharmacies' errors in sending repeat requests. The need for a shared agenda with agreed protocols for MUR and giving advice to patients was also mentioned by both GPs and CPs.

With regards to attitude, several GPs stated that CPs were too business-oriented and that this conflicted with the GPs' focus on patient care. On the other hand, nearly a fifth of CPs suggested that there was a need to educate GP practice staff about the CP's role, including their shared interest in patient care. Encouragingly, a few GPs and PNs also expressed a desire to know more about community pharmacy and several CPs acknowledged that it would be beneficial for them to know more about the GP practice.

Overall, MDTs were viewed positively by the vast majority of respondents, who recognised the benefits for patients, staff and the NHS of involving different HCPs (and, to a lesser extent, support staff) with a diversity of expertise. Most GPs and PNs currently felt part of a

MDT, although their teams did not always include CPs. Relatively fewer CPs perceived themselves to be part of a MDT, although, at over three quarters of CP respondents, the proportion was still encouragingly high. The main barriers to MDT work reported in this study supported those highlighted in previous work, with poor communication and insufficient time to build relationships coming across as the major stumbling blocks. The majority of CPs, and to a lesser extent GPs, felt that their relationships with local practices/ pharmacies could be improved.

4.4 The clinical role

In order to better understand the extent of engagement with the extended CP role, the CP survey included an extra section about clinical work in community pharmacy.

4.4.1 Defining clinical work

Respondents were first asked how they would define clinical work: responses varied from very general to reasonably comprehensive. Several responses showed a broad interpretation of clinical work, for example *'Supporting patients in improving their health'*. The more detailed definitions included factors relating to 5 categories:

- Processes – e.g. observation and assessment of patients, delivering interventions
- Requirements – e.g. requires direct patient contact, application of theoretical knowledge
- Outcome – e.g. work that benefits patient health
- Setting – work that is conducted in a clinic
- Who conducts the work – e.g. work conducted by a medical professional

The most commonly included factor (in 24.8% of responses) was that clinical work involved delivering treatment/interventions. A further 22.1% stated that clinical work entailed diagnostic decision making. The application of theoretical/clinical knowledge was the third most cited factor (20.8%). Appendix 10 gives a table of all the factors included in respondents' definitions. Overall the responses suggested that there is confusion among the profession about what constitutes clinical work. Very few definitions included both the requirement for direct patient contact and the application of expert knowledge.

It was hypothesised that experience of the CP role might influence respondents' definitions and so responses of CPs were compared based on their years spent in practice. Splitting the sample in half (which gave one group with less than 13 years' experience (*N*=74) and the other with 13 years or more (*N*=75)), the only striking differences in the definitions were that those with less experience were more likely to include reference to treatment delivery and checking the clinical suitability of a prescription. There also seemed to be little difference in definitions according to the extent of the CPs' current clinical role (based on frequency of delivering advanced and enhanced services, see next section). However, those with a low clinical role mentioned direct patient contact, diagnostic decision making and treatment delivery more often in their definitions of clinical work than those with a high clinical role.

4.4.2 The extent of the clinical role

A question was included asking CPs to what extent they felt they had a clinical role. It was intended that responses would be coded into categories such as low, moderate and high. However, the answers received proved hard to reliably code, with many respondents just listing tasks without saying whether or not they felt these were clinical tasks or how often they were conducted. This, combined with the confusion over what constitutes clinical work as evident in respondents' definitions, led to our decision to instead assess the extent of respondents' clinical roles on their responses to the next question in the survey: respondents were asked to indicate how often (daily, weekly, monthly or never) they personally delivered the various services in the pharmacy contract.

Appendix 11 gives a detailed table of the frequencies of delivering each service. As could be expected, 90% or more of the respondents personally provided the essential services (e.g. dispensing, signposting to other services) either daily or weekly. MURs and the NMS were delivered either daily or weekly by about 90% and 75%, respectively, of the sample. Of the locally commissioned (enhanced) services, substance misuse, sexual health and smoking cessation services had been well adopted, with between 55% and 86% of the sample providing them either daily or weekly. However, uptake of the other enhanced services was poor with high proportions of the sample reporting never conducting, for example, NHS health checks for 40-74 year olds (86%) or weight management services (72%).

An approximate measure of the extent of respondents' clinical role (to be used in further analyses, see section 4.5) was taken from their responses to how frequently they delivered all the advanced and enhanced services (except Out of Hours services, which were deemed by the research team to relate more to patterns of working rather than type of work[5]). Service delivery responses were coded from 1-4 (with 4 = daily, 1 = never) and a total score of the 19 services was calculated for each respondent. Results ranged from 23 to 63 (out of a possible 19 – 76), with a mean of 39.7. The sample was then split dichotomously based on the summative scores: a low clinical role was taken as a total score between 19 and 39 (*N*=72), a high role as 40-76 (*N*=80).

Mann Whitney U tests and Chi squared analyses were conducted to ascertain whether extent of clinical role was related to years in practice, whether the CP could prescribe or pharmacy type. However, no significant relationships were found (P>.05). The extent of the clinical role was also explored in relation to feeling part of a MDT and in relation to personality and organisational factors – results of which are discussed in sections 4.5.1 and 4.5.2.

4.4.3 Sources of support for the clinical role

Respondents were asked if they had someone that they could refer to for help/advice regarding work-related clinical problems. The majority of respondents (130, 85.5%) reported

[5] It is recognised that the other enhanced services also might not always constitute clinical work (i.e. require professional knowledge and direct patient contact). However, it was felt that these services did have the potential to be clinical work and provided a pragmatic way to estimate the extent of the CPs' clinical roles.

that they did and the most common source of advice they listed was a pharmacist colleague, particularly superintendent pharmacists. Other sources of help are shown in table 23.

Table 23. Sources of help/advice for clinical work problems that CPs reported using.

	No. CPs reporting using this source (N=130)
Pharmacist colleague, superintendent	88
Management/manager/company support	44
Professional association (NPA, RPS)	34
Other HCP	32
CCG/Medicines Information	11
Tutor	3
Supplier/drug company	2
Reference materials	
BNF	1
Drug tariff	1
Google	3

Of the 22 CPs who felt they had no one to refer to for advice, 13 stated that they would like to be able to go to a local GP or have a GP mentor for clinical guidance. Senior level pharmacists (7), hospital pharmacists (3) and practice-based pharmacists (3) were also mentioned as sought after sources of advice.

4.5 Exploration of relationships between factors

4.5.1 Factors affecting CP involvement in a MDT[6]

Mann-Whitney tests were conducted to evaluate the contribution of organisational climate and individual difference factors (as measured by the OCM and BFI, respectively) to CPs' integration into MDTs. Only self-reported agreeableness significantly affected whether or not CPs perceived themselves to be part of a MDT, with those scoring higher on agreeableness being more likely to report feeling part of a MDT (Part of MDT: *N*=119, Median = 4.22. Not part of MDT: *N*=34, Median = 4.00. U=1535.50, p<.05). However, the effect of agreeableness on MDT integration was small (r = -.17).

Chi squared analyses were used to investigate the influence of other organisational factors on CPs' perceptions of being part of a MDT. No significant associations were found with either engaging in clinical work (based on frequency of delivering advanced and enhanced services), level of rurality of practice, colocation with a GP practice, type of pharmacy (independent or multiple) or self-reported level of support from their organisations.

Comparisons were also conducted to ascertain if there were any differences in the organisations or personalities of GPs and PNs who did include a CP on their MDT and those who did not. With regards to the OCM, significant differences were found for GPs on three of the human relations factors: those who included a CP on their MDT (*N* = 112) rated their organisations significantly higher in terms of staff involvement (Median = 3.33, U = 5217.50,

[6] It was not possible to conduct comparative analyses for GPs or PNs since too few in these groups did not feel part of a MDT.

p=.05, r = .14), supervisory support (Median = 3.40, U = 5244, p<.05, r = .15) and integration (Median = 3.40, U = 5273, p<.05, r = .15). No significant differences were found for nurses. On the BFI, only openness to experience in PNs was found to significantly differ according to whether or not they felt a CP was part of their MDT. PNs who did include a CP had higher levels of openness (N = 79, Median = 3.60) than those who did not (N = 50, Median = 3.40), U = 2382.50, p<.05, r = .17. Again the small effect sizes of these comparisons should be borne in mind when interpreting the results.

Chi squared analyses were conducted to compare those GPs and PNs who included a CP on their MDT and those who did not according to whether or not their practice was co-located with a community pharmacy. No significant differences were found for PNs but GPs who were co-located were significantly more likely to count a CP among the members of their MDT (χ^2 (1, N=192) = 12.5, p<.001; Cramer's V =.26). Perhaps unsurprisingly, reporting that they worked directly with a CP on a regular basis was significantly related to whether or not they included a CP on their MDTs for both GPs (χ^2 (1, N=192) = 48.45, p<.001; Cramer's V =.50) and PNs (χ^2 (1, N=129) = 15.00, p<.001; Cramer's V =.34). 89% of GPs who counted a CP as a member of their MDT also reported regularly working with a CP. The association, while still significant, was less strong for PNs with only 54% of those including a CP on their team also reporting directly working with a CP, although 80% of those who did not include a CP on their team reported not directly working with a CP.

Logistic regression analyses were conducted to ascertain if any, or a combination, of the organisational or individual factors measured could predict whether or not CPs felt they were part of a MDT. The dichotomous dependent variable was taken as MDT status (part of vs not part of a MDT). Separate regressions were conducted for the following sets of predictor variables: OCM human relations and rational goal factors; BFI factors; demographic factors, including gender, years in practice, number of postgraduate qualifications, rurality of pharmacy, type of pharmacy, co-location with GP practice, supervisory responsibilities and self-perceived level of support. A forward stepwise regression was also conducted including all factors. The only significant predictor to emerge was the interaction between agreeableness and conscientiousness scores on the BFI, however the regression model this presented was a poor fit for the data, as indicated by the large -2 Log Likelihood value (-2LL = 157.74, model χ^2 (1) = 4.35, p<.05), and only just within significance limits (p = .04). Model statistics are displayed in table 24.

Table 24. Regression model statistics for the resulting model of regression of BFI factors on whether or not CPs felt part of a MDT

	B (SE)	Lower CI for exp *b*	Exp *b*	Upper CI for exp *b*
Constant	.89 (1.04)		2.42	
Agreeableness-Conscientiousness	-.12 (1.04)	.79	.88	.99

4.5.2 Factors affecting CPs' clinical role

Mann-Whitney and chi squared tests were employed to assess relationships between the extent of CPs' clinical roles (using the dichotomous variable created as described in section 4.4.2) and OCM, BFI and demographic variables. CPs who engaged in a high level of clinical work scored significantly higher on the BFI measure of conscientiousness (N = 80, Median = 4.44) than those with a low clinical role (N = 72, Median = 4.22), U = 3528.50, p<.05, r = .19. No significant differences were found between the groups on any of the OCM factors or the following demographic variables: age; years in practice; postgraduate qualifications; independent prescriber status; PCT region; co-location with GP practice; pharmacy type; rurality; management responsibility; management level; level of support; having someone to whom they could go for help/advice. Further to this, level of clinical role was not found to be related to whether or not a CP felt part of a MDT.

Similar logistic regression analyses to those conducted for MDT status were performed using the dichotomous variable for level of clinical role as the dependent variable. The only significant predictor found was CPs' self-reported conscientiousness on the BFI, again however, the model was a poor fit for the data (-2LL = 205.75, model χ^2 (1) = 5.02, p<.05. Model statistics are displayed in table 25).

Table 25. Model statistics for the regression model of BFI factors on extent of CPs' clinical role.

	B (SE)	Lower CI for exp *b*	Exp *b*	Upper CI for exp *b*
Constant	-3.09 (1.47)		.05	
Conscientiousness	.75 (.34)	1.08	2.12	4.16

4.6 Project advisory group

All members at the meeting engaged with the tasks and a good discussion was held. The group was supportive of the research and acknowledged the potential benefits of better integration between community pharmacies and general practices. The aim of including a PAG was to gain key stakeholders' interpretations of the survey results. Generally the group reported that the findings resonated with their own experience and they concurred with many of the research team's interpretations of the results. Several additional points were highlighted by the group to the research team and these have helped inform the discussion section of this report, where the findings are contextualised and practical implications drawn.

The lack of a common definition of a multidisciplinary team was discussed. Most members felt that MDT is a label more associated with secondary care where specialist teams tend to always have the same task to deal with (e.g. initial stroke rehabilitation). Tasks in primary care are more varied and so the concept of MDT here needs to be flexible. Different professionals are required for different tasks, i.e. teams will be task-dependent. Inclusion of all primary, community and allied HCPs in a locality would make a team too large to be functional. However, it was also acknowledged that due to not including external HCPs on most cases, staff at GP practices often do not think to include them in cases where they

would be relevant. Therefore occasional meetings of all HCPs in a region might be useful to increase familiarity and encourage communication.

Related to the need for multiple teams were the practicalities of multidisciplinary work. It was pointed out that it is not clear who would initiate the teams, whether this is the responsibility of CCGs or practitioners and, if the latter, which practitioner? Also, time and money were much discussed, with a few members feeling that unless protected, paid time was provided for multidisciplinary meetings then widespread integration between local HCPs would not take place. However, the CP member reported that, while the GPs and PNs seemed to automatically interpret MDTs as meaning a need for meetings, he did not see the necessity of formal meetings. Instead he felt that regular communication (by telephone and perhaps email) would be sufficient to ensure CP integration in a MDT, although he also acknowledged that face-to-face contact is also helpful for building trust.

The group was unanimous in feeling that there is a need for greater awareness, among both healthcare workers and the public, of the CP's role. The researchers pointed out that work has been done by the RPS and RCGP to improve GP and CP mutual understanding but many of the group were unaware of this. They highlighted a need for better publicity at a local level for HCPs of what services the CP can offer. Also work shadowing was discussed as a good way to improve understanding among different HCPs and it was felt that shadowing programmes should be a mandatory part of training (and possibly recognised as a valid continuing professional development exercise).The GP and PN members of the group also stated that they cannot refer patients to the CP if the patients do not understand that the CP will be able to help them. This is particularly important if the CP role is to be extended.

The important role of the GP receptionist was discussed, with a few of the GP members stating that they had not, prior to the meeting, considered how the receptionist influences communication with the CP. It was agreed that protocols for receptionists of when to refer patients to CPs and how to handle telephone calls from CPs would be useful. This would require the receptionist to also have a good understanding of the CP's role.

5. Discussion

This study sought to further our understanding of primary care MDTs, specifically looking at the integration of CPs into these teams. The current extent of the CP's clinical role was also explored in order to better understand how clinical work in community pharmacy relates to multidisciplinary working. The following objectives have been addressed:

1. Measure the extent to which CPs, GPs and practice nurses (PNs) perceive themselves as part of an MDT.
2. List the members of the MDT as perceived by participants
3. Compare the MDT members in each participant group.
4. Measure the organisational climate of the healthcare setting in which participants work (as perceived by participants) using two sections (the *human relations* and *rational goal* dimensions) of the previously validated questionnaire, the Organisational Climate Measure (OCM).
5. Evaluate the support provided by organisations, as captured in the OCM, for the extension of the clinical role of community pharmacists.
6. Evaluate the contribution of individual difference factors (e.g. age, sex, work setting and location, level of experience and personality traits) to integration into the MDT.

The key findings from the research are discussed first in relation to the two broad aims of the study. This is followed by a discussion of broader themes raised by the research.

5.1 Relating the findings to the study aims

Aim 1. *Explore the factors that affect the community pharmacists' integration into the multi-disciplinary team (MDT) and engagement with wider clinical and public health roles.*

Organisational climate factors, as measured by the OCM, were not found to be related to whether or not CPs felt integrated in a MDT. Other organisational factors, such as type of pharmacy or rurality, also appeared to be unrelated to being part of a MDT. In terms of individual personality, as measured by the BFI, only agreeableness was associated with being on a MDT, with more agreeable CPs more likely to feel part of a MDT. This perhaps stands to reason as agreeableness is assessed on the BFI with items relating to trusting others and being cooperative and unselfish, all of which can be seen as good team skills.

The lack of significant associations found here is perhaps because the measures used in the survey did not capture the particular organisational or personality factors that are related to CP integration. The qualitative findings certainly highlighted that many respondents felt certain individual characteristics helped or hindered multidisciplinary working (e.g. friendliness, honesty, reliability, trusting other members of the team). Some of these characteristics, such as willingness or motivation to work on a MDT, are possibly too specific to this study to have been captured by the BFI. Although many of the characteristics mentioned in the open-ended responses might be seen to relate to agreeableness on the BFI, which was significantly related to being on a MDT, other characteristics would seem

more related to conscientiousness (e.g. reliability) or openness to experience (e.g. motivation to work on a MDT).

In a similar way, the OCM is specific to internal organisational factors (i.e. to do with one organisation – a practice or a pharmacy), which the survey findings suggest are not directly related to CP integration. However, the OCM does not capture factors relating to the organisations' (or staff members') interaction with external parties and, in the case of general practices and community pharmacies that are not under the same ownership, such factors might be more associated with CP integration. For example, although the OCM assessed supervisory support for staff within an organisation, it did not specifically assess supporting staff who wish to engage more with external HCPs. Several respondents, particularly GPs, mentioned in the open comments that good team leadership and management is a key facilitator to MDT work and a few specifically cited lack of support from management for multidisciplinary work as a barrier.

It is also likely that there are important mediating and/or moderating factors that affect CP integration into MDTs but which have not been assessed in the survey. For example, an individual's previous experience of team work might interact with their personality traits such that if they are open to new experiences in general but have had a very bad experience of working in a MDT they will be unlikely to try to integrate with other HCPs. The open comments have highlighted several potential moderating or mediating factors such as available time and resources and commissioning support for multidisciplinary work.

It is interesting that co-location of pharmacies and general practices was not significantly related to whether or not a CP felt part of a MDT or whether PNs considered a CP to be part of their team, yet it was highly significantly related to GPs' inclusion of CPs on their teams. This supports the qualitative findings that showed GPs to place a greater emphasis on shared location and close proximity as a facilitator (and lack thereof as a barrier) than either CPs or PNs. This in turn is likely to be related to the importance GPs placed on MDT meetings and face-to-face communication for multidisciplinary work. Directly working with CPs was strongly associated with GPs considering CPs to be part of the MDT; the same did not appear to be true of PNs (only half of those PNs who included a CP on their team also reported directly working with a CP). However, not working with a CP was highly associated with not including a CP on the team for both GPs and PNs. Thus it seems that for GPs, regular direct contact, especially through face-to-face meetings, are important for them to consider CPs as members of the MDT. Proximity of sites (that are not co-located) was not assessed in the survey, nor was frequency of face-to-face contact between GPs, PNs and CPs but these would make interesting factors for future investigation.

Almost all the organisational and personality factors measured in the survey were also found to be unrelated to the extent of CP respondents' engagement in clinical and public health roles. Only self-reported conscientiousness on the BFI was significantly, positively associated with greater engagement. As with agreeableness and team work, this seems reasonable; conscientiousness trait items on the BFI assess how thorough, reliable and

efficient the respondent is, and these would seem pertinent qualities to enable a CP to take on an extended role.

These results suggest that organisational climate and personality (except for conscientiousness) have no direct effect on the extent to which CPs take on an extended role. However, mediating and moderating factors that were not captured in the survey cannot be ruled out. In particular, CPs' engagement in locally commissioned services (formerly 'enhanced services') will, to a certain extent, be dependent on what services their local CCGs decide are needed for the region. On the other hand, CPs need to bid for contracts to offer these services and so can decide which ones they do or do not wish to bid for; thus individual difference and organisational factors would still be relevant determinants of taking on an extended role. Employed pharmacists, however, are likely to have less control over what services they deliver as the employer would bid for contracts for the pharmacy site. It has been reported that increasing numbers of pharmacists are turning to locum working and one of the reasons for this is that they can choose where they work (Shann & Hassell, 2006). Locum CPs' choices of pharmacies in which to work were not only based on travel times but also the services delivered at particular sites; in particular locums chose not to work in pharmacies that offered substance misuse services to a high volume of people. Shann and Hassell (2006) concluded that better support from management in the pharmacies that are 'black-listed' by locums would help to encourage the pharmacists to work there as they would feel better able to cope with the demands of their role. In the current study the survey included questions related to support – the OCM supervisory support factor items and an open-response question – however, these were not specifically related to engaging in clinical and public health services.

Importantly, CPs' perception of being on a MDT was not related to their engagement in clinical and public health services. This suggests that integrating with other HCPs is not essential for CPs to take on an extended role. Indeed several of the locally commissioned services, such as supplying emergency hormonal contraception, often take place in isolation at the pharmacy with no communication to the patient's GP. For other services, for example the advanced Medicines Use Reviews service, communication with the patient's general practice can take the form of a faxed document simply stating that an intervention has been delivered and what has resulted. Such communication, on its own, is unlikely to lead to the CP feeling part of the primary care team. However, the important question here is how useful these services are when delivered in isolation rather than as part of a holistic package of care. It was beyond the scope of a survey to assess this but future work should look to investigate the question. If CPs are to be encouraged to take on a more extended role more needs to be known about the best way for them to do so, both for patient benefit and cost efficiency.

Aim 2. Identify the support required by community pharmacists to enable them to integrate into the MDT.

The survey findings give a snapshot of CPs', GPs' and PNs' current perceptions of their organisations and team work. An encouragingly large proportion of CPs (nearly 80%)

reported that they felt part of a MDT and the vast majority included general practice staff as their fellow MDT members. However, three quarters of CP respondents also reported feeling that their relationships with local general practices could be improved.

At first glance the finding that little more than half of GP and PN respondents included CPs on their MDTs, combined with the fact that many also reported being happy with their current relationships with CPs, might seem discouraging. However, those who did include a CP on their MDT mainly reported this was due to the CP's expertise, which, they perceived, enabled their team to provide better (more holistic) patient care and to do so more efficiently. Since improved patient care and efficiency were perceived by all GP and PN respondents to be the main benefits of multidisciplinary work, it would seem that a good way to encourage GPs, PNs and other HCPs to include CPs on their teams would be to increase their awareness of the CP's potential to help the team work more efficiently and provide more holistic care. Indeed, many CP respondents felt that a better knowledge of the CP role among general practice staff would help to improve relations and some expressed a desire to know more about the roles of other HCPs. The project advisory group also concurred that work is needed to improve understanding of the various capabilities and responsibilities of different professionals in order to better enable multidisciplinary working.

The lack of awareness of other professionals' training and roles has been highlighted in research with CPs and GPs several times before (e.g. Hughes and McCann, 2003) and work has been done to improve understanding. For example, the Royal College of General Practitioners and the Royal Pharmaceutical Society have produced a joint statement 'Breaking down the barriers – how community pharmacists and GPs can work together to improve patient care' (2011). However, when the researchers asked the PAG to suggest why, in light of such work, lack of understanding still seems to be prevalent, none of the practitioner members had any knowledge of the RPS-RCGP joint statement or other similar projects. It appears, therefore, that more publicity is needed for this work to be effective, particularly at a local level, i.e. direct to practitioners. A recent report by Nesta (2014), a UK innovations charity, looking at uptake of new ideas in general practices, found that informal, local networks of practitioners seemed to be more effective channels for publicising and disseminating new practices than formal guidelines and recommendations from official national bodies, such as the National Institute for Health and Care Excellence (NICE). The report concluded that more investment is needed for local practitioner networks, to encourage them to share their experiences of adopting and developing new ideas and ways of working (Nesta, 2014). These networks would seem to provide an ideal opportunity to promote the role of the CP; GPs who have good working relationships with their local CPs could advise their peers of how the CP became integrated in their practice team and champion the benefits that the CP has brought. Similarly, local informal networks of CPs could share their experiences of setting up and maintaining relationships with general practices and advise about the roles of different HCPs at practices. However, as was highlighted by members of the PAG, competition between the local pharmacies would need to be set aside in order for this to occur.

CCGs could also play a role in educating local practitioners about the different roles of their colleagues in primary and community care settings. A few survey respondents reported that achieving good results (in terms of patient care) and receiving positive feedback was important for multidisciplinary team work. Practitioners' desire for evidence of success in working practices was also highlighted in the PAG meeting. Qualitative research with GPs and CPs in the US who were engaged in collaborative working relationships found that both professional groups recognised that seeing improved patient outcomes as a result of their collaboration was vital for gaining the GP's trust and hence the success of their relationship (Snyder, Zillich, Primack et al, 2010). The Nesta report (2014) proposed that both top-down clinical evidence from national organisations and local reports of successful ways of working are important for encouraging adoption of new practices. The report identified CCGs as being in a prime position to collect and publicise evidence about new local practices and thus proposed that CCGs are an important intermediary between large, national organisations and practitioners (Nesta, 2014). In terms of community pharmacy integration into primary care teams, CCGs could identify instances of good working relationships between general practices and community pharmacies then gather information on how the relationships were set up and are maintained. These findings could then be disseminated to all practices and pharmacies in the region.

In contrast to Hughes and McCann (2003), who found the 'shopkeeper image' of CPs to be the main barrier to GP-CP inter-professional working, as perceived by both GPs and CPs, very few respondents in the current sample raised this issue. Instead communication came across as the most important theme, with poor or lack of communication being perceived as a barrier and good communication as key for successful teamwork. However, there was some evidence to suggest that the various professional groups had different views on what constitutes good and bad communication. Responses to a variety of the open questions suggested that GPs have a preference for face-to-face communication and particularly see regular team meetings as an important component of multidisciplinary work. Related to this, GPs saw a lack of time for team meetings (both formal and informal) and geographical separation (making informal, opportunistic meetings less likely) as the main barriers to multidisciplinary working. While PNs also mentioned the importance of team meetings they were less likely to view geographical separation as a major prohibitive factor. CPs, on the other hand, placed comparatively less emphasis on face-to-face meetings and close proximity when considering barriers and facilitators to MDTs. These findings likely reflect the working environments of the different groups; within general practices, formal practice meetings are the norm as well as daily informal meetings in the staff room during breaks. In contrast, formal staff meetings are less common in community pharmacies, where staff numbers are smaller and decisions tend to be made by the pharmacy owner or manager or head office.

Previous research has highlighted the need for GPs to 'know' and trust a CP in order to truly collaborate with them (Bradley, Ashcroft & Noyce, 2012). However, such trust can only be built up over time, with more contact between the GP and CP, and here Bradley et al (2012) reported discordance between GP and CP perceptions. Whereas community pharmacists

tended to view one-off interactions with the GP, generally to educate them about the pharmacist's role, as sufficient to promote a trusting relationship, GPs required continuity of CPs and repeated examples of their integrity in order to trust them (Bradley et al, 2012). The current study shows a similar mismatch in the perceptions of GPs and CPs with regard to what will facilitate their collaboration. Interestingly though, more CPs than either GPs or PNs saw face-to-face and regular meetings as a way to improve relations between general practice and community pharmacy. This may suggest that CPs recognise the importance GPs seem to place on in-person communication while not necessarily seeing it as important themselves. Since regular meetings will increase the opportunities for the HCPs to get to know each other and hence build trust, it would seem that initiatives need to be developed to enable more frequent face-to-face meetings.

As well as helping to integrate CPs into currently existing primary care MDTs, a trusting relationship with GPs could help CPs to implement new services in collaboration with the general practice. The Nesta report (2014) showed that GPs were most likely to identify new innovations (such as electronic appointment systems and multidisciplinary case review meetings) through speaking to other doctors and were more likely to adopt the innovations if their neighbouring practices had. This suggests that adoption of new practices is a social process and GPs are highly influenced by known colleagues. It would therefore seem reasonable to suggest that if CPs were to build trusting relationships with their local GPs, the GPs would be more likely to adopt new practices suggested by the CPs that would both extend the pharmacist's role and improve patient care and efficiency, such as CP input in chronic disease management.

One way to improve understanding of the CP role and provide an opportunity for face-to-face interaction, which was discussed at the PAG meeting, could be for CPs to set up meetings at their local GP practices where they educate the staff about the services they can offer and how these can benefit the patients and the practice. A recent toolkit developed for pharmacists working in primary care in Canada (Golbar & Jorgenson, 2013) advocates this type of educational meeting in order to ensure that other HCPs can help to identify patients who would benefit from a pharmacist's medication assessment. Thus in order for general practice staff in Britain to refer patients for several of the advanced and locally commissioned services, educational meetings with the local CP might be beneficial. However, as previously highlighted, a one-off meeting is unlikely to be sufficient to promote full integration of the pharmacist in primary care MDTs (Bradley et al, 2012); continued interaction will be required to build trust and maintain a relationship. Although close proximity and co-location are likely to increase the opportunity for face-to-face meetings between staff, the PAG recognised that it is neither feasible nor desirable for all practices and pharmacies to be co-located. High street pharmacies were seen as essential for patient convenience and reaching the portion of the population who are unwilling to attend GP appointments. Therefore additional means of communication between community pharmacies and general practices, which also build trust and familiarity between parties, are needed. Tele-conferencing might provide the next best alternative to in-person meetings, although these will still be dependent on finding a mutually convenient time. A few

respondents suggested regular newsletters or bulletins from the CP about, for example, drug availability or new guidelines, would be useful and help improve relations between practices and pharmacies. This is an idea that Golbar and Jorgenson (2013) also promote in their toolkit for pharmacists but caution that the form of the update or newsletter needs to be tailored to the requirements of the practice team. The researchers found that some practices preferred brief email updates as new issues arose rather than the more detailed, monthly newsletters chosen by other practices (Golbar & Jorgenson, 2013). Thus, when initiating such a scheme it will be important for the CP to liaise with the general practice staff and ascertain what they would like the CP to inform them about, how often and in what format.

A common aspect of these ideas to improve integration of CPs is that they will require the HCPs to invest their time. Even if formal meetings are not held, time is needed for regular communication or writing/reading newsletters. Given that many respondents, particularly GPs, reported struggling to find the time to complete their current workloads, protected time for certain MDT-related tasks might be required. However, this could lead to either extended working hours or other work being sacrificed. The GP members of the PAG also pointed out that the time would have to be funded or GPs, in particular, would be unlikely to engage. Since MDT-related tasks are likely to differ according to the individual practices and pharmacies it would be difficult to assess how much reimbursement for MDT work is required and regulate how it is spent. There is also a danger in using financial incentives of encouraging a tick-box culture, whereby practitioners focus on the rewarded activity (e.g. attending a MDT meeting) rather than truly engaging with the spirit of the activity (i.e. to best use the skills of all staff for the benefit of patients). A possible way forward, which was suggested in the PAG meeting, could be for work shadowing of various primary and community care HCPs to be recognised as a legitimate continuing professional development (CPD) activity. All HCPs have to complete a certain amount of CPD activities each year and work shadowing would present an opportunity for the various professionals to learn more about the roles of their colleagues. This could thus help to initiate integration between local HCPs. Work shadowing could also be built into the pre-registration training of CPs or the specialist general practice training of GPs. Shadowing a CP is part of the nurse prescriber qualification and several of the PN survey respondents who had completed this training commented on how useful they had found the time they spent with a pharmacist.

In summary, a multi-pronged approach is required to improve integration of CPs in MDTs:

- Educational interventions are needed to improve HCPs' awareness of the CP role – these could be both from CCGs and local professional groups and directly delivered by CPs to their local general practices.
- In addition, CP knowledge of the roles of other HCPs could be improved by similar means.
- Face-to-face contact between local HCPs and CPs should be encouraged as a way of building familiarity and trust.

- CPs might also need to be made aware of the need to provide evidence of the benefits they can bring to a general practice and the necessity of maintaining regular contact, possibly through providing newsletters or bulletins to practice staff.
- CCGs and local professional networks could also be useful channels for disseminating evidence and guidance on successful multidisciplinary working practices.
- Public awareness of the extended CP role needs to be improved in order for general practice staff to refer their patients to the CP.

5.2 Other key findings

In trying to interpret the results it became increasingly apparent that it might be beneficial to separate and define the concepts of integration and multidisciplinary teamwork. The survey did not directly ask respondents to state how a MDT should operate but the results suggested that some respondents had a narrow concept of the MDT as case- or task-specific while others had a broader concept, incorporating a larger number of healthcare workers. It thus may be possible for a CP to be integrated within a broadly defined team but not be part of a case-specific team. Given the various concepts of MDTs among HCPs there seems to be a need to clarify exactly what is meant by integration of the CP within primary and community care, and also to agree a definition of the MDT in this context. Integration could be defined as acceptance and recognition of the CP by other HCPs and their willingness to involve the CP in the care of patients (e.g. by referring patients to the CP, asking the CP for advice). Using this definition it would seem more important for a CP to be integrated with local HCPs than for them to feel part of a MDT per se. Indeed integration may lead to CPs being invited to join formal, case-specific MDTs as the other primary care HCPs become more familiar with the pharmacist. Although, as previously discussed, being part of a MDT is not necessary for a CP to engage in clinical work, it would seem reasonable to suggest that being well integrated will increase the opportunities for CPs to take on a more extended role and for this role to help deliver more holistic care to patients (since it will likely be better co-ordinated with services provided by the other HCPs).

The lack of clarity regarding what constitutes a clinical role or service among CPs is also concerning. If CPs are to be encouraged to take on a more clinical role it is important that there is a common understanding of what this means in practice. A similar situation arose with the emphasis on patient-centred care in medicine (Stewart, 2001) and pharmacy (Tsuyuki and Krass, 2013). 'Patient-centred' is a widely used term but, due to poor understanding, has been differently interpreted by various practitioners and organisations (Stewart, 2001). A commonly understood definition of clinical work in community pharmacy would help CPs to understand what is expected of them in terms of extending their roles. This in turn could help CPs to confidently promote their services to other HCPs and become more integrated.

The greater similarity between independent pharmacies and general practice than between independent and multiple pharmacies in terms of organisational climate is worthy of note. Although this was likely to be partly linked to management level, in that more independent CP respondents were in top level management making them more similar to GPs, the fact

that PNs (few of whom were in top management positions) gave OCM ratings more similar to independent than multiple CPs suggests that other factors were influential too. Independent pharmacies tend to be much more similar to general practices in terms of organisational size and structure and this could lead to the more favourable climates reported by respondents. There tend to be fewer members of staff and, correspondingly, fewer levels of management, all located on site; this possibly leads to greater familiarity among staff, promoting feelings of camaraderie, involvement and friendliness. On-site management may also lead to greater autonomy for those not in managerial positions since the potential for greater contact afforded by working in the same location likely builds trust between manager and employee. It was also suggested by one member of the PAG that CPs in independent pharmacies tend to establish themselves in one pharmacy and stay there, much like GPs and nurses in their practices, whereas CPs in multiple pharmacies are perhaps more likely to move between sites. As suggested by one member of the PAG, CPs at multiple pharmacies transfer between sites in order to progress up the chain of command as opportunities for promotion within a branch are rare. Importantly though, the greater similarity between organisational climate at independent pharmacies and general practices could help to explain the preference some GPs reported for working with independent CPs rather than those at multiple pharmacies. The GPs may be more comfortable working with organisations that run in a way they are familiar with from their own practices.

The poorer ratings of organisational climate given by CPs at multiple pharmacies lends support to previous research showing CPs at large chain pharmacies feel more stressed in their work than CPs at independent pharmacies (Jacobs, Hassell, Ashcroft et al, 2014) and dissatisfied with the management (Ferguson, Ashcroft & Hassell, 2011). CP respondents from multiple pharmacies reported significantly higher levels of pressure than those at independent pharmacies, which concurs with Jacobs et al's (2014) work that found multiple chain CPs were more likely to feel stressed from unmanageable workloads and low job security. Ferguson and colleagues (2011) found that CPs' satisfaction with management significantly influenced their overall job satisfaction. Dissatisfaction came from feeling unsupported and unrecognised by management, not being involved in communications or decisions and not having the freedom to conduct their work as they saw fit (Ferguson et al, 2011). The vast majority of multiple pharmacy CPs in the present study had managers above them and their lower scores on, particularly, the human relations dimension of the OCM (involvement, autonomy, supervisory support, integration, welfare and training) suggests they were less satisfied with their managers than CPs at independent pharmacies. The qualitative comments of some multiple pharmacy CP respondents also indicated dissatisfaction with, particularly, non-pharmacist pharmacy managers. Since the proportion of large multiple pharmacies is ever increasing in the UK, as the corporate chains take over the independent pharmacies (Bush, Langley & Wilson, 2009), the current findings could be cause for concern. High levels of stress and job dissatisfaction have implications not only for CP well-being but also for patient safety and the future of the workforce. There are concerns that CPs facing high levels of stress are more likely to make dispensing errors (Gidman, 2011) and low job satisfaction is known to be linked to high turnover and absenteeism

(Mott, 2000). Poor job satisfaction among employees is also associated with low productivity and less efficient organisational functioning (Hargie and Tourish, 2009), thus it would seem to be in the best interests of pharmacy managers to ensure their pharmacists feel supported, listened to, sufficiently trained and able to practice as they see fit.

5.3 Strengths and limitations

This is the first study, to the authors' knowledge, that explores CPs', GPs' and PNs' perceptions of multidisciplinary team work, and the impact of organisational climate and personality traits on primary care professionals' integration. The use of standardised questionnaires has enabled useful comparisons to be made between professional groups, which have highlighted interesting similarities and differences.

In terms of demographics, the sample was reasonably comparable to available national figures. However, this was a relatively small-scale survey that took place in the south west of England and as such might not be representative of practitioners throughout all of Britain. The uneven sample sizes across the three professional groups also limit the strength of the quantitative comparisons. No national data could be found for numbers of co-located general practices and pharmacies and the proportion of GPs and PNs reporting colocation seems rather high (roughly 50% for each group). This could suggest a possible source of bias whereby GPs and PNs who had more contact with CPs, by virtue of their co-location with a pharmacy, were more interested in participating. If this is the case, it is possible that the numbers of GPs and PNs reporting good working relationships and including CPs as members of their teams were inflated.

As with all voluntary participation surveys, another possible source of bias comes from the fact that those more interested in the study topic are more likely to participate. In this case, respondents' particular interest in multidisciplinary work could have come from having benefitted from working in a team or enjoy working with their local CP. However, it is also possible that respondents' were motivated by previous negative experiences of multidisciplinary work.

It should also be borne in mind that this study relied on practitioners' self-report. This method was chosen as it gives greater insight into the reasons why healthcare professionals may or may not be interacting with the wider primary care team. Given the variation in definitions of a MDT however, it is possible that CPs engaging in similar amounts of interaction with their local general practices responded differently to the question of whether or not they felt part of a MDT. This raises the question of whether feeling part of a team is more important than objective measures of integration. For example, as long as a CP is communicating with local HCPs, and the HCPs recognise the CP's skills and expertise and feel they can refer to the CP for advice, does it matter whether the CP feels integrated? In a similar way, GP and PN perceptions of whether a CP is part of their MDT are not necessarily accurate depictions of how much involvement the CP has with their general practice. In terms of investigating the extent to which CP integration is related to their engaging in an extended role, this study would suggest that subjective perceptions of being part of a MDT

are not related to engagement in extended role services. However, further research using more objective assessments (e.g. observational studies) might find an association between integration or team membership and engaging in an extended role.

5.4 Implications

The findings from this research lend support to recent reports that have proposed there is room for improvement in relationships between general practice and community pharmacy. Several implications for practice can be drawn from this study in order to promote better integration of CPs with primary care health professionals:

- Firstly, there is a need to improve understanding among all HCPs in primary and community care about each other's roles and expertise. Specifically, HCPs need to know how their colleagues are trained, regulated and funded, what their codes of conduct are, what services they can offer, and how working with them can benefit patients. For general practice and community pharmacy, much of this is covered in the NHS Employers' guides: 'The GP practice: A guide for community pharmacists and pharmacy staff' and 'The community pharmacy: A guide for general practitioners and practice staff' (NHS Employers, July 2013 and August 2013). These guides do, however, focus on the CP and GP roles, respectively, and there is possibly a need to give more detail on the other staff, particularly PNs, and indeed produce guides tailored to their needs. More information is also likely needed on the community HCPs, such as community midwives and district nurses. As highlighted by the PAG, many practitioners are not aware of these guides, thus there seems to be a need for better dissemination at a local level, possibly by CCGs. On the other hand, widespread campaigns by national professional bodies that debunk myths about other professions (e.g. CPs put profits before patient care) and promote multidisciplinary working among local HCPs are also required.

- While informative documents are important and can provide a reference guide, this research has emphasised the need for face-to-face contact and the importance this can play in improving understanding and building trust between different professionals. Joint training and education, both at undergraduate and pre-registration level as well as continuing throughout professional practice, could provide a way to increase interaction and enable HCPs to learn about each other's areas of expertise in group exercises. Training together should also give individuals experience in collaborating with other professions, which they can apply in their practice. Different health care professions have their own values, beliefs and attitudes, which will influence the professionals' approaches to work (Horsburgh, Perkins, Coyle & Degeling, 2006). By learning about different professional cultures in joint training it is intended that HCPs' preconceptions of other professionals will be challenged and they will develop skills that will enable them to work with other professions in future (Horsburgh et al, 2006).

- Increasing joint training on undergraduate courses should improve understanding among the future generations of HCPs but there is also a need to target current healthcare providers. Small groups of HCPs in defined regions could be formed for members to discuss topical issues on patient care that are relevant to their local population and share good practice. These group meetings would likely need to take place outside normal working hours and participation would be voluntary, much like attendance at meetings organised by Local Pharmaceutical Committees (LPCs) and Local Medical Committees (LMCs). However, HCPs could be encouraged to participate if attendance at the meetings was accepted as a continuing professional development (CPD) exercise by the various regulatory bodies. The organisation of these groups could be facilitated by the local professional committees or CCGs, at least at first to get the groups started.

- Within professions, the local professional committees could also host events or online forums for their members to share experiences and ideas on initiating and maintaining relationships with general practices/community pharmacies. Although the aforementioned NHS Employers guides on general practice and community pharmacy give information on the staff and how the organisations operate they do not inform the readers how to go about forming and sustaining working relationships. Sharing experiences with local peers may be one way to learn how to overcome issues of time, communication and management. Written guidance from professional organisations could also be helpful. It should be acknowledged though that each relationship will be different according to the individuals involved and their circumstances (e.g. proximity of settings, size of organisations, needs of the local population).

- Work shadowing of different professionals could be built in to professional training in order for HCPs to appreciate the pressures faced by each other. Work shadowing could also contribute to CPD; for example, one day a year could be spent shadowing a professional at a different site. This could also be extended to the non-professional staff working in general practices and community pharmacies, the current findings suggest there is a particular need for GP receptionists and CPs to understand each other better. It is recognised however that work shadowing requires time, money and organisation and so support may be needed from commissioning groups.

- Encouragement for integration of CPs also needs to come from pharmacy managers. Particularly non-pharmacist managers at large chain pharmacies need to be made more aware of the benefits of multidisciplinary working and support their pharmacists to engage with local HCPs. Since healthcare funds are now distributed locally by CCGs and local councils CPs and other HCPs need to invest their efforts for development at a local scale.

- Practical changes should also be made to facilitate general practices and community pharmacies working together. Better use needs to be made of technology to enable direct communication between practitioners. Teleconferencing could be a feasible way to overcome the need for the CP to remain on the premises in order for prescriptions to be dispensed.

- Finally, there is a need for greater public awareness of the CP role, particularly the extended services they offer, in order that other HCPs feel able to refer their patients to the CP. Previous campaigns have relied on leaflets and posters displayed in pharmacies and health centres. In order to reach as wide an audience as possible there needs to be a national campaign using popular and social media channels.

5.5 Conclusion

This study has explored the integration of CPs with general practice from the perspectives of CPs, GPs and PNs. Individual personality traits and organisational climate factors, measured using standardised questionnaires, were found to have little effect on participants' perceptions of being part of a MDT. The extent to which CPs were engaged in an extended role (delivering advanced and locally commissioned services) was also not related to feeling part of MDT. Several important barriers and facilitators to integrating CPs with general practice teams were identified and a particular need for improving understanding among healthcare professionals about each other's roles was highlighted. The findings suggest that a multi-pronged approach is needed to support the integration of CPs, with work at local, regional and national levels.

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7. Appendices