

NHS Greater Manchester Primary Care Demonstrator Evaluation

Final Report

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NIHR CLAHRC Greater Manchester

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List of Abbreviations

A&E	Accident and Emergency
ANP	Advanced Nurse Practitioner
BARDOC	Bury and Rochdale Doctors on Call
CCG	Clinical Commissioning Group
CLAHRC	Collaboration for Leadership in Applied Health Research and Care
CSU	Commissioning Support Unit
DiD	Difference-in-Differences
DiDiD	Difference-in-Difference-in-Differences
DNA	Did Not Attend
PCD	Primary Care Demonstrator
EMIS	Egton Medical Information Systems
GMS	General Medical Services
GP	General Practitioner
GPPS	General Practice Patient Survey
HES	Hospital Episode Statistics
HR	Human Resource
HRG	Healthcare Resource Group
HSCIC	Health and Social Care Information Centre
IG	Information Governance
IMD	Index of Multiple Deprivation
IT	Information Technology
MDG	Multidisciplinary Group
MDT	Multidisciplinary Team
NHS	National Health Service
NIHR	National Institute for Health Research
PbR	Payment by Results
PCC	Primary Care Commissioning
PCEC	Primary Care Emergency Centre

PCM	Primary Care Manchester
PMS	Personal Medical Services
REaCH	Reablement and Community Home Support
RMO	Resident Medical Officer
QALY	Quality Adjusted Life Year
QOF	Quality and Outcomes Framework
SoC	System of Choice
SUS	Secondary Uses Service
TPP	The Phoenix Partnership

CLAHRC Evaluation Team

The evaluation is being carried out by a team at the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Greater Manchester. CLAHRC Greater Manchester is part of the National Institute for Health Research (NIHR) and is a partnership between providers and commissioners from the National Health Service (NHS), industry, the third sector and The University of Manchester. The demonstrator evaluation forms part of the programme of work in the Primary Care theme of CLAHRC Greater Manchester.

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Executive Summary

This report has been prepared by the primary care demonstrator evaluation team from the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Greater Manchester. The team was commissioned by NHS England Greater Manchester in December 2013 to evaluate six primary care demonstrators. The report was delivered on May 1 2015.

Background

1. Accessible, integrated healthcare services are at the core of current national health policy aims, and form part of the Primary Care Commissioning (PCC) Strategy for Greater Manchester. NHS England Greater Manchester provided funding for a programme of demonstrators to test aspects of the strategy. Bids for funding were invited that focussed on improving access and integration in primary care and innovative use of technology.
2. Six demonstrator bids (Bolton, Bury, Central Manchester, Heywood, Middleton and Stockport) were initially awarded a total of £2.1m over six months (later extended to £4.1m over 15 months).
3. The funded demonstrator bids are diverse in their focus and scope. As demonstrator projects were based in diverse local contexts, there was variation in the way in which problems were conceptualised and services designed to meet them. Each demonstrator had a diverse set of stakeholders, providers and target populations.
4. However, all six demonstrators focus upon access, integration and technology. Four out of the six focussed primarily on additional availability in general practice. The problem of Accident and Emergency (A&E) attendance and non-elective admission was identified by all six DPs, with either demand on, or access to, General Practice identified by four demonstrators. All demonstrators identified problems with integration between services; five demonstrators identified Long Term Conditions and four identified frail elderly as areas of the most unmet need.
5. The problems of acute attendance and admission were addressed by providing additional availability within general practice (Bury, Central Manchester, Middleton, Heywood), by increasing community based services (Bolton, Stockport) and by extending the range of services offered in general practice (Central Manchester, Heywood, Middleton, Stockport). All demonstrators aimed to improve integration of services by sharing general practice records and/or through collaboration with acute and community care services.
6. Each additional availability service provided additional weekday, evening and weekend appointments in locality-based host sites and aimed to provide access to full patient records within the service. Booking systems, appointment allocation, operating hours, staffing,

Information Technology (IT) systems, referral processes and support services varied between demonstrators.

The Evaluation

7. The aim of this Final Report is not to determine decisions, but rather to provide findings to help inform decisions. It does not seek to justify, defend or challenge the PCC Strategy for Greater Manchester, but rather to provide an objective and independent evaluation of the primary care demonstrators funded by NHS England Greater Manchester.
8. This report is based upon a quantitative outcome evaluation and a qualitative process evaluation. While the outcome evaluation is appropriate for answering the question 'what works?' (or 'what doesn't work?'), the process evaluation provides understanding of the 'how', 'why' and 'for whom?' of 'what works?'
9. The outcome evaluation examined the impact of the demonstrators on levels of activity within secondary care, Out of Hours and Walk in Centre services, as well as their impact on patient satisfaction.
10. The outcome evaluation focused on the effectiveness of the interventions implemented within each demonstrator providing additional availability appointments (Bury, Central Manchester, Heywood and Middleton). To do so, it used routinely collected data from the Secondary Uses Service (SUS) (on A&E activity) and the General Practice Patient Survey (GPPS) (on patient reported access to and satisfaction with general practice services). In addition, data from local providers of Out of Hours services and Walk in Centres were analysed to examine the effect of the demonstrators on the use of these services, in combination with an analysis of activity data supplied by the demonstrators themselves.
11. The outcome evaluation compared outcomes in the demonstrator areas with trends across the rest of Greater Manchester (regional comparator) and within individual CCG areas (local comparator). To do this, a 'Difference in Difference' (DiD) analysis was conducted for different types of A&E activity recorded in SUS. Total A&E visits and costs were modelled to assess the overall impact of the demonstrators on A&E activity. Since improvements in access to primary care may be more likely to impact on minor attendances, A&E attendances were modelled by intensity. Additionally A&E attendance were modelled by referral route.
12. The outcome evaluation also conducted a DiD analysis to compare trends in Out of Hours and Walk in Centre usage in the demonstrator areas with trends in non-demonstrators within the same or proximate CCG areas.

13. In addition, the outcome analysis conducted a DiD analysis for five questions in the GPPS. This analysis controlled for observed characteristics of practices (gender, age, existence of long-standing health condition, and Index of Multiple Deprivation (IMD) score).
14. The process evaluation explored the enablers and inhibitors which affected the operation of the demonstrators.
15. The process evaluation examines how the demonstrator interventions were defined, implemented and modified over time within each demonstrator. It was based on interviews with 91 key stakeholders across the six demonstrators, including clinical and managerial representatives of CCGs, general practitioners (GPs), acute and community services, local authorities and third sector organisations. A thematic analysis was undertaken. The process evaluation was focused on identifying learning points to inform similar attempts at service innovation in the future.
16. Activity data were collected by the demonstrators and supplied to the evaluation team. The type and form of these data varied across the demonstrators. The main data for the additional availability services were; number of appointments provided, booked and Did Not Attend (DNA). All demonstrators providing additional availability supplied month-by-month data and daily breakdowns of activity levels.

Findings: Outcome Evaluation

17. Approximately 200-250 extra appointments per demonstrator per week were provided across the four additional availability demonstrators. Considering provision per head of population, Bury and Heywood supplied approximately 30-40 appointments per month per 1000 population, Central Manchester and Middleton supplied approximately 5-10 appointments per month per 1000 population.
18. An average of 65.5% (55.3%-83.7%) of available appointments were booked, with the highest utilisation rate in Bury.
19. There was a general trend of increasing bookings over the analysis period for both weekday evening and weekend appointments.
20. Uptake of weekday and Saturday appointments appears greater than for Sundays in all pilots, Bury has the highest uptake of Sunday appointments.
21. There is a marked difference in additional availability activity levels between the demonstrators, with the greatest number of appointments provided by Central Manchester, and the highest uptake of appointments achieved in Bury.

22. The demonstrator practices providing additional availability appointments have an estimated 3% fewer A&E attendances per 1,000 registered patients compared to other practices in Greater Manchester in the post-intervention period. This finding does not hold when using the local comparator.
23. The decrease in total A&E activity is driven by a statistically-significant decreases in A&E attendances by patients from demonstrator practices in Bury (4%) and Middleton (3%), when compared regionally, although again, these findings do not hold when using the local comparator.
24. Minor attendances at A&E are the area where there is the most plausible potential impact from the additional availability sites. Across the four additional availability demonstrators, a statistically significant 8% reduction was observed in minor attendances when compared regionally. This was driven mainly by a reduction of 14% in Central Manchester and a non-significant reduction in Bury. When a local comparator is used the Central Manchester effect remains statistically-significant at an 8% reduction.
25. In all additional availability demonstrators, there were statistically-significant reductions in the numbers of patients self-referring to A&E, ranging from 8% to 24% using regional comparators. Using local comparators, only the reduction in Heywood remains significant. In some cases this reduction was offset by increases in A&E attendances referred by GP or other routes. For GP referrals, statistically-significant increases were observed in Heywood and non-significant increases in Bury and Middleton, when compared regionally. Comparing locally this result held for Heywood only. For referrals from other sources there were statistically-significant increases in all four additional availability demonstrators when compared regionally.
26. Both Out of Hours attendances and Walk in Centre attendances decreased in Bury demonstrator practices; Walk in Centre usage fell by around 14% while Out of Hours usage fell by around 38% compared to the rest of the CCG: both findings were statistically significant. By contrast, there was no statistically significant change in Walk in Centre or Out of Hours attendances by patients from the Central Manchester, Heywood or Middleton demonstrators.
27. Examining patient satisfaction through an analysis of specific items on the General Practice Patient Survey, no statistically-significant effects were found for all additional availability demonstrators when comparing to the rest of Greater Manchester. Although overall the demonstrators showed improvements for each item, none were statistically-significant. In Bury, some statistically-significant improvements were found in perceptions of convenience of appointment, satisfaction with surgery hours and overall quality of service.
28. This evaluation has not included a full analysis of cost-effectiveness. What this evaluation does provide is an estimation of the impact of the demonstrators in terms of total A&E costs and minor

A&E costs, where statistically-significant outcomes were shown. These cost variables are the sum of the tariffs attached to all attendances at A&E and just minor attendances respectively, they are not measures of the total cost of providing A&E services.

29. It is estimated that the Bury demonstrator may have contributed to a decrease of £43,000 (range: £19,000-£73,000) in total A&E costs; in Middleton, an increase of £97,000 (range: £57,000-£137,000) in total A&E costs¹; and in Central Manchester, a decrease of £425,000 (range: £285,000-£565,000) in minor A&E costs (although this decrease was not associated with any statistically-significant change in total A&E costs). In addition it is estimated that the Bury demonstrator contributed to reductions in Out of Hours and Walk in Centre activity equating to a hypothetical cost reduction of around £164,000 (range: £104,000-£212,000). All these estimates come with very broad confidence intervals, and the 'true' cost impact is equally likely to be anywhere within the range set out.
30. The heterogeneity of the non-additional availability services offered meant that it was not feasible to perform a dedicated outcome analysis of these services, which formed part of the Central Manchester, Heywood and Middleton demonstrators, and the entirety of the Stockport and Bolton demonstrators. The majority of non-additional availability services were more targeted at reducing admissions than attendances. Admissions were analysed for this evaluation, however, no discernible impact was observed. This is likely to be due to the small scale of the non-additional availability services. Three non-additional availability services were singled out by several individuals in each area as being particularly innovative; the care home service (Bolton), the navigator service (Heywood) and the enhanced end of life service (Stockport). Demonstrator-provided outcome data also suggested cost savings associated with the care home and medicines management service (in Bolton) and the enhanced EoL service (in Stockport). These services merit further exploration and rigorous, structured evaluation

Findings: Process Evaluation

31. The process evaluation identified six 'enablers' i.e. factors which had an identified effect of the ability of each demonstrator to achieve its objectives. These are;
 - a. Federations and Alliances,
 - b. Information Technology (IT),
 - c. Information Governance (IG),
 - d. Workforce and Organisational Development,
 - e. Engagement and Communication, and
 - f. Supporting Infrastructure

32. **Federations and alliances** were attributed an important enabling role within several demonstrators. Demonstrator funding provided an opportunity for newly-established federations in three areas (Bury, Central Manchester and Stockport) to deliver a focussed program of work. Respondents in these three demonstrator areas described several advantages to federations in helping to forge a common purpose between practices, in the perceived benefits for service delivery which they could produce, and in the prospective role they could play in 'protecting' primary care.
33. The common purpose of federations can be embedded in their legal status and underscored by their locality-based membership. Successfully established federations can overcome long standing relational difficulties and can provide a forum for collective experimentation and learning. Federations also have the potential to deliver various advantages of working at scale, such as the provision of a flexible workforce, and the sharing of back-office functions. In terms of service delivery, federations promise benefits such as improved data sharing, improvement of the quality of care and standardisation of practice, and the possibility of providing population-wide coverage of primary health services. The combined benefits of federation are seen by supporters as providing 'protection' for primary care, against what are perceived to be inevitable future resource restrictions and the challenge of private providers.
34. However, challenges were noted concerning the establishment and sustainability of federations, relating to their ownership, management and funding. Some resistance to federation was also noted. In part, this related to concerns over the loss of individual practice identity. In part, also, this reflected concerns of a loss of control and a concern that while primary care might be protected by a federation, individual practices may not.
35. **Information Technology** was similarly a critical issue for the successful delivery of the demonstrators. In most cases, IT was essential as the demonstrators relied upon integration of both clinical systems and user protocols across different GP practices in order to implement data and patient-record sharing. Challenges were identified at both operational (intra organisational) and strategic (inter organisational) levels in all six demonstrators. These challenges can be organised according to three categories; over-optimism regarding IT and its potential for integration; the contested IT roles of other parties; and the unrecognised costs of IT change.
36. Several demonstrators appear to have underestimated the financial, technical and human challenges involved in IT transformation, generating delays and sub-optimal delivery of services. The inter-organisational character of IT change, particularly where communication was necessary between different IT systems with limited inter-operability, exacerbated difficulties. Also, the enforced reliance of demonstrators upon external contractors such as Commissioning Support Units (CSUs), resulted in communication and contractual difficulties. For some demonstrators, the

extent of these IT challenges proved divisive, generating difficult relationships between specific individuals and organisations.

37. Effective management of IT within the demonstrators requires informed and realistic planning involving multiple stakeholders, clear ownership of responsibility, and a full recognition of the costs of installation, training, and consultancy. Where feasible, investment in a standard IT system (for patient records) across practices in a locality is the ideal solution. Where this is not feasible, then inter-operability between different systems is a more pragmatic goal. This would need to be delivered with the support of computer suppliers. It would also require investment in training and the formation of stronger trust-based relationships within and outside primary care.
38. **Information Governance** also played a critical role in enabling or challenging the effective delivery of the demonstrators. Each demonstrator encountered challenges associated with access to, and the sharing of, confidential material as part of the process of integrating systems and collaborating across organisational boundaries. Challenges raised by IG across all demonstrators may be summarised as involving: inflexibility of governance procedures; disparity in IG protocols between organisations; management of access to clinical records; difficulties providing honorary contracts and the underlying issue of trust.
39. Potential solutions to challenges underlying IG included: a willingness to adapt to new systems via learning and engagement; supportive roles and collective solutions to IG/integration barriers; early work to set up honorary contracts; and the establishment of trust-based working relationships. Sustainable solutions required detailed engagement between a range of parties, pragmatically informed processes, planned timescales for installation/integration, and the delegation of key individuals to act as 'drivers' of IG within organisations.
40. **Workforce and Organisational Development** played a key role in delivering the capacity to extend access or develop integrated care in the community. Challenges arose where issues of skill-mix, capacity, remuneration and sustainability were not appropriately addressed.
41. The demonstrators provide some insights into how these changes might affect workforce capacity. The additional availability demonstrators did not generate substantial skill-mix changes (either within practices or across sectors) that could have released capacity. Skill-mix was an issue for the extension of nursing provision. Any extension of nursing hours requires a clear knowledge of which nurses can provide which services, or increased training of nurses. The main workforce issue concerning additional availability services was having sufficient GPs to cover additional appointments, which in the short term led to work-life balance issues for GPs and the necessity to employ locums, with associated remuneration issues.

42. Broader issues emerging here relate to absolute system capacity. Questions arise as to whether there are sufficient GPs available to cover additional availability if expanded to a larger-scale roll-out. Relatedly, there is concern that multi-disciplinary working and increased community-based services tend to involve additional workforce costs. The evaluation suggests that only partial savings to be made through the deflection of work in such situations. This again may increase the strain on the healthcare system overall without careful workforce planning.
43. **Communications and Engagement** addresses two substantial challenges for the demonstrators. There was significant variation in the extent to which demonstrators strategically managed both communications and engagement, and challenges were exacerbated by the speed and fixed duration of the demonstrator programme.
44. Each demonstrator was required to effectively communicate the changed service with patients, carers and other parts of health and social care. The most structured approaches offered formalised opportunities for public involvement, such as a reference group, and inclusion in strategy and delivery groups. Various media campaigns were also part of each demonstrator, from the minimum of leaflets distributed to participants, up to appearances in regional and national media outlets.
45. Several demonstrator leads described lacking the time and resources necessary for a comprehensive approach to establishing new relationships, leading to a dependence on pre-existing relationships for those demonstrators that had them. In areas without an established federation, the demonstrator provided opportunities to initiate and formalise joint-working, planning and collective provision of services, and to build new and effective relationships with acute and community service providers. Other demonstrators reported much more strained relationships between sectors. Variable levels of engagement sometimes resulted in service inequity (e.g. not all practices in a locality engaging sufficiently to refer into demonstrator services).
46. The time-limited nature of the demonstrators created challenges to building the kind of relationships which could promote sustainable change. Future schemes would benefit from a phased approach which provides time and resources for pre-launch engagement and communication.
47. **Supporting Infrastructure** was also essential to deliver changes to services in the demonstrators, although significant variation was evident in the precise nature of infrastructure necessary. At sites providing additional appointments, services, such as late pathology collection and extended hours community pharmacy were noted as enhancing the delivery of new services. GP federations

were once again positively cited for their potential role in delivering resource efficiencies through infrastructure sharing between practices.

48. An inevitable challenge regarding infrastructure was the time-limited nature of the demonstrators, which mitigated against permanent commitments to new buildings or equipment. Similarly, the bounded scale of the demonstrators also made it more difficult to persuade other larger organisations such as local hospitals to change their practices and arrangements. Some demonstrators did however successfully negotiate such changes, generating facilities which may benefit primary care more generally. In the long term, both of these challenges would be minimised where new initiatives were established permanently and over a wider footprint. In practice, the short-term solution for most demonstrators was a pragmatic sharing of existing infrastructure, building on existing collaborative relationships.

Discussion

49. All four additional availability services were successful in terms of providing appointments from December 2013 and fully operational by March 2014.
50. Measured by provision and uptake, Bury achieved the highest number of appointments booked in total, Heywood achieved the highest number per 1000 population served, and only Central Manchester achieved full population coverage within their CCG
51. There was higher utilisation of weekday and Saturday appointments than of Sunday appointments across the four demonstrators. Bury were the most successful in uptake of Sunday appointments.
52. Regarding the impact of these four demonstrators, additional availability appointments did appear to effect a small but statistically-significant reduction in total A&E attendances for patients registered in demonstrator practices, coupled with a more substantial impact on minor attendances in Central Manchester.
53. The analysis of A&E attendances by referral route found decreases in self-referrals, largely offset by increases in GP referrals from the demonstrator practices. This analysis reveals a complex picture concerning the question of whether the additional availability acted as a substitute for, or complement to, A&E attendance
54. The analysis of Out of Hours and Walk in Centre activity found no statistically-significant impact of the demonstrators, with the exception of Bury. This is a surprising finding, which possibly relates to the lack of weekend appointments made available and booked in Heywood, Middleton and Central Manchester.

55. Regarding patient satisfaction, there was some evidence that satisfaction improved among patients at demonstrator practices compared to the rest of Greater Manchester, however, very few statistically-significant results were observed. Patients from practices at the Bury demonstrator reported significant improvements to questions concerning convenience of appointments and satisfaction with GP opening hours. With the exception of Bury, there does not appear to have been a consistent impact on patient satisfaction in terms of access to general practice.
56. Differences in the activity levels and utilisation of additional availability services reflect differences in their establishment and operation, and also the different conditions faced in each area. While Bury were the most successful in terms of appointments utilised, it could be argued that the service in Bury faces challenges in sustainability related to technology and workforce.
57. The stability of the GP Federation providing services in Central Manchester suggests the most effective and sustainable approach to governance and workforce in this demonstrator.
58. Finally, it is vital to recognise the broader impact of the demonstrators, both intended and unintended. These include the new relationships, capacity and capability that have been forged through such intense engagement; the ideas, initiatives and possibilities which emerged, unconnected to the demonstrators themselves but generated by new connections formed in the process; and finally the development of a level of systemic trust which makes future cooperation and integration a more realistic prospect.

Recommendations for Future Planning

Drawing together the findings of the quantitative and qualitative analysis, this evaluation provides the following considerations for future attempts to provide additional availability in general practice:

1. Establishing a new additional availability service in general practice requires an engagement and set-up period of at least six months in order to develop integrated technology and governance approaches within general practice and between general practice and other parts of the health and social care economy.
2. The additional availability services with the best outcomes in this evaluation were those supported by GP federations.
3. Providing additional availability in general practice will not necessarily substitute existing services. Only one demonstrator impacted Out of Hours and Walk in Centre activity, possibly due to the greater number of weekend appointments offered and taken up. Only one demonstrator impacted minor A&E attendances, possibly due to its additional availability service covering the whole CCG population.
4. The demonstrators in this evaluation were self-selecting, which means the outcomes observed here might not be replicated with areas that have not volunteered to become demonstrators.

The following more general recommendations are premised upon findings obtained from the qualitative component of the process evaluation. Each of the following recommendations seek to enhance the overall aims and objectives associated with initiating, developing or extending a particular primary care demonstrator project. In addition, these recommendations have been informed by the identification of specific enablers that facilitate good practice and its development. All recommendations below have been arranged by *theme*; the suggested audience of each particular point has also been indicated.

The value of federations/federated general practice

Target Audience: For GPs (or others) considering a federated model of practice

For a federated model of practice to be sustainable there should be sufficient income generation that exceeds the costs of service provision.

The legal status of any federation, (including its purpose, principles and working procedures) should be clarified with the full participation of all membership (and extended to any organisations involved in joint-working). This should aim to clarify aims, intent and goals of initiating, developing or extending a federated model of general practice.

The common identity of a federation's membership appears as one of its greatest strengths. Federations should be encouraged to develop and promote this identity in an attempt to increase awareness and participation (professional and public) in services provided.

Challenges to the creation/maintenance of any federation identity may be addressed by the formation of a working party/steering group dedicated to this specific task. This body would further seek to establish/demonstrate the value of federated models of practice and how this may improve the quality of care (such as data sharing).

Federations should seek to demonstrate the benefits of membership in the face of increased 'competition' (from private companies) and the associated quality of care this may provide.

Enabling access and clinical integration with Information Technology (IT)

Target Audience 1: For commissioners and service providers involved in the design and delivery of IT systems

Technological development provides opportunities to improve and advance the way in which services are designed, delivered and received. However, to enable and maximise the efficiency and impact of such technology there is a need for any development to be fully *operable, compatible and understood* amongst all parties involved. For these reasons, the enablement of IT within primary care settings requires a need to:

1. Counter over-optimism attached to IT systems (at an operational level) with pragmatically-informed processes delivered at an 'expert' level (includes installation/design/strategic).

Target Audience 2: For dedicated 'system leaders' within service providers involved in the design and delivery of IT systems

2. Countering over-optimism may involve the inclusion of multiple organisations and/or individuals with specific IT roles that 'steer' development.

Steering measures (led by system leaders within organisations) should:

- include feasible and pragmatic timescales for acquisition, purchase, installation and training opportunities
- designate key individuals as 'drivers' of IT within organisations and who also act as coordinator/conduit of other IT drivers (individuals) from other organisations. (Such a network would facilitate sustainability in the event of any 'loss' of IT drivers in the event of illness, relocation etc.).
- develop and introduce all IT in a planned 'step-wise' programme (as phases or stages). This would permit sufficient and progressive training opportunities for all relevant operators who may access hardware/software as a result of innovation
- adopt a phased staging for the development of IT within and across organisations that progresses from small to medium to large scale. This programme would permit the trial – demonstration – launch of IT in a variety of settings and identify (beneficial and problematic) issues of operation.

Target Audience 3: For commissioners, service providers and 'system leaders' involved in the design and delivery of IT systems

The integration of primary care initiatives appears to depend upon *interoperability* of *mutually comprehensive* and *mutually accessible* clinical systems. Testimony from this research suggests that system interoperability improves project integration that in turn improves patient outcome and primary/secondary care. For these reasons, the introduction of interoperable clinical systems should consider 'best fit' integration procedures in projects requiring, for example, access to specific data. These 'best fit' considerations include acquisition; contractual obligation (to existing systems), cost, operation, availability, installation, training packages, wider access (including 'read and write-to' availability) and if they may (or may not) be accessed in multi-disciplinary settings (for example between and across health and social care agencies).

Enabling the process of Information Governance (IG)

Target Audience 1: For commissioners and service providers involved in the design and delivery of services (especially relating to integration)

Disparity attached to Information Governance protocols within different settings (primary/secondary care, social services) provide operational challenges associated with any integration of clinical systems across/within those organisations. In order to enable integration, similar measures attached to the introduction of innovative IT should be equally applied to IG.

1. For example, attempts should be made to counter problematic governance procedures attached to the integration of clinical systems across/within organisations with pragmatically-informed processes assisted at an 'expert' level (includes installation/design/strategic).
2. The above process should involve the inclusion of multiple organisations and/or individuals with specific IT roles (here termed 'system leaders') that 'steer' IG development and address associated 'ethical' issues.

Target Audience 2: For 'system leaders' involved in the design and delivery of IT roles and IG development

Steering measures should:

- include realistic timescales for installation and developing systems/permissions for data sharing (including universal recognition of limitations and permissions)
- initiate key individuals to act as 'drivers' of IG within organisations and act as coordinator/conduit of related issues between other organisations

Target Audience 3: For commissioners, service providers and 'system leaders' involved in the design and delivery of IT systems and/or IG development

Interoperability of clinical systems demands decisions that determine the 'best fit' for integration in projects that may involve sharing patient records. These decisions should include the identification of individuals (clinicians and non-clinicians) who require access to systems and measures for

safeguarding this access. The provision of multi-site, honorary contracts for specific individuals/organisations – issued on a ‘fast-track’ basis where possible – may address this current problematic area of Information Governance. This would be particularly beneficial to those individuals who may not necessarily be employed on a full-time basis within particular primary/secondary care settings (e.g. locum general practitioner).

Enabling Workforce and Organisational Development

Target Audience 1: For service providers and ‘system leaders’ involved in the design and delivery of workforce and organisational development

The introduction of innovative practice within primary care requires a recognition that all workloads, work streams and associated tasks are allocated to an *appropriately* skilled and *available* workforce. Accordingly, organisational development may require recognition that employment posts *need to be created* in order to cover and sustain existing and new positions. (For example, strategic planning should determine whether or not there are sufficient GPs to cover extended hours within a given practice/setting).

Target Audience 2: For commissioners, service providers and ‘system leaders’ involved in the design and delivery of workforce and organisational development

Strategic and operational planning should also consider the tendency for multi-disciplinary working and increased community-based services to involve additional workforce costs with only partial savings that may be made through the deflection of work (this planning may require an extension of existing employment roles across and within organisations).

Enabling Engagement and Communication

Target Audience 1: For all organisations and agencies (and respective commissioners, service providers and ‘system leaders’) involved in the design and delivery of innovative models of community-based primary care

Community-based primary care initiatives require appropriate time periods to become established, to foster longevity and to demonstrate impact. The allocation of specific time limits for implementation, service delivery and demonstration of performance does not necessarily enable positive outcome. Similarly, limited time allocation restricts and intensifies attempts at enabling engagement and communication. Successful outcome in all regard should be encouraged via the provision of more suitable time periods for all aspects of project management.

Target Audience 2: For service providers and ‘system leaders’ involved in the design and delivery of innovative models of community-based primary care

Extended periods of operation would further enable more sustained and more focused attempts at publicising the service. This would also provide opportunities for managing inter/intra organisational expectations and ensuring that patients’ needs may be met if/when a project (or demonstrator period) is withdrawn.

Effective communication with patients, (particularly with regard to any additional availability), should further enable sustainability of project delivery. This form of communication may involve a variety of existing and innovative publicity campaigns and/or participation in other *locally relevant* methods of raising awareness of health issues.

Where projects overlap or duplicate service delivery, further co-ordination and communication of information should take place. This would enable appropriate service delivery and avoid any confusion at service-user level.

Sustainability through Supporting Infrastructure

Target Audience 1: For all organisations and agencies (and respective commissioners, service providers and 'system leaders') involved in the design and delivery of innovative models of community-based primary care

The time-limited nature of the demonstrators proved an obstacle to the acquisition or creation of new shared infrastructure in the shape of buildings or equipment. Should demonstrator activities become fixed services, investment in dedicated infrastructure would become more feasible and may enhance the quality of services delivered.

Where dedicated 'hubs' of service delivery may not be available, the shared use (across organisational and sectoral boundaries) and uptake of existing infrastructure should provide temporary (short-term) mutual benefit.

In circumstances where projects are led by community-level services (such as GP practices) consideration may be given by larger established organisations to accommodate these initiatives as part of the latter's existing practice (as a trial or demonstration period). This form of system modification should provide opportunities to enable project start-up and enable smaller organisations to benefit from larger system availability (and associated routines).

1 Introduction

1.1 Background to the Primary Care Demonstrator Programme

In 2013, as part of the Primary Care Commissioning (PCC) Strategy for Greater Manchester, NHS England Greater Manchester chose to reserve a proportion of its budget to fund a programme of primary care demonstrators in the region, with the aim of testing various elements of the newly developed strategy.

The PCC Strategy describes its objective as “commissioning quality health services delivered as close to home as possible and in the most cost effective way. Our aim over the next 5 years is to work with our co-commissioning partners to deliver transformed out of hospital care for all people of Greater Manchester”ⁱⁱ.

The Strategy also sets out five key primary care commitments, related to:

1. **Quality and safety**
2. **Involvement in care**
3. **Multidisciplinary care**
4. **Access and responsiveness**
5. **Increased out of hospital services**

The PCC Strategy is also aligned with various other initiatives addressing health and social care across Greater Manchester. These include the ‘Healthier Together’ⁱⁱⁱ programme which itself includes service redesign in the areas of Primary Care, Integrated Care and Secondary Care.

Proposals were invited for projects which addressed the key concepts and principles of the PCC Strategy, subject to the following criteria; projects must; -

- Support a defined community of 30,000 upwards
- Support the delivery of integrated services across primary, community and social care
- Take into consideration the use of innovative/enhanced technology
- Extend access to primary care

18 applications were received and judged by a panel from NHS England Greater Manchester which included the Chief Executive, a senior commissioner, the integrated care lead, as well as senior medical and nursing staff. Six demonstrator bids (Bolton, Bury, Central Manchester, Heywood, Middleton and Stockport) were initially awarded a total of £2.1m for six months from October 2013. In March 2014 this was extended to £4.1m, with an additional twelve months, finishing at the end of March 2015.

The successful proposals are listed below:

1. Care Home to Own Home
2. A Healthier Radcliffe
3. Delivering the New Vision for Primary Care in Central Manchester
4. Heywood Health Hub; A Pilot in Integrated Care
5. Middleton Primary Care Demonstrator
6. Stockport Primary Care Demonstrator

The six demonstrators differed significantly in their scope, size and precise focus. This variation allowed solutions to be developed tailored to local needs, while also providing an opportunity to test a variety of ways in which healthcare activity may be re-oriented towards primary care. However, three core themes were common to all: access, integration and technology.

Access refers to the attempt to make primary healthcare services more responsive to the needs of the population, with the intention to empower individuals to use and benefit from healthcare services. Previous studies have highlighted that access to healthcare is best understood as a multi-faceted concept, encompassing health service *availability*, health service *affordability/financial access*, and health service *acceptability or cultural access*^{iv}. Given this breadth of concept, initiatives to enhance access to primary care might range from extending opening hours for routine general practitioner (GP) appointments, to redesigning primary care to better target and treat vulnerable groups in the community, to specifying and implementing thresholds for response times for urgent care in the community (all initiatives included in the demonstrators evaluated here). Similarly, research points to a number of challenges to access, which include macro-, meso- and micro-level barriers, including demographic and social factors as well as the arrangement and presentation of healthcare options to the community^v. The current policy climate regarding primary care access has been influenced by ongoing pressures upon the NHS, and particularly the aspiration to relieve pressures on acute care. In particular, there is a widespread aspiration to reduce Accident and Emergency (A&E) attendances and unscheduled admissions to hospital by dealing more effectively with patients in primary care settings. Within this climate, the demonstrators offer important opportunities to analyse the impact of interventions and thus assist with understanding the challenges associated with improved access to primary care services.

Improving access to healthcare typically relies upon the second core theme, **Integration**. Integrated working between agencies is required in order to direct patients effectively to the most appropriate care provider, to coordinate decisions across organisational boundaries, and to promote continuity of care and active case management. Integration frequently entails the collaborative provision of healthcare between agencies and sectors which have historically operated in isolation from each other, often in direct competition. Again, as a concept, integration encompasses various aspects. At the micro-level, integration relates to service integration. At the meso-level, it is likely to encompass

professional and functional integration, while at the broadest macro-level one might look for organisational and system integration^{vi}. The challenges relating to providing integrated care are multi-faceted: for example, differences in organisational structure or culture, inter-professional barriers, distinct human resource management policies/practices, diverse clinical information systems and variations in governance protocols. Furthermore, a plurality of definitions and approaches within the over-arching heading of 'integration' makes this a challenging area to research^{vii}. Each of the demonstrators, in different ways, seeks to cross boundaries between primary, community, and acute service providers, as well as between health and social care, and as such addresses the theme of integration.

Finally, the innovative use of **Technology** is central to the demonstrators' attempts to deliver improved access and integrated care. In particular, integration relies upon the sharing of patient information between GP practices and with other health and social care organisations. In addition, access and integration may be supported by the development of tele-health including web consultations, self-monitoring and other uses of technology to support effective communication between healthcare professionals, patients and carers. Innovation of this kind poses both technical and organisational challenges, exacerbated by the range of hardware, software and established practices across organisations. In addition, there are the challenges of sharing information in a way which is consistent with information governance (IG) arrangements, relating to consent and privacy regulation. The demonstrators evaluated here have the potential to identify and illuminate the kind of challenges associated with new uses of technology. They also have the potential to generate solutions to these challenges which could possibly be scaled up and implemented in other parts of the NHS.

These three themes, which form the basis of this evaluation, reflect the focus of the demonstrator programme and are consistent with dominant themes within current national and regional strategies and policies. Collectively, they are intended to enable the shift of healthcare activity from secondary care services and towards primary care, or, from a patient's perspective, 'move care closer to home'.

1.2 Structure of the Report

The Final Report contains six sections. In the first section, the Introduction, the context of the demonstrator and the evaluation has been described. Section 2 introduces the demonstrators themselves, identifying their respective contexts, their main components and other relevant information. Section 3 summarises the activity data supplied by each of the demonstrators related to additional availability in primary care. Through an analysis of this data, some conclusions are drawn regarding the provision and uptake of additional availability primary care in each area, as well as the effectiveness of non-additional availability services. Section 4 contains the outcome evaluation, which is divided into three parts, the first assessing the overall impact of the demonstrators (using SUS data)

and patient satisfaction (using GPPS data); the second section looks in more detail at outcomes for each demonstrator separately; the final section assesses the impact on Out of Hours and Walk in Centre activity and an estimation of cost implications of observed impacts. Section 5 addresses the process evaluation, structured around the six 'challenges and enablers' introduced above. In Section 6, the findings of the outcome and process evaluations are discussed. Here, a unified evaluation is produced of the effectiveness of each demonstrator, their impact and what has been learned across the demonstrators. Finally, section 7 contains a brief conclusion focusing on action points derived from the analysis.

1.3 The Demonstrator Evaluation Brief and Rationale

The National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Greater Manchester was commissioned by NHS England Greater Manchester in December 2013 to conduct an independent evaluation of the demonstrators. It was agreed that the evaluation would consist of two linked elements: a *process evaluation* and an *outcome evaluation*. The key questions the evaluation aims to answer in relation to the demonstrators are: What seems to work? What doesn't seem to work? And in both cases, why?

1.3.1 The Outcome Evaluation

The **outcome evaluation** aimed to establish the effectiveness of the interventions implemented within each demonstrator site, or, to be brief, 'what seems to work' (and what does not seem to work). There are several significant challenges to attempts to definitively *prove* whether an intervention has or has not achieved its desired outcome, discussed in more detail in section 1.5. However, the outcome evaluation aims to provide an *indication* as to whether an intervention has or has not achieved the intended effects.

The outcome evaluation is based on the analysis of a range of routinely collected data to monitor healthcare utilisation. The period of evaluation was December 2013 to December 2014. Two sets of data form the main basis of the outcome evaluation:

A&E attendances, emergency admissions and resource use

Impact is assessed by examining changes in A&E attendance measured using healthcare resource group (HRG) tariffs. The original intention was to use bespoke extracts of Hospital Episode Statistics (HES) from the Data Linkage and Extract Service at the Health and Social Care Information Centre (HSCIC). In practice, the provision of HES data by HSCIC for 2013-14 was delayed significantly in late 2014, and the analysis was therefore conducted using Secondary Uses Service (SUS) data provided by the North West Commissioning Support Unit (CSU). Data were extracted to cover the period from 2010 q2 to 2014 q4 to facilitate analysis of the demonstrators both before and during the intervention

phase. Patient level data were analysed to aggregate to the appropriate levels (e.g. CCG, acute NHS Trust and/or practice level) and to link the analysis of the impact of the demonstrator interventions to the population of interest.

Patient reported access to and satisfaction with GP services

Data from the General Practice Patient Survey (GPPS) was analysed to assess improvements in patient-reported access to and satisfaction with GP services. Data provided by January 2015 relates to the period up to and including September 2014, which covers the full period of the funded demonstrators, and data were also acquired for three years preceding the demonstrators for effective trend analysis. The analysis focused upon key items in the GPPS considered relevant to issues of access and integration in affected GP practices. These were then compared against regional (Greater Manchester) averages.

Limitations

The SUS and GPPS data were not appropriate for providing a dedicated evaluation of those components of the demonstrators not focused on providing additional availability in general practice; this related to sub-components of the demonstrators in Central Manchester, Heywood and Middleton and the entirety of two demonstrators (Bolton and Stockport). Here, the evaluation instead relied where feasible upon activity and outcome data generated and supplied by the demonstrators themselves.

While the aim of the outcome evaluation is to establish ‘what works’, there are various reasons why this may not be possible. The substantial variation between demonstrators (in goals and methods), the difficulty of isolating the demonstrators geographically and the range of other health and social care initiatives all pose substantial challenges. This is discussed in more detail below in Section 1.5 which examines the strengths and limitations of the methods adopted. For this reason, it is unlikely that this evaluation will be able to definitively “prove” that an intervention has or hasn’t worked. However, data collected over the course of the evaluation helps to formulate an estimate of the extent to which an intervention may have contributed to observed outcomes.

1.3.2 The Process Evaluation

The **process evaluation** aimed to explore how the demonstrator interventions are defined, implemented and modified over time within each demonstrator, consistent with the key themes of access, integration and technology. Through this evaluation, the aim is not only to find out “what (appears to) work where, how and for whom, but more substantially to identify and celebrate the learning arising from the implementation of new interventions and reconfigured services”^{viii} (Long, 2006: 242)

Data for the process evaluation were generated through semi-structured, in-depth interviews with key personnel and other stakeholders in each of the demonstrators. This was supplemented by members of the evaluation team attending and observing relevant meetings and clinical forums, and participating in learning events. It was further informed by reviewing documents related to the demonstrator activities e.g. meeting agendas and minutes, proposals, plans and protocols. As the demonstrators are intended as pioneers, the evaluation seeks not only to ascertain their impact, but to establish effective ways to learn from them. There are three aspects to this learning process.

Firstly, the process evaluation seeks to ensure that knowledge and learning gathered over the course of the evaluation could be shared across and beyond the demonstrator sites in 'real-time'. In this way, the demonstrators can adapt and refine their interventions 'as they go' in order to maximise their potential impact. Action learning sets were held to disseminate these emergent findings, supplemented by the dissemination of interim reports provided by the CLAHRC Greater Manchester evaluation team. Secondly the process evaluation informs our understanding of the outcome analysis by illuminating *how* the demonstrators worked (and how and why they may have failed). Finally, the process evaluation is designed to generate knowledge that can be used in the future. Information gathered through the process evaluation is thus used to identify whether, and how, these interventions could be scaled up and applied across a larger area. The process analysis will therefore consider how far the piloted interventions are sustainable and scalable in the longer term.

1.4 The Final Report

This Final Report includes activity and outcome evaluation of all the services offered by each demonstrator for which activity data has been provided, plus an analysis of the full set of interviews (79, involving 91 participants). The main focus of the outcome evaluation is the possible impact of the demonstrators on A&E attendance, GP satisfaction, and Out of Hours and Walk in Centre activity, using independent and routinely-collected data to ensure reliability. As a consequence, it is primarily concerned with those aspects of the demonstrators which might be expected to impact on these factors i.e. the provision of additional availability appointments in primary care by the demonstrators in Bury, Central Manchester, Heywood and Middleton. The services offered in Stockport and Bolton, as well as the non-additional availability services offered in Central Manchester, Bury, Heywood and Middleton, were smaller in scope and more heterogeneous in their aims and so have been evaluated (as far as was feasible) using data supplied by the demonstrator sites themselves. The process evaluation, as well as the discussion and recommendations are relevant to all six sites and are not restricted to particular types of activity.

The aim of this Final Report is not to determine decisions, but rather to provide findings to help inform decisions. It does not seek to justify, defend or challenge the PCC Strategy for Greater Manchester,

but rather to provide an objective and independent evaluation of the primary care demonstrators funded by NHS England Greater Manchester.

1.5 Strengths and Limitations of the Evaluation

This section highlights:

- The strengths and limitations of the outcome evaluation
- The contribution of the process evaluation and the mixed-methods approach

1.5.1 Strengths and limitations of the outcome evaluation

Our outcome evaluation was based on the hypothesis that the demonstrator interventions were intended to enable a shift of healthcare activity away from secondary care services into primary care, by improving access to and delivery of care in the primary care setting.

The conventional 'gold standard' for the evaluation of an effectiveness of an intervention is a randomised controlled trial. However, such methods are often poorly suited to rapid evaluation of policy, for both practical and scientific reasons, which means that alternatives are required.^{ix, x}

The outcome evaluation presented here represents a quasi-experimental study^{xi}. Comparator sites outside the immediate environs of the demonstrators were used to allow an assessment of the impact of the demonstrators while controlling for other factors that might account for change (such as wider policy activity or temporal trends). The evaluation used routinely collected data to assess outcomes in both demonstrator and non-demonstrator sites.

The design has a number of advantages.

- The design was feasible in the context of limited time and resources. Random allocation of demonstrators was not feasible. Use of secondary data and a quasi-experiment has few of the regulatory and ethical requirements of conventional trials, and was well suited to the fast moving nature of the demonstrators.
- The analysis was able to draw on large data samples (both in terms of practices and patients) and historical data (to allow accurate modelling of trends in outcomes prior to introduction of the demonstrators). Sophisticated multivariate techniques could be applied, controlling for wider trends in the outcomes, and allowing comparisons of performance in the demonstrators with a range of non-demonstrator practices.
- The two core data sets (GPPS and SUS) were robust. Their collection is based on known methods which are reliable and valid.^{xii} Data collection is routine, and there are no differences in methods or timing of collection between demonstrator and non-demonstrator sites that might introduce bias. Both outcomes were highly relevant to the broad aims of the demonstrators.

- The type of design adopted here has been used successfully in a range of similar evaluations in health care settings.^{xiii, xiv}

Nevertheless, there are significant limitations in the outcome evaluation.

- Although it is possible to provide some statistical control for analyses of the performance of demonstrator and non-demonstrator sites, it is not possible to be sure that other 'unmeasured' confounders were not present which may have impacted on the analysis of the relative performance of demonstrator sites compared to others.^{xv, xvi}
- Demonstrator practices were not randomly allocated funding, but received additional funding through application (self-selection). This may mean that these practices are systematically different from other practices in Greater Manchester and the rest of England. This could occur if the GPs in demonstrator practices were especially motivated or had different equipment available to deal with attendances that would otherwise have been handled in A&E pre-intervention. In that case, the results of the analyses of outcomes are not generalisable beyond the sample of practices because any effect may be caused by the special nature of the practices that applied for inclusion in the demonstrator programme.
- The length of 'follow up' in the outcome evaluation (i.e. the time between the introduction of the demonstrators and the measurement of their effects) was necessarily limited. Reliable assessment of the impact of change on patient experience and (especially) use of secondary care may require a longer term assessment. This is especially true if there is a lag between changes in patient experience of access, and longer term impacts on use of emergency and other forms of care.
- GPPS is a valid and reliable measure of patient experience^{xvii}, but it does measure experience of access, rather than providing a measure of actual accessibility of services. GPPS response rates are also patterned by socio-demographic variables. GPPS may be a less accurate measure for assessing the impact of demonstrators among some groups of patients, such as younger patients, males and those in more deprived areas.^{xviii}
- Each demonstrator is confronted by and seeks to respond to a distinct set of local challenges. The outcome evaluation attempts to mitigate against this variety by choosing a basic set of outcome measures which are broadly relevant to most demonstrators. However, adopting a standard set of outcomes across demonstrators means that the particular benefits of individual demonstrators may not be accurately captured.
- In estimating the quantitative effects of the demonstrators, the comparison between all demonstrator sites and non-demonstrator site includes the largest sample sizes and provides the most precise estimates of impact. However, there are substantial differences between sites in terms of the interventions introduced and the process of their implementation, as well as differing geographical and socio-demographic contexts. Analyses have been presented comparing individual demonstrator sites with non-demonstrator sites to allow some exploration

of the impact within particular sites. However, the sample sizes available for these analyses is necessarily reduced, limiting the precision of the estimates. Where the findings are not robust to choice of comparator group, extra caution should be taken in any judgement over which comparator is most appropriate. Claims made about the impact of demonstrator in each site, and especially differences in impact *between* individual demonstrator sites, must be treated with caution.

- Isolating the effect of demonstrators in geographical terms also poses a particular challenge. The ‘footprint’ of the demonstrator interventions, typically defined around general practice boundaries, frequently did not neatly overlap with the way in which secondary care, ambulance services, community and social services were bounded. This makes it challenging to link demonstrators with changing activity in a local A&E department which may serve many other communities.
- Analyses of pre-intervention trends suggest significant differences in pre-intervention activity trends between the treatment and control group. This suggests that the full set of non-demonstrator practices in Greater Manchester may not be an ideal control group. The use of trend adjusted activity addresses this issue to some extent, but the choice of control group can be further developed.
- The dependent variables have many observations with few or zero observations. This poses a challenges for the linear models adopted, but this has been addressed through transformations of the dependent variables that are suited for this type of variable and commonly used in the literature.
- The demonstrators themselves take place in a rapidly-changing environment, surrounded by other health and social care initiatives which may complement, support or clash with the actions of the demonstrators themselves. The comparison of demonstrator and non-demonstrator sites in Greater Manchester means that the effects of national and regional interventions (such as the large scale ‘Heathier Together’ Initiative in Greater Manchester) will be controlled, and the analysis presented is a valid estimate of the *additional* effect of demonstrator over and above any effects of wider interventions and trends. However, the design cannot estimate the effect of the demonstrator in other sites. For example, it is possible that the added value of demonstrator is reduced in the context of ‘Heathier Together’.
- Although the outcomes (GPPS and PbR) are relevant to the broad aims of the demonstrator, they do not provide an exhaustive assessment of possible benefits. For example, they provide little information about critical impacts on patient health and well-being, or of additional benefits from improved ways of working, such as enhanced staff satisfaction.
- In addition, the evaluation was not set up to provide a cost effectiveness analysis of the demonstrator interventions. Cost-effectiveness analysis requires both detailed information on the costs of an intervention and the outcomes. Assessment of a specific measure of health (and

transformation of this measure into a Quality Adjusted Life Year or QALY) was not feasible in the timeframe of the evaluation. Alternatively, cost-minimisation analysis could be conducted but this has the requirement that outcomes do not vary between the demonstrator and non-demonstrator sites. Given that quality of care may differ between primary and secondary care, this requirement may not be met.

1.5.2 Strengths and limitations of the process evaluation

As indicated in Section 1.2, the process evaluation examines the manner in which these interventions were defined and implemented, to complement the outcome evaluation. The process evaluation indicates how demonstrators differ significantly in terms of how they frame the problem to be addressed, what changes each demonstrator involves, how it is implemented and what specifically they aim to achieve through the demonstrator. There are a number of specific advantages of a process evaluation of this sort.

- The process evaluation, in focusing upon the operational procedures of specific interventions (within a defined geographic area in a relatively short timeframe) provides *context* to the evaluative process. Context relates to need to understand the impact of the 'time', 'space', 'location' and 'local experience' of each demonstrator.
- Contextualisation of the demonstrators in the above manner identifies strategic and operational issues (whether problematic or facilitative) that are relevant to that particular project and its continued operation.
- Contextualisation also focuses upon specific working practices within demonstrators and across organisations involved in joint-working and/or multi-disciplinary initiatives. This process allows the evaluation to highlight ways in which the demonstrators resolve problematic and/or challenging obstacles to operational procedure.
- Process evaluation frequently demonstrates the value of the participation in the demonstrator for those directly involved in the delivery of services provided^{xix}. These benefits may arise from participation in training programmes and/or increased opportunities for learning/delivering services. In such circumstances, individuals and organisations may benefit from a workforce with increased skilled sets.
- The overall strength of process evaluation is that it provides meaningful and useful feedback regarding the design and delivery of locally-based intervention. In addition, process evaluation serves to enhance and augment the *quality* of the service delivered in providing a critical understanding of unique, context-bound, strengths and weaknesses. In short, a successful process evaluation will 'provide information that is actionable'^{xx} as findings will identify those elements of an intervention that have been done well (and not so well).

Nevertheless, these strengths underlying process evaluation may also be regarded as limitations. Thus;

- The *specificity* of contextualised findings from process evaluation may raise criticisms regarding a lack of *generalizability*. Attention to context may mean that findings are context-specific and limit the potential of the process evaluation to generate definitive and universal statements regarding efficacy, impact and effectiveness.
- Again, context implies that each demonstrator is informed by local understandings of ‘the problem to be addressed’, and differing ‘programme logics’ regarding why a specific intervention (e.g. additional availability) should lead to the intended outcome. Thus, what the process evaluation may reveal are differences of opinion within and between demonstrators regarding ‘what should be done’. These are important to identify, but again this variation undermines the prospect of generalisable findings.
- A further limitation of process evaluation here is that it is located within a research environment that is constantly changing and subject to instability. In particular, the fact that the process evaluation focuses upon ‘demonstrator’ projects has various implications. These are time-limited experiments, with fixed-term funding, and this frequently reduces the ability and willingness of those involved to make fundamental or irrevocable commitments to change their organisational arrangements, practices or culture. For this reason, as with any ‘experiment’, one might question how far the demonstrator conditions reflect ‘normal practice’ in these organisations.

Hence the process evaluation does not aim to provide conclusive evidence to demonstrate that a particular model of practice ‘works’. However, it can provide a series of indicators for informing the design, direction and delivery of working practice, and in an ‘actionable’ format. For example, the various enablers (see Section 5.2) summarise a variety of contextualised, geographically-situated factors that were shared and experienced by six different projects located in different localities within the same region. As such, the (*micro-level*) findings obtained from a series of six rapid appraisals (conducted simultaneously) provide meaningful and directional results relating to the structural organisation (at a *meso-level*) of health service delivery. In addition, these findings provide an indication of the action required (*at micro and meso levels*) to sustain such projects in the future (for example, relating to IT, workforce, federations etc).

Furthermore, the contribution of mixed-methods research should be emphasised. The qualitative (process) research component of this study provides a rich examination of the six demonstrators and prioritises the views, experiences and testimonies of respondents. As such, this component typifies wider qualitative work of this nature (in health/social research) with its focus upon individuals attached to specific projects; involving research that is situated within geographically-bound settings throughout a relatively short period of time.

The outcome evaluation is informed by the analysis of quantitative data made available or requested from specific organisations.

The convergence of datasets from the process and outcome evaluations enables the researchers to confirm and/or complement the findings from each particular method. Often termed 'triangulation', this process enables the evaluation team to determine what respondents think and say has been happening and what the evidence indicates has actually been happening.

2 Case descriptions

This section presents some context for the primary care demonstrators, as well as detailed case descriptions of each of the demonstrators, addressing the total funding received, the services they aimed to provide or improve, the patient population covered, the stakeholders involved in the demonstrator, staff employed in delivering the service, the context in which the demonstrator was implemented, how the problem was conceptualised by the demonstrator leads, the original aims and components, a description of the service provided and a brief summary of the IT involved in the demonstrators.

Table 1 below shows the total number(s) of patients registered at GP practices within each demonstrator CCG area, the percentage of registered patients who are male, the percentage in each age group and the index for multiple deprivation (IMD) score^{xxi}. The IMD represents a combination of indices of deprivation used in England, which cover health, income, employment, crime, education, access to services and living environment. An area has a higher deprivation score than another one if the proportion of people living there classed as deprived is higher. The population totals were drawn from data published for April 2014 on the Health and Social Care Information Centre website and percentages calculated. The IMD scores are from the National General Practice Profiles IMD scores for 2012. Table 1 shows that Central Manchester has the youngest population and the highest deprivation score. All areas except Stockport have a greater percentage of people aged 0-24 than the England mean. Central Manchester and Heywood, Middleton and Rochdale CCG areas fall within the IMD fifth quintile, 'very deprived' (score of 34.18 or higher), whilst Stockport has the lowest overall deprivation score.

TABLE 1: DEMONSTRATOR AREA DEMOGRAPHIC INFORMATION

CCG area	Registered population (n) ^{xxii}	Male (%)	Aged 0-24 (%)	Age 25-64 (%)	Age 65-84 (%)	Age 85+ (%)	IMD score
Bolton	297,991	50.4	31.6	52.6	14.0	1.8	31.2
Bury	196,961	49.7	30.3	52.8	14.9	2.0	22.8
Central Manchester	218,547	52.8	36.9	55.3	6.9	0.9	38.9
Heywood, Middleton & Rochdale	224,372	50.2	32.0	52.9	13.3	1.8	35.0
Stockport	301,866	49.4	28.3	53.3	16.0	2.4	19.4
England	56,442,722	49.8	29.8	53.2	14.7	2.2	21.5

Table 2, below, provides a full list of the intended components of each of the six demonstrators, including those activities that had been discontinued or dropped, had not become fully operational or remained in the planning phase at the point of final data collection. Below, each of the demonstrators are defined in greater detail, including the IT system in use. In order to understand the IT and IG issues that have arisen for the demonstrators, it is necessary to understand a little about the history of the development of GP computer systems.

In order to understand the IT and IG issues that have arisen for the demonstrators, it is necessary to understand a little about the history of the development of GP computer systems. General practices in the United Kingdom have been using computer systems extensively since the late 1980s/early 1990s, well before electronic records were introduced into hospitals. Early systems were funded entirely by the practices themselves, buying systems from commercial suppliers and co-operating in their development over time. From the late 1990s, partial subsidies were available to fund system upgrades, with full funding provided from 2003, when a new GP contract was instituted which linked a proportion of practice income to achievement of clinical indicators. This required accurate recording of data, and precipitated a further development in the capabilities of computer systems.

There are currently 15 GP computer systems available, and practices have a free choice of system to use. Approximately 99% of practices use one of 7 systems provided by 5 suppliers^{xxiii}. The three most common systems in use are Egton Medical Information Systems (EMIS), Vision and The Phoenix Partnership (TPP) SystemOne. However, each of these comes in a number of versions (e.g. EMIS web, EMIS PCS), so that even if several practices are using one system, they may be working with different versions. In addition, Out of Hours services tend to use different systems, the most common of which is called Adastra. Attempts have been made in some areas to harmonise system use across geographical areas, but, as independent contractors, GPs retain the right to choose or continue to use whichever system they prefer. Historically the systems have had no interoperability; this reflected the lack of incentives for commercial suppliers to enable easy transfer between systems. GP electronic records are not usually accessible to Out of Hours' providers or hospitals, but many systems do now allow a limited interface with hospital systems, largely focused upon allowing GPs access to pathology and radiology results and, increasingly, electronic transfer of letters. Hospitals are generally unable to extract any data from GP records, although some health economies are beginning to work towards some sort of 'integrated' record which shares some types of data between providers.

TABLE 2: SUMMARY OF DEMONSTRATOR COMPONENTS

Site	Components
Bolton	Proactive case management for care home residents Video consultations (<i>Discontinued</i>)
Bury	Additional availability appointments Community care plans (<i>Remained in planning phase</i>) Enhanced carer training and support (<i>Remained in planning phase</i>) Specialist outreach clinics (<i>Remained in planning phase</i>) Single care record (<i>Remained in planning phase</i>) Community engagement via champions group (<i>Remained in planning phase</i>)
Central Manchester	Additional availability appointments Responsiveness appointments Extension of specialist advice lines Homelessness service Extension of dementia enhanced service Extension of long term conditions enhanced services Living with pain service Community pharmacy respiratory project GP in-reach (<i>Discontinued</i>)
Heywood	Additional availability appointments GP-led care planning Multi-skilled care worker-led care planning Hospital navigator service
Middleton	Additional availability appointments Mental health crisis clinics Community pharmacy consultations (<i>Not fully operational</i>) Care tracker (<i>Not fully operational</i>) Web consultations (<i>Not fully operational</i>)
Stockport	Rapid response step-up service Complex care service Enhanced end of life service Carer needs assessment service Mental health liaison in-reach service, care homes End of life training, care homes and locality Health and wellbeing service (<i>Not fully operational</i>) Heart failure telehealth service (<i>Dropped during planning phase</i>)

2.1 Bolton – ‘Care home to own home’

Funding: £243,000

Population: NHS Bolton CCG area. Adult residents (most aged 65yrs plus) of five care homes who were registered with any of the three general practices participating in the demonstrator.

Original aims and objectives:

- To improve access to care, specifically reducing GP and ambulance call-outs, hospital attendances and admissions, by risk-stratifying care home residents and providing enhanced care planning, including end of life and crisis planning.
- To improve access to clinical care outside hospital, by using risk stratification and remote video consultations between the case manager, care home staff and residents.
- To facilitate integrated records and allow direct patient access to these, by care homes having access to patient records via the web or a configured laptop.

Problem conceptualised as: High ambulance and GP callouts to care homes; too many non-elective admissions to hospital; Care home residents having long lengths of stay in hospital; lack of access to clinical (GP) records from care homes.

Local context: A general need to improve standards of care for care home residents in Bolton had been identified; some work had already been undertaken to address this. A care homes review was ongoing and a previous demonstrator (in Greater Lever, a different locality of Bolton), which used a risk stratification model and multidisciplinary team working, had achieved a 62% reduction in ambulance call-outs. The CCG aimed to move to a model where care home residents were managed on ‘virtual wards’, with case managers proactively managing and reviewing patients (daily or less frequently depending on need), and specialist input being provided within the care home, rather than acute, setting. A pharmacist would also review all new care home residents. The demonstrator was designed to pilot some of these ways of working and identify lessons that could inform future proactive management and provision of care for care home residents across the CCG.

The Bolton Joint Transformation Board led on locality integration and NHS Bolton CCG was a member of the Greater Manchester Integrated Care Reference Group.

Demonstrator components: Proactive case management for care home residents; Video consultations (*Discontinued*).

Setting: Care homes.

Description of the service provided: Care home residents were risk stratified, using the model previously employed in Greater Lever. For each, an Advanced Nurse Practitioner (ANP), who worked during the demonstrator as a case manager, carried out an initial, face-to-face holistic assessment and put a care plan in place, which was recorded on the GP system using a template. After the initial

assessment, it was intended that the ANP would manage patients using a video conferencing facility, 'ringing in' to run through the residents on her caseload with care home staff, hearing about any changes and performing consultations with patients, where necessary.

In practice, the video conferencing technology was not used for both technical and organisational reasons. Rather, the care home staff contacted the ANP by telephone, to discuss residents or to ask her to visit the home. Notably, when at a home, the ANP was often asked, by care home staff, to respond to acute problems for residents that were not on her caseload.

Key stakeholders: The lead organisation was NHS Bolton CCG. The project leads were the Assistant Director for Primary Care and Health Improvement, and a Care Homes lead.

The service was provided by an advanced nurse practitioner (ANP) who worked during the demonstrator as a case manager (seconded from Pennine Acute NHS Foundation Trust), with input from care home carers and managers, GPs, practice managers and other administrative staff, a CCG pharmacist and members of the local Mental Health Trust's dementia team. CCG and CSU project managers and the integrated care lead (from the local Foundation Trust) also contributed to the project.

Staff providing: 1 ANP (case manager), working 8am to 5pm Monday to Friday, in collaboration with care home staff and GPs.

Information technology: The general practices involved used EMIS, Vision and TPP. At the start of the demonstrator, the ANP had access to general practice records via a computer in her office at a local health centre, and therefore had to wait to get back to the office to enter information onto the patients' records. Partway through the demonstrator, she acquired direct read-write access to the records via a laptop. The way the care plans were required to be entered onto the templates differed significantly between the participating GP practices.

2.2 Bury – 'A Healthier Radcliffe'

Funding: £765,000

Population: Registered patients of five GP practices in the township of Radcliffe (patient population c.30,000), and a sixth practice approximately three miles away (patient population c.3,000).

Original aims and objectives:

- To improve access to care, specifically providing quicker and more convenient access to routine primary care, reducing attendances at A&E.
- To ensure people take responsibility for their own health and wellbeing, through self-care, ownership and accountability for lifestyles, by providing information, advice and support to help them do this.

Problem conceptualised as: Difficulty for patients in obtaining timely and convenient access to general practice; too many emergency hospital admissions.

Local context: Radcliffe is the second most deprived of the six townships within Bury, with low life expectancy and the highest rates of childhood obesity, teenage conception and smoking in Bury. The demonstrator was part of a wider initiative to develop 'A Healthier Radcliffe' which aimed to develop integrated services to provide support and improve health and wellbeing.

Demonstrator components: Additional availability appointments; Community care plans (*Remained in planning phase*); Enhanced carer training and support (*Remained in planning phase*); Specialist outreach clinics (*Remained in planning phase*); Single care record (*Remained in planning phase*); Community engagement via champions group (*Remained in planning phase*).

Setting: General practice.

Description of the service provided: A Healthier Radcliffe was a programme of work designed to be implemented in two stages: (i) additional availability in general practice with urgent and routine appointments (ii) closer integration of community services wrapped around extended primary care. Only stage one had become fully operational at the point of final data collection, with the demonstrator components intended to be completed as part of stage two remaining in the planning phase.

The additional availability appointments were each 10 minutes in length. Three of the practices involved were housed within a purpose-built primary care centre; two of these practices and the practice located outside Radcliffe were owned by the same GP partner. The appointment booking system was hosted at one practice and the other five logged into this to book appointments. The demonstrator was staffed mainly by staff from within the six practices. Most appointments were pre-booked, with six kept as emergency appointments for allocation after 6pm. From 6pm the practice phone lines diverted to A Healthier Radcliffe.

Key stakeholders: The lead organisation was Bury GP federation, with specific 'A Healthier Radcliffe' steering and delivery groups established for the purpose of the demonstrator. The Director acted as the project lead, with support from an independent management consultant. The additional availability service was provided mostly by GPs from the six practices, with input from practice managers, other practice staff and the operations manager for the project.

Staff providing: Additional availability appointments were provided by two GPs, working 6.30pm to 8pm Monday to Friday and 8am to 6pm at weekends. The operations manager worked flexibly, to be able to cover evenings and weekends.

Information technology: All GP practices in Bury used Vision. The demonstrator used a Connecting for Health solution that allowed GPs providing the additional availability appointments to log into each practice's system using a smartcard, which provided read-write access. A data sharing agreement was established between the six practices.

2.3 Central Manchester - Delivering the new vision for Primary Care in Central Manchester: making a difference for our whole community

Funding: £979,000^{xxiv}

Population: Registered patients of GPs in NHS Central Manchester CCG area (patient population c.203,982); 31 of the 35 CCG practices participated in the provision of responsiveness appointments; 33 of the 35 CCG practices participated in the provision of additional availability appointments; 1 practice provided the homelessness service.

Original aims and objectives:

- To improve access to care, specifically reducing A&E attendances, by providing urgent same day (responsiveness) and additional availability appointments in general practice.
- To improve specialist primary care services and reduce secondary care planned activity, by shifting specialist service provision from secondary to primary care.

Problem conceptualised as: Some patients not being able to access timely GP appointments; patients with long term conditions not having timely access to a healthcare professional; insufficient healthcare provision for homeless people.

Local context: The demonstrator was designed to align with the overall CCG primary care strategy, the local integrated care plan for Manchester and Healthier Together (a health and care improvement plan for Greater Manchester). The CCG was working to develop new models of primary care and the demonstrator was designed to accelerate this work. A GP federation had already been established, Primacy Care Manchester (PCM).

Demonstrator components: Additional availability appointments; Responsiveness appointments; Extension of specialist advice lines; Homelessness service; Extension of dementia enhanced service; Extension of long term conditions enhanced services; Living with pain service; Community pharmacy respiratory project; GP in-reach (*Discontinued*).

Setting: General practice; community pharmacy.

Description of the service provided: Additional availability appointments were provided at four 'host' practices. The responsiveness appointments were covered within regular practice hours. The additional availability appointments were provided by 1 GP at each site, supported by two reception staff, providing 12x10 minute appointments between 6pm and 8pm Monday to Friday, and 9am to 11am at weekends. The participating practices across the CCG area and A&E at Manchester Royal Infirmary booked appointments at the host practice, which were available on a quota basis, until 1pm and then made available on a first come first served basis. Practices logged into the host practice's system. Some changes to the original timings and booking arrangements were made. The weekday appointments were originally offered entirely on a quota basis and the weekend appointments continued until 12pm. It appeared some GPs ended up seeing the patient again in normal surgery

hours after the additional availability appointment, because they were unsure about what had happened at the appointment.

Practices fitted the responsiveness appointments within the working hours of the practice. For example, one practice allocated four telephone triage slots and four appointments to the on-call doctor and two appointments each to all other doctors (the number of doctors in the practice varied). Reasons for non-participation of other practices included a lack of capacity in the practice for responsiveness, concerns around IG for one practice and proximity, and being situated on the CCG geographical border.

The 'specialist advice lines' were a facility for GPs to get advice from hospital consultants. They operated through a dedicated email address for GPs to use. The service was pre-existing and the additional specialities were added as part of the demonstrator.

A homelessness service, provided under a Locally Enhanced Service arrangement, ran at one practice with a large local homeless population (often transient). A health questionnaire for patients was completed, to ascertain health needs and then the patient was signposted to various services (clinics for dressings, immunisations, substance misuse services), several of which operated from the same premises as the practice.

Key stakeholders: The provider organisation for the additional availability appointments was the local GP federation, Primary Care Manchester (PCM). The additional availability appointments were provided at four 'host' practices, with patients attending the host site that their usual practice was aligned to (which in some cases was the host practice itself). They were staffed by receptionists from the host practices, working extra hours, and GPs from local practices plus some locums. The locums all worked regularly within the area and were contacted directly by PCM and offered shifts. A&E could refer patients into the additional availability appointments. The responsiveness appointments were provided at the patient's practice. Local voluntary organisations could refer patients into the homelessness service.

Staff providing: GPs, practice managers, practice receptionists and other administrative staff, community pharmacy staff, hospital consultants.

Information technology: The general practices involved used EMIS, and a data sharing agreement was in place for all practices providing the additional availability appointments. Patient gave consent at the point of access, for the GP to access their notes. The GP could see the record but not write to it, so information, such as recommendations for referrals, arising from these appointments were faxed to the patient's own practice. For the responsiveness appointments, a macro was put onto each practice system which was used to log the 'outcome' of the appointment, for example, whether the patient was given a face-to-face appointment or telephone triage.

2.4 Heywood – ‘Heywood health hub’ a pilot in integrated care’

Funding: £590,000

Population: Registered patients of the six GP practices in the Heywood locality of NHS Heywood, Middleton and Rochdale CCG (patient population c.30,000).

Original aims and objectives:

- To develop integrated care in line with the CCG strategy.
- To improve access to care, specifically access to general practice, reduced A&E attendances and hospital admissions.
- To improve care of the frail elderly through care planning.
- To develop the IT infrastructure, specifically to allow hub clinicians to access patients’ records, allow practices and patients to book appointments at the hub (a GP practice), and let practices know when their patients are in hospital.

Problem conceptualised as: Too much demand on general practice; ‘inappropriate’ use of A&E for problems that could be handled in general practice; A&E used by frail elderly that resulted in avoidable admissions; increase in A&E attendances from 1pm onwards (when practices are open).

Local context: A general need to improve access to care had been identified. The bid stated that patients’ behaviour was driven by their frustration with general practice, the convenience of A&E or using it out of habit, anxiety and related conditions. Claim that GPs had lost their vested interest in modifying patients’ help-seeking behaviour, partly because they no longer provided Out of Hours care.

Four of the six practices had a history of working together.

Demonstrator components: Additional availability appointments; GP-led care planning; Multi-skilled care worker-led care planning; Hospital navigator service.

Setting: General practice, A&E, patients’ homes.

Description of the service provided: A hub was set up to provide additional GP and nurse appointments, with three nurse clinics and three GP sessions each day. Practices ran the appointment bookings until 6pm, after which time patients could phone and book directly. The acute trust provided a late-night path lab collection. The GP appointments were typically booked, but the nursing ones were less popular. Issues arose as practices which had been allocated appointments were unwilling to give up their allocated slots to other practices which had filled theirs.

GPs produced care plans for their frailest elderly patients. The multi-skilled care worker visited patients aged 85 and over at home to identify and assess their needs and produce a care plan.

The navigator kept track of presentations to one local A&E department, focussing particularly on those aged 65 and over, so tended to see patients with confusion, falls, and long term conditions, particularly multiple sclerosis and chronic obstructive pulmonary disease. She assessed each patient (each patient

was also assessed by the medical team and had tests done as appropriate). Where patients were medically fit and did not need to be admitted, the navigator took responsibility for ensuring that the relevant support was in place, either in the form of a placement, if they were not safe to return home, or home support services (e.g. from team providing crisis response).

Key stakeholders: Additional availability appointments were provided to registered patients, at one practice, by GPs, supported by receptionists, all supplied by the local Out of Hours provider. The navigator service was based at one local General Hospital. The multi-skilled care worker was employed by Pennine Care NHS Foundation Trust.

Staff providing: GPs provided additional appointments 4pm to 9pm on weekdays and 10am to 8pm at weekends. The navigator service was provided by one occupational therapist, working 9.30am to 5.30 pm, Monday to Friday.

Information technology: Four practices used EMIS, two used Vision. GPs working at the hub accessed the summary care record through Adastra.

2.5 Middleton

Funding: £810,000

Population: Registered patients at the eight GP practices in Middleton, a locality of NHS Heywood, Middleton and Rochdale CCG (patient population c.47,900).

Original aims and objectives:

- To improve access to care, specifically providing quicker and more convenient access to routine primary care, reducing attendances at A&E and increasing access to mental health services, by extending access to routine primary care and providing additional mental health services in the community.
- To make better use of local resources and support the local population to do this, specifically to reduce attendances at A&E, reduce hospital admissions and facilitate quicker discharge from hospital, by providing signposting and education to local services in the community, improving patient pathways and supporting collaboration between professionals in different agencies.

Problem conceptualised as: Too much demand on general practice; lack of an accessible mental health service in Middleton.

Local context: Pennine Care NHS Foundation Trust ran a 'transfer of care' team which supported patients as they were discharged from hospital. GPs were seeing high numbers of patients with moderate to severe depression, who were falling through gaps in services. For example, between Increasing Access to Psychological Therapy services and hospital admission, where patients attended A&E but were assessed and discharged without getting the care they need. The lead practice held

clinics at the local Sainsbury's pharmacy two nights a week and had a computer in the pharmacy consultation room.

Demonstrator components: Additional availability appointments; Mental health crisis clinics; Community pharmacy consultations (*Not fully operational*); Care tracker (*Not fully operational*); Web consultations (*Not fully operational*).

Setting: General practice.

Description of the service provided: The general practice additional availability appointments ran from the lead practice. Bury and Rochdale Doctors on Call (BARDOC), the local Out of Hours provider, provided the call handling service, receptionists and GPs to staff the service.

A purposely developed Care Diary was used by GPs, BARDOC and A&E staff to book patients into the additional availability appointments. Patients were triaged at A&E and, if the ailment could be managed in the community, they could be booked into a GP or nurse appointment by staff at A&E using the Care Diary.

The mental health crisis clinics were organised by a trained counsellor, who co-ordinated the service and provided appointments, plus other counsellors (and trainees) who also worked at another local general practice. There were three, one hour appointments available between 6.30pm and 9.30 pm, Monday to Friday.

The community pharmacy consultations were designed to allow the pharmacist to request a web consultation with the GP, at the point that a patient was in the pharmacy consultation room, to discuss a minor ailment. Only a very small number of these consultations took place.

The Care Tracker was designed to be activated when a patient was admitted into A&E. The system would provide GPs with information about the stage that their patient was at, allowing for early supported discharge to be arranged, if appropriate. This system did not become fully operational within the timescales associated with the demonstrator.

For the web consultations, it was intended that the patient would ring the surgery and arrange a web appointment. The practice would then email a link to the patient which they would click on to access the consultation directly with the GP at the time arranged. This was set up at the lead practice initially and was intended to be spread to all practices, but was not in full operation by the end of the demonstrator.

Key stakeholders: The project lead was a GP. The additional availability appointments were provided to registered patients, at the lead practice, by GPs, supported by receptionists, all supplied by Bury and Rochdale Doctors on Call (BARDOC), the local Out of Hours provider. The mental health appointments were held at the same premises, staffed by trained counsellors and counselling students. The demonstrator appointed a dedicated project manager partway through. A community pharmacist was trained to advise patients and consult with the lead GP via webcam. CSU and EMIS also contributed to the project. A&E staff were involved in relation to Care Tracker.

Staff providing: GPs working 6.30pm to 9.30 pm Monday to Friday, 6pm to 9pm Saturday and Sunday, and counselling staff working 6.30pm to 9.30 pm Monday to Friday.

Information technology: GP practices used EMIS and Vision. All practices have since been migrated to EMIS, but this was not completed during the demonstrator. The web consultations were run via the WebEx facility, provided by Cisco.

2.6 Stockport

Funding: £710,000

Population: Registered patients of GPs in Marple & Werneth locality (patient population c.41,000) and Stepping Hill & Victoria locality (enhanced end of life service only).

Original aims and objectives:

- To proactively identify and manage people with complex needs via a core integrated team that can draw on specialist support when necessary.
- To support people with heart failure by extending telehealth services.
- Support for people to be maintained in their own home or care home where this is their preferred place prior to and including death.
- A reduction in unplanned, avoidable non-elective activity prior to and including death.

Problem conceptualised as: Too many non-elective hospital admissions; too many patients dying in hospital; district nurses were under pressure and did not have enough time to provide the right end of life care and support to patients and carers.

Local context: The demonstrator was part of a programme of work to shift the focus of care in Stockport towards maintaining patients and carers in a community setting. The CCG and Local Authority had a history of developing integrated care initiatives together, in particular 'Stockport One'. Implementation of Stockport One began in Marple and Werneth, to develop integrated care for adults with long term and complex needs, using an anticipatory care model and all GPs in the locality had signed up. NHS Stockport CCG had received funding from the Department of Health for GPs to develop care plans for patients in the highest risk category.

In Stockport there were 70% of people on an end of life pathway dying in hospital and they looked at how they could improve services so that people could die in their preferred place of care which is at home in most cases. It was identified that by providing both social and health care jointly this would support people more effectively in the community. Stockport CCG worked with 2 providers to design and implement the service. These providers were District Nursing within Stockport NHS Foundation Trust and Assistant Practitioners from the REaCH service at Stockport Metropolitan Borough Council who worked together to jointly deliver the Enhanced Support EoL service.

A health and wellbeing service operated in one locality, which involved GP practice staff sending health and social needs assessment questionnaires to patients around the time of their 65th birthday.

Type of service: Rapid response step-up service; Complex care service; Enhanced end of life service; Carer needs assessment service; Mental health liaison, care homes; End of life training, care homes and locality; Health and wellbeing service (*Not fully operational*); Heart failure telehealth service (*Dropped during planning phase*).

Setting: General practice, patients' homes (including care homes).

Description of the service provided: The demonstrator was part of the restructuring across health and social care, through the development of an 'integrated hub' in each CCG locality. The demonstrator took place in the Marple & Werneth locality, where the first hub had been established. The hub premises accommodated social workers and third sector staff. The aim was for district nurses to be co-located here but this was not possible within the timeframes associated with the demonstrator.

The rapid response step-up service was provided to people aged 18 and over. GPs referred into the service via a dedicated number at a contact centre when they felt a patient did not need to go to hospital, but needed support putting rapidly in place. Once the GP had made the referral, the patient received a response within two hours from a team comprising a district nurse and a social worker. The patient could be maintained in their own home or go into a step-up bed. This service ran from 9am to 5pm and the intermediate care service provided an Out of Hours service.

For the complex care service, the population was risk stratified using the People at Risk of Readmission tool. Multidisciplinary teams (MDTs), involving a GP and a practice nurse, worked to agree an integrated pathway and model of care for individual patients. The work undertaken followed the same basis as the GP care plans which had already been developed, but allowed other healthcare professionals to contribute to these. The task of coordinating the care plan was undertaken by various professionals (GPs, district nurses, social workers) and also voluntary sector workers. The multidisciplinary group (MDG) was a wider network of professionals which operated at a more strategic level, looking across the locality and identifying, for example, high rates of chronic obstructive pulmonary disease and considering what action should be taken, rather than necessarily focussing only on patients within the high risk stratification.

The end of life care service was newly designed service that focussed on integrating health and social care. This is a jointly delivered service between district nursing (health) and assistant practitioners (social care) in the community. The service delivers end of life care to people in the last weeks and days of life undertaking joint assessments, care planning and visiting the person in their home to deliver interventions that meet the needs of the patient and their carers or family.

The health and wellbeing service was planned as an extension of the existing service, into a different area.

The end of life training consisted of delivering a module to care home staff based on the Six Steps programme and providing follow up telephone support. The dementia-focussed training consisted of several one-hour training sessions delivered to care home staff.

The mental health liaison in-reach service involved working with three care homes to provide advice and support, particularly care planning.

The heart failure service was originally intended to provide self-monitoring equipment for patients to use at home, to enable quicker titration for some patients and more reliable monitoring for patients with poor compliance.

Key stakeholders: The complex care and rapid response services took place in GP practices and patients' homes respectively. The complex care service was led by an MDT and an MDG which included GPs, district nurses, social workers, a CCG pharmacist and third sector employees. The rapid response service was provided by district nurses and social workers, responding to GP referrals. Community health services were provided and managed by the local Foundation Trust. The district nurses and end of life project facilitators were all employed by the Foundation Trust. The locality end of life training was provided through the CCG. The heart failure service initiative would have involved the CCG and the Foundation Trust. A hub was established and a hub co-ordinator was employed. The enhanced end of life service was provided jointly by district nurses within the local NHS Foundation Trust and assistant practitioners from the local authority reablement service. The health and wellbeing service was provided through social services, general practice and a third sector organisation. The carer assessment service was delivered through general practices. The mental health liaison service was provided through the Community Mental Health Trust.

Staff providing: The MDT and MDGs were comprised of GPs, district nurses, social workers, primary care pharmacist and third sector staff. The end of life service was provided by assistant practitioners from the REaCH service. The end of life training for care homes was provided by end of life facilitators. The health and wellbeing service was led by project managers, liaising with general practice staff. The carer assessments were carried out in general practice, with input from GPs and administrative staff. The heart failure service would have involved heart failure nurses and a GP, collaborating with consultants at the Foundation Trust. The mental health liaison in-reach service was provided by a community psychiatric nurse and a support worker.

Information technology: Stockport had shared patient information via the Stockport Health record which enabled GPs, secondary care and Out of Hours services to access each other's systems. An extension of the Stockport Health Record, to include health and social care data and integrated care plans, was planned to support the implementation of the Stockport One Integrated Care Team and was further developed within the demonstrator community demonstrator to ensure that the whole range of services within the hub had appropriate access to information. In practice, social workers were 'paperless' whilst district nurses used paper records. Voluntary sector organisations were found to lack the 'backroom' functions that the larger organisations had. In terms of specific systems operating locally, social care used CareFirst, district nurses used DominiC, the REaCH service used Staffplan, and domiciliary workers users used CM2000 (to log each visit).

3 Demonstrator Activity

The aim of this component of the evaluation was to establish the level of demonstrator service activity and uptake across the demonstrator sites. Although focused on the additional activity services which dominated most of the demonstrators, an assessment will also be made of those demonstrators and also those sub-components of demonstrators which were not primarily concerned with extending access through the provision of additional GP appointments.

3.1 Activity Data Collection Method

Quantitative data were requested from all sites by the research team. The type and form of these data varied according to the nature of the service, what data the site had recorded and how.

The types of data supplied to the research team and reported in this section are:

- The number of appointments provided and number of appointments used: the four sites providing additional availability in general practice
- The number of 'episodes of care' provided: Stockport rapid responsiveness, the navigator service at Fairfield hospital, the Middleton mental health crisis clinics
- The numbers of patients/carers/staff receiving the service (either referred into the service or registered with the practice): Bolton demonstrator, the 'complex care', 'enhanced end of life', 'carer health assessment' and 'locality staff end of life training' components at Stockport, the homelessness component of the Central Manchester demonstrator, Heywood care plans and multi-skilled care worker
- The number of care homes involved: care home staff training and mental health liaison, Stockport.

The activity data were generated and managed by each demonstrator site and therefore could not be independently verified by the evaluation team, but were analysed as supplied in their most complete iteration. The relevant contact was identified and contacted for each site (and for each component as necessary, where sites were running multiple services). The activity data from the start of the demonstrator, to 31st December 2014, were requested. Proformas designed to simplify and standardise the data collection process were developed through an iterative process (see Appendix 1: Activity Data Proforma); members of the research team met with demonstrator sites to discuss the forms and ensure that they were 'usable'. In practice, due to the variety of data collection and management processes in place across the sites, the data were supplied using a combination of the proformas, excel spreadsheets and other documents. The data were checked for completeness and queries were resolved through further discussion between the research team and the sites.

The supplied data were descriptively analysed in three sections using relevant tables and graphs, prepared using a combination of Microsoft Excel, and STATA (version 13) software:

1. Comparable activity data, consisting of the additional availability data for the four relevant sites (Bury, Central Manchester, Heywood and Middleton).
2. Daily breakdown of Central Manchester and Bury additional availability data
3. Site-specific activity data, summarising all activity for each of the six sites independently

Combined with the supplied data, the population served was retrieved for each additional availability site from the HSCIC^{xxv} for per population comparisons. A measure of utilisation was also calculated from the supplied data to best reflect the services actually used (%Utilisation = (appointments booked *minus* DNAs)/appointments available)).

3.2 Comparative analysis of additional availability

This section presents the data on provision and uptake of the additional availability appointments provided at four sites: Bury, Central Manchester, Heywood and Middleton. Table 3 provides more detail on the four additional availability demonstrators, to facilitate a clear comparison of the ‘models’ adopted in each of these demonstrators. The table describes each in terms of coverage, mode of access, hours of operation, staffing, supportive systems and processes and also related support services arranged.

TABLE 3: COMPARISON OF ADDITIONAL AVAILABILITY DEMONSTRATORS

	Coverage and how accessed	Hours of operation and staffing	Systems and processes	Support services
Bury	<p>Registered patients of GPs in one CCG sector (c.32,894).</p> <p>Urgent and routine appointments provided from one of the participating practices.</p> <p>Quota for allocation of appointments according to list size.</p> <p>Practice phone lines diverted to a dedicated admin team for AHR from 6pm.</p>	<p>6.30-8pm Monday-Friday, 8am-6pm Saturday and Sunday.</p> <p>2 GPs and receptionists. 18x10 appointments per day Monday-Friday, 120x10 minute appointments per day Saturday and Sunday.</p>	<p>Six practices, all on Vision with access to the full record, allowed through a data sharing agreement on a read-write basis.</p> <p>GPs used a smartcard to log into each practice system.</p> <p>Referrals not made directly from the additional availability service. A summary of the appointment was communicated back to</p>	<p>100 hour community pharmacy located on host site.</p>

			the regular practice with recommendation.	
Central Manchester	<p>Registered patients of GPs in entire CCG area (c.203,982).</p> <p>Urgent and routine appointments provided in four host practices, to patients registered at this practice and at other practices within the area covered.</p> <p>Quota for appointment allocation according to list size, used until 1pm then appointments are opened up to any practice.</p> <p>Patients contact own practice, if the practice does not have capacity for an appointment then one is booked at their host practice.</p>	<p>6-8pm Monday – Friday, 9-11am Saturday and Sunday.</p> <p>1 GP and two receptionists. 12x10 minute appointments per day, Monday-Sunday.</p> <p>Staffed by local GPs and locums but only local. Receptionists from host practices provided cover.</p>	<p>33 practices, running EMIS, either EMIS web or as streaming practices with access to the full record, allowed through a data sharing agreement, on a read-only basis.</p> <p>Referrals not made directly from the additional availability service. A summary of the appointment was communicated back to the regular practice with recommendation.</p>	<p>100 hour community pharmacies located near to host sites.</p> <p>Host practices requested blood tests directly from the laboratory which were sent to the patient's practice.</p>
Heywood	<p>Registered patients of GPs in one CCG locality (c.30,890)</p> <p>Urgent and routine appointments provided from one of the participating practices.</p> <p>Began demonstrator with appointment quotas but switched to first-come-first-served after six weeks.</p> <p>Patients booked by the practice calling BARDOC who then filled the allocated slots.</p>	<p>4-9pm Monday-Friday, 9.30am-9pm Saturday and 1.30pm-9pm Sunday.</p> <p>Demonstrator began with one GP and one nurse but switched to two GPs after six weeks. 28x15 minute appointments per day Monday-Friday, 51x15 minute appointments per day Saturday and 34x15 minute appointments per day Sunday.</p> <p>BARDOC supplied GPs and receptionists.</p>	<p>Six practices, four on EMIS two on Vision. Host practice accessed summary care record on Adastra on a read-only basis.</p> <p>Urgent referrals made directly from additional availability service, non-urgent communicated back to regular GP with recommendation.</p>	<p>Regular-hours pharmacy located near host site.</p> <p>Pennine acute provided an evening pathology collection.</p>

<p>Middleton</p>	<p>Registered patients of GPs in one CCG locality (c.51,680)</p> <p>Urgent and routine appointments provided from one of the participating practices.</p> <p>Appointments available to all on a first come first served basis.</p> <p>A web based diary allowed GP surgeries access to appointments between 8am-6-30pm, BARDOC had access to the same diary 24/7.</p>	<p>6.30-9.30pm Monday-Friday, 6-9pm Saturday and Sunday.</p> <p>One GP, 18x10 minute appointments per day Monday-Sunday</p> <p>BARDOC supplied GPs and receptionist.</p>	<p>Eight practices, six EMIS, two Vision. EMIS practices were able to share records on a read-only basis. Vision practices were not able to access records.</p> <p>Since Dec 2014 all eight practices in the demonstrator have been EMIS web allowing all to share records on a read-only basis.</p> <p>Referrals not made directly from the additional availability service. A summary of the appointment communicated back to the regular practice with recommendation.</p>	<p>Local 100 hour pharmacy located near host site.</p>
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3.2.1 Total activity

The total additional availability activity over the period 1st December 2013 to 31st December 2014 is summarised in Table 4 below. The total number of appointments available in Bury (12,892), Central Manchester (17,033), and Heywood (16,277) were substantially higher than the number offered in Middleton (5,236). The percentage of available appointments booked was highest in Bury (83.7%) Total 'did not attend' (DNAs) were similar across the board (except in Bury, where DNAs were not reported prior to April 2013, however still appeared to be lower when averaged across bookings in the time period available).

TABLE 4: ADDITIONAL AVAILABILITY TOTALS (1/12/2013-31/12/2014)

Site	Population served	Number of appointments available	Number of appointments booked	Available appointments booked %	DNAs (% of booked appointments)
Bury*	32,894	12,892	10,793	83.7%	427 (4.0%)**
Central MCR	203,982 [#]	17,033	10,492	61.6%	1433 (13.7%)
Heywood	30,890 [#]	16,277	9008	55.3%	930 (10.3%)
Middleton	51,680 [#]	5236	3226	61.6%	428 (13.3%)

* Additional telephone consultations and home visits not included in totals (reported in site-specific data in Appendix 4). Utilisation data unavailable for first half of October 2014

** Data only collected for period April-September

[#] Population served from GP practice list sizes of demonstrator practices^{xxvi}:

Broadly, when considering provision per head of population, the four sites fall into two categories based on the number of appointments supplied per population: (i) Bury and Heywood supplying on average 20-40 appointments per 1000 population, (ii) Central Manchester and Middleton supplying on average 5-10 appointments per 1000 population (see Figure 1).

This split is reflected in the number of booked appointments at each site (see Figure 2). However, since October 2014 there has been a decrease in appointments offered at Heywood, down to approximately 20 per 1,000 population.

Overall, there is a combined general trend of increased bookings (see Figure 3) and increased utilisation of additional availability services (see Figure 4) over the period of analysis. This perhaps reflects the expected embedding of the service over time, and the subsequent awareness and use by patients.

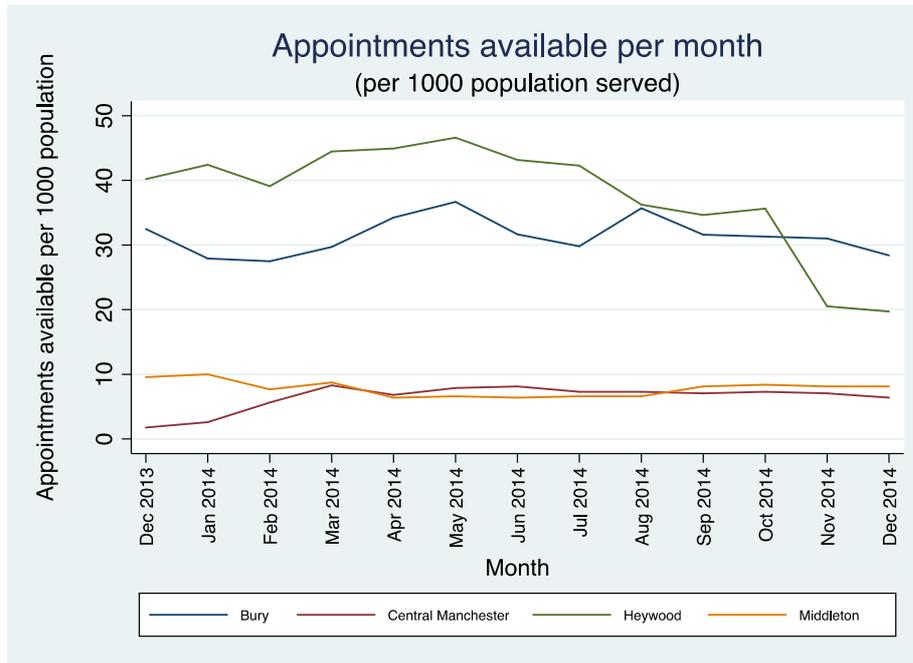


FIGURE 1: ADDITIONAL AVAILABILITY APPOINTMENTS PROVIDED PER 1000 POPULATION
 NB: October 2014 data excluded for Bury (due to missing data) to smooth graph



FIGURE 2: ADDITIONAL AVAILABILITY APPOINTMENTS BOOKED PER 1000 POPULATION
 NB: October 2014 data excluded for Bury (due to missing data) to smooth graph

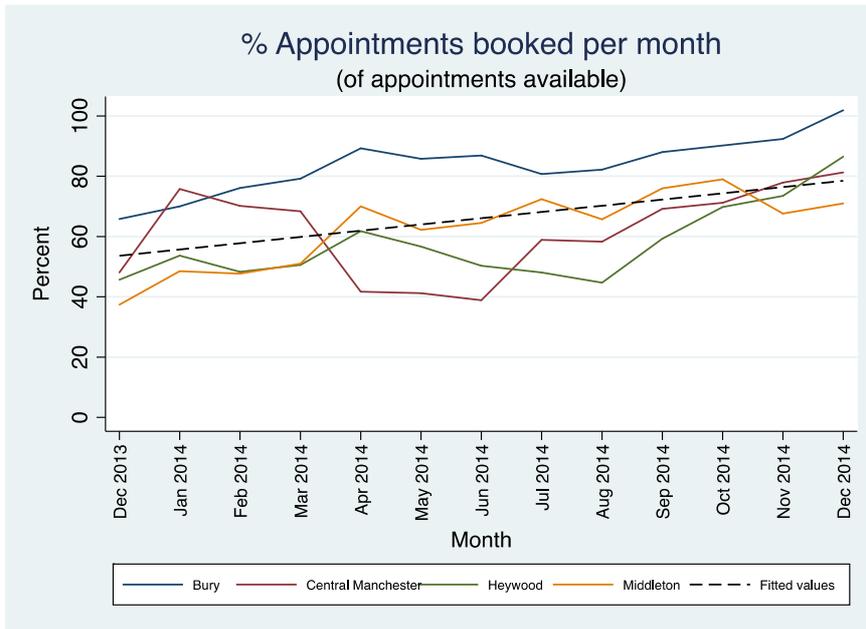


FIGURE 3: PERCENTAGE OF ADDITIONAL AVAILABILITY APPOINTMENTS BOOKED PER MONTH
 NB: October 2014 data excluded for Bury (due to missing data) to smooth graph

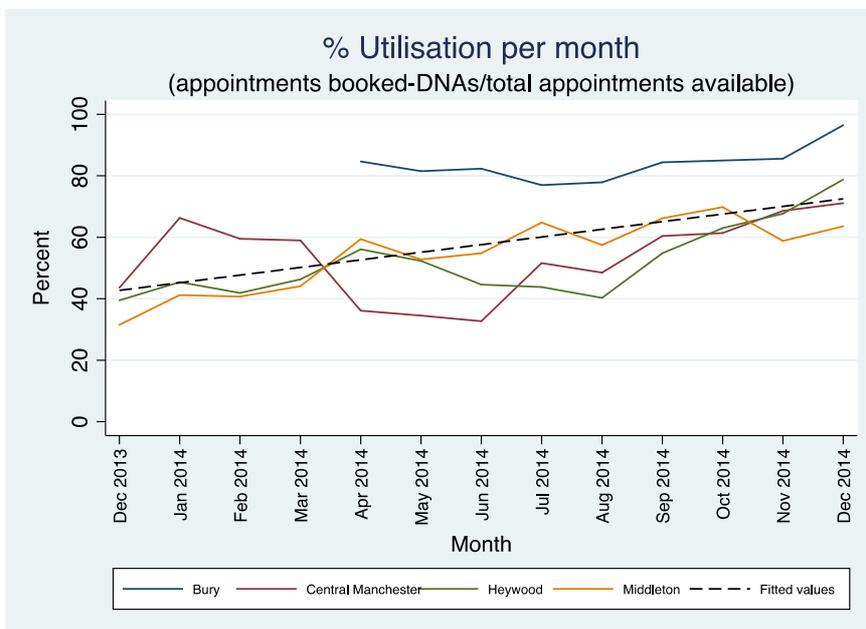


FIGURE 4: PERCENTAGE UTILISATION OF ADDITIONAL AVAILABILITY APPOINTMENTS PER MONTH
 NB. No data supplied by Bury on DNAs prior to April 2014. October 2014 data excluded for Bury (due to missing data) to smooth graph.

In Central Manchester particularly, there is a notable decrease in the use of available services between April and June. Qualitative data suggests that this resulted from contractual difficulties between providers which emerged around this time; these were later resolved, as indicated by the improvement in activity from July onwards.

Importantly, for interpretation of the GPPS and SUS analysis (Section 4 of this report), the trend in absolute numbers shows that from December 2013, the additional availability service was already being booked at over half (57%) of the December 2014 total bookings (total bookings at 1629 in December 2013, and 2836 in December 2014 across all sites), and total numbers had stabilised by March (see Figure 5). This indicates that the additional availability service was operational from its initiation date, and therefore could, in theory, be contributing towards any impact on these indicators seen from December 2013 onwards.

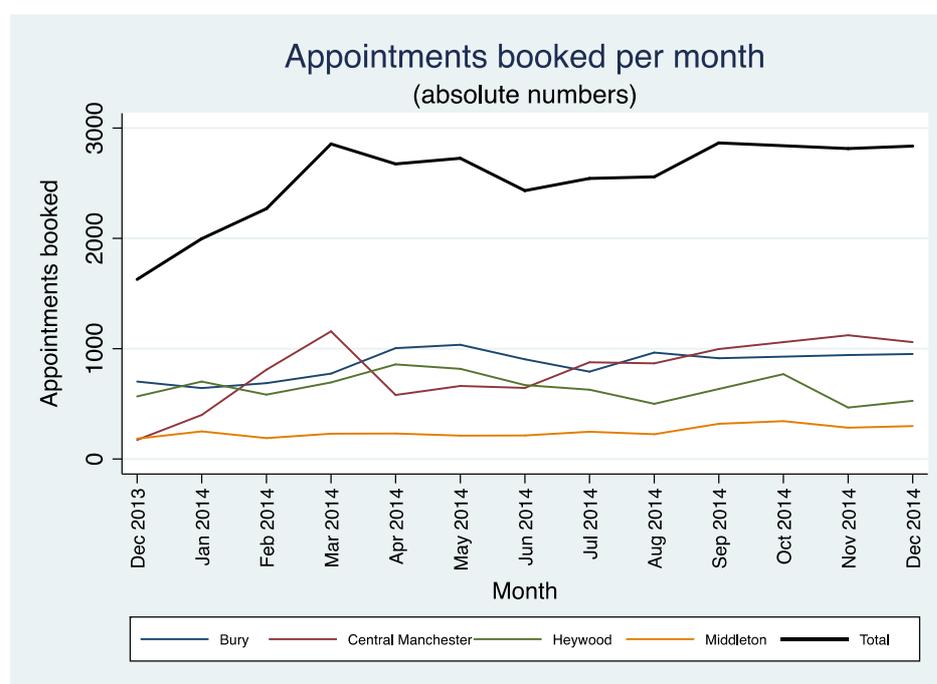


FIGURE 5: ABSOLUTE NUMBERS OF ADDITIONAL AVAILABILITY APPOINTMENTS BOOKED PER MONTH
 NB: October 2014 data excluded for Bury (due to missing data) to smooth graph

3.2.2 Daily breakdown

Tables 5-8 below summarise the mean appointments and utilisation by day of the week for each site respectively.

TABLE 5: MEAN ADDITIONAL AVAILABILITY ACTIVITY BY DAY OF THE WEEK (BURY)

Activity (means) 1/12/2013-31/12/2014	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Appointments available	21.5	17.7	16.9	18.5	19.2	77.2	68.5
Appointments booked	19.4	16.6	16.4	16.8	16.7	68.2	47.2
DNAs*	1.0	0.6	1.1	1.1	1.3	3.4	3.1
Booked (%)	90.5	93.9	97.3	90.9	87.2	88.3	68.9
Utilisation (%)	85.7	90.4	90.8	84.9	80.2	83.9	64.4

(Utilisation = (appointments booked-DNAs)/appointments available)

**Bury DNAs are averaged across April to December 2014 data only*

TABLE 6: MEAN ADDITIONAL AVAILABILITY ACTIVITY BY DAY OF THE WEEK (CENTRAL MANCHESTER)

Activity (means) 1/12/2013-31/12/2014	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Appointments available	12.0	11.9	12.0	12.0	12.0	15.1	15.2
Appointments booked	8.7	9.0	8.1	8.7	9.2	8.0	3.6
DNAs	1.0	1.0	1.1	1.1	1.3	1.9	0.8
Booked (%)	72.9	75.0	67.9	72.3	76.9	52.9	23.8
Utilisation (%)	64.9	66.3	58.6	63.2	66.3	40.5	18.4

% Utilisation = (appointments booked - DNAs)/appointments available)

TABLE 7: MEAN ADDITIONAL AVAILABILITY ACTIVITY BY DAY OF THE WEEK (HEYWOOD)

Availability (means) 1/12/2013-31/12/2014	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Appointments available	32.2	36.4	36.4	36.4	32.5	55.8	39.0
Appointments booked	21.9	23.8	24.0	22.6	21.0	24.7	9.9
DNAs	1.8	2.2	2.1	2.0	2.3	2.9	0.9
% Booked	68.0	65.5	66.1	62.2	64.8	44.4	25.3
Utilisation	62.4	59.4	60.3	56.7	57.7	39.2	23.1

% Utilisation = (appointments booked - DNAs)/appointments available)

TABLE 8: MEAN ADDITIONAL AVAILABILITY ACTIVITY BY DAY OF THE WEEK (MIDDLETON)

Activity (means) 1/12/2013-31/12/2014	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Appointments available	11.9	11.9	11.9	11.9	11.9	17.0	17.0
Appointments booked	11.0	10.0	10.0	10.3	10.0	4.6	2.3
DNAs	1.3	1.6	1.6	1.6	1.3	0.8	0.2
% Booked	92.1	83.7	83.7	86.0	83.8	26.9	13.4
% Utilisation	81.1	70.7	70.5	72.6	72.8	22.4	12.4

% Utilisation = (appointments booked - DNAs)/appointments available)

These tables reveal some important differences between the provision of additional availability appointments in each of the four demonstrators offering this service. The difference between the average number of appointments offered by Bury at the weekend, compared to the rest of the week,

and also in comparison to any other site, is particularly striking. The raw numbers have been summarised and presented graphically in Figure 6, with all sites portrayed on the same scale of axis. All sites offer on average more appointments on Saturday and Sunday than on any one weekday, although bookings at the weekend remain the same, or lower than during the week (again, with the exception of Bury).

Table 9 below shows the mean number of appointments available each day, per 1000 population. Use

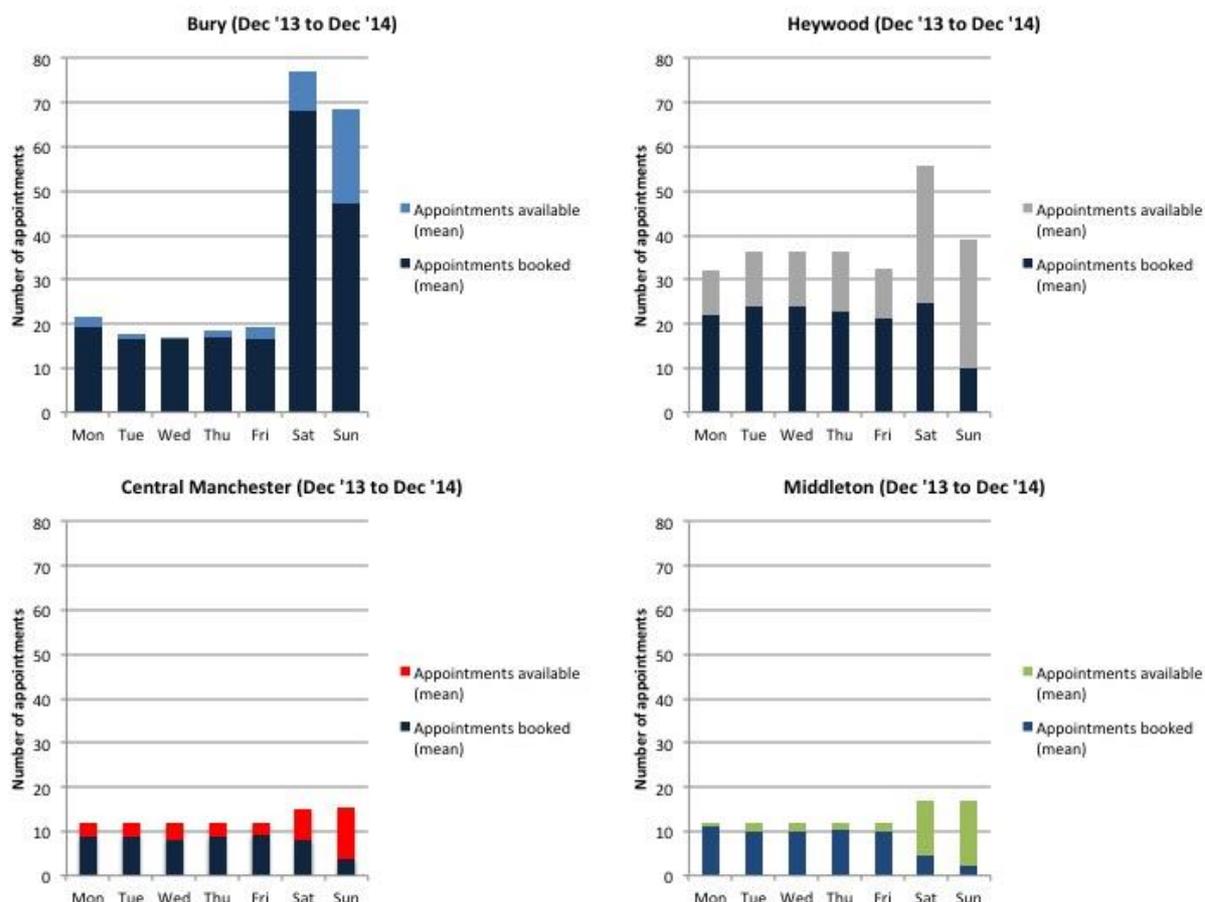


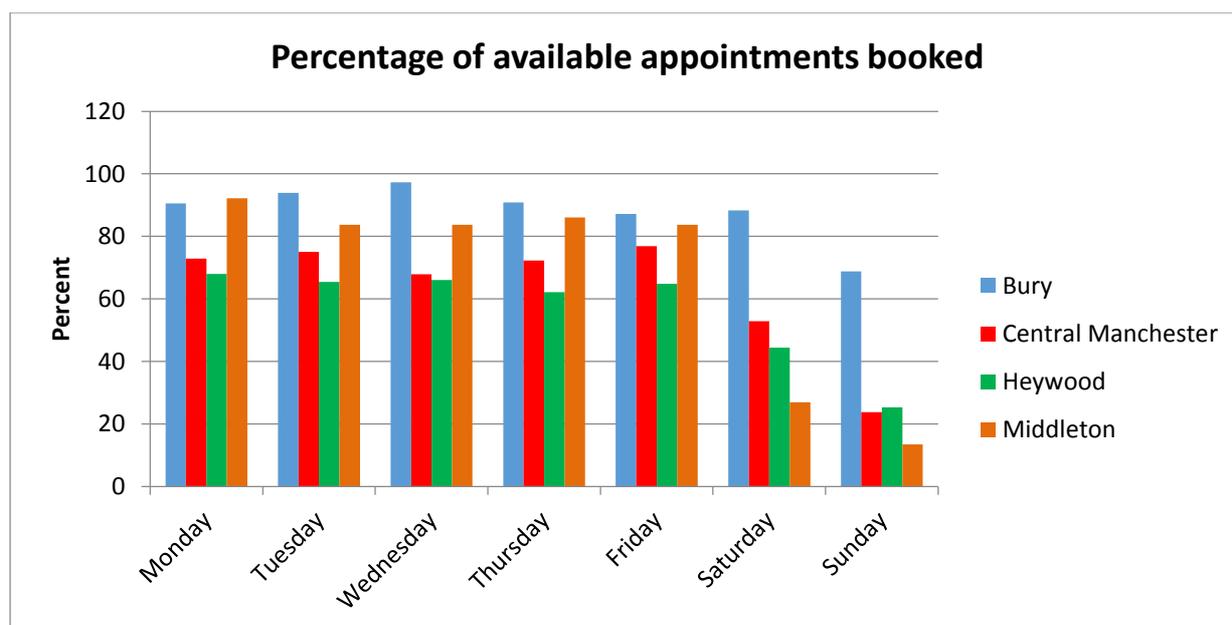
FIGURE 6: AVERAGE APPOINTMENTS AVAILABLE/BOOKED PER DAY, PER SITE
of the per-population figure allows direct comparison between CCGs. This table further illustrates the greater number of appointments available during weekends in Bury.

TABLE 9: MEAN APPOINTMENTS AVAILABLE PER DAY, PER 1000 POPULATION

Mean number of appointments available per 1000 population								
	Population	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Bury	32,894	0.65	0.54	0.51	0.56	0.58	2.35	2.08
Central MCR	203,982 [#]	0.06	0.06	0.06	0.06	0.06	0.07	0.07
Heywood	30,890 [#]	1.04	1.18	1.18	1.18	1.05	1.81	1.26
Middleton	51,680 [#]	0.23	0.23	0.23	0.23	0.23	0.33	0.33

[#] Population served from GP practice list sizes of demonstrator practices: (<http://www.hscic.gov.uk/catalogue/PUB13365>)

A between-sites comparison of the proportion of available appointments booked is provided in Figure 7 below. This direct comparison shows all sites booking similar proportions of available appointments on each day, with all achieving over 60% during the week, but all except Bury booking 55% on Saturdays, and around 20% on Sundays. Bury have achieved over 80% booking rates six days a week and around 70% on Sundays. This is particularly notable bearing in mind the relatively high number of appointments per population offered at Bury (see Table 9).


FIGURE 7: PERCENTAGE OF AVAILABLE APPOINTMENTS BOOKED PER DAY, ALL SITES

Central Manchester, Heywood and Middleton in particular appear to struggle to fill available appointments on a Sunday. This is somewhat surprising, considering the difference in per population appointments offered (see Table 9), which is on average much higher in Bury than the other sites. It seems unlikely that demand would be that much higher in Bury for these extra appointments.

Figure 8 summarises the mean DNAs at all sites. For Bury, Central Manchester and Heywood, the absolute number of DNAs was higher on a Saturday than any other day of the week (see Figure 8). Middleton proved an exception, with fewer DNAs on Saturday and Sunday, possibly linked to the extremely low uptake of weekend appointments at this site (see Figure 6).

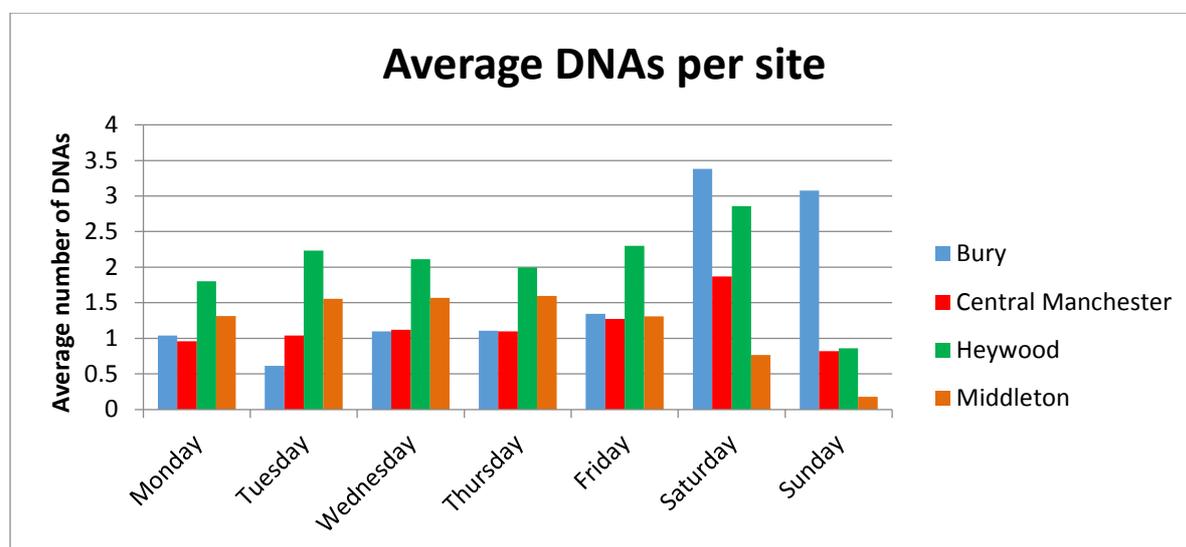


FIGURE 8: AVERAGE ABSOLUTE NUMBERS OF DNAs PER DAY (ALL SITES*)

*Bury DNAs are averaged across April to September 2014 data only

However Figure 8 does not take into account the relative number of appointments offered at each site, particularly at the weekend. This is taken into account in Figure 9 below.

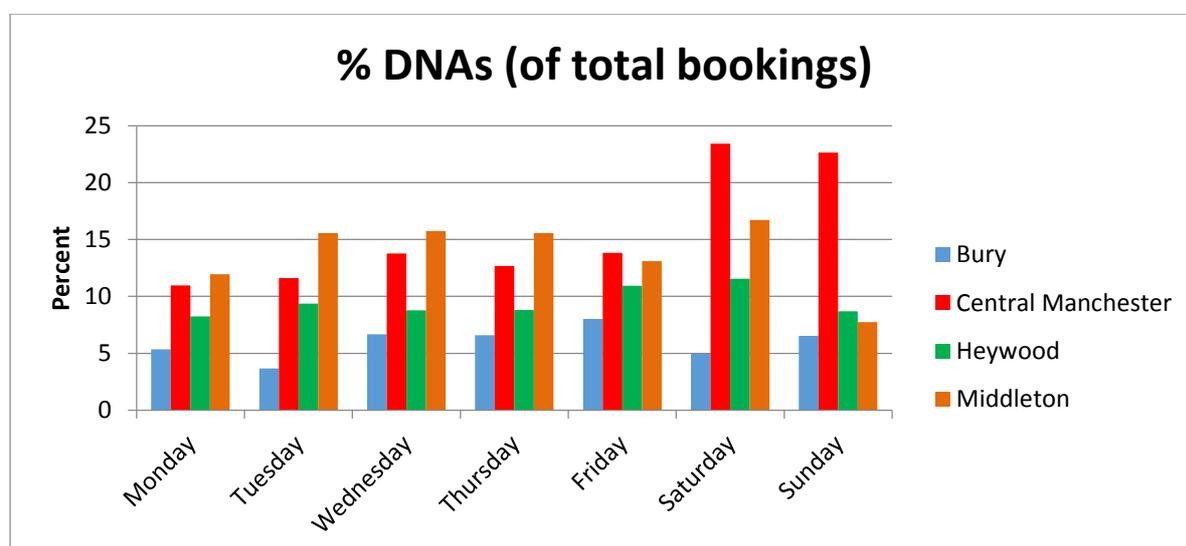


FIGURE 9: DNAs AS A PERCENTAGE OF TOTAL BOOKING PER DAY (ALL SITES*)

*Bury DNAs are averaged across April to September 2014 data only

Figure 9 shows that comparing between sites, Bury has fewer DNAs for each booked appointment, on each day of the week. This is particularly apparent on the weekend once again. Central Manchester has particularly high levels of DNAs at weekends.

Focusing on the weekend appointments, the trend over time can be examined. Figure 10 shows the percentage of appointments booked per month (Saturday and Sunday separately) for each site.

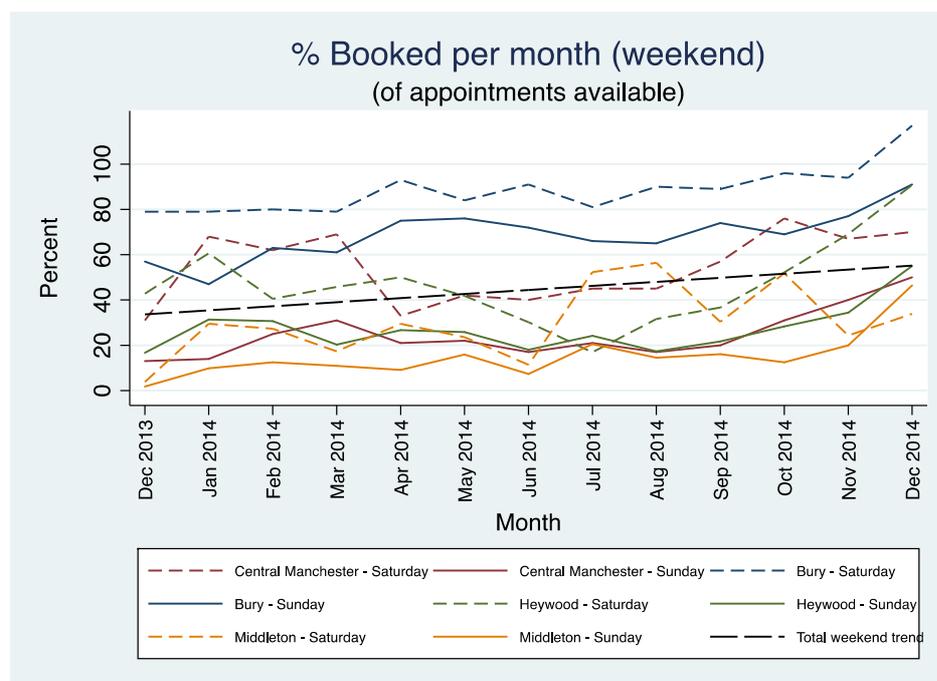


FIGURE 10: PERCENTAGE OF BOOKED APPOINTMENTS PER MONTH FOR SATURDAY & SUNDAY (ALL SITES)

Booking rates are higher on Saturdays than Sundays at all sites (although this is beginning to change in Middleton, from December 2014, when Sunday booking rates were higher than Saturday). The trends for Central Manchester and Heywood seem similar. Total weekend visits are increasing when averaged across all sites. The uptake shows a more fairly consistent trend in Bury over time, with Central Manchester showing a slight decrease in appointments between April and August. Bookings in Middleton on a Saturday appear particularly variable. Overall, however, there appears to be a rising trend in uptake of appointments over time across all sites. This trend may be expected, as the new programme is embedded, and awareness grows across the population.

3.3 Non-Additional Availability Services.

This section discusses the ‘non-additional availability services’ provided by the demonstrators. Further details of all of the services can be found within the ‘case descriptions’ in Section 2 (in particular, Table 2). Analysis of the qualitative data that informed the process evaluation, including enablers and

challenges, some of which are referred to below, can be found in Section 5 of this report. Bolton and Stockport differed from the other four demonstrators in that they did not provide any additional availability in general practice.

The Bolton demonstrator was established to improve provision in care homes and, despite some initial, unrealistic aspirations around use of technology, appears to have achieved this. Bolton had the narrowest scope of all the demonstrators, in terms of being focussed on the smallest population and having the smallest funding budget. However, whilst the number of 'cases' of service provision was lowest at this site (114 patients were taken onto the caseload), the service provided was one of the most complex and long-term, in terms of multiple organisations being involved with the care of each patient and patients staying on the caseload permanently, once they had entered it and receiving multiple visits from the case manager and others. The majority of the work was undertaken by one nurse practitioner working as a 'case manager' seconded into the role. The site was successful in bringing patients into the service, indeed, the case manager was working at full capacity. The findings around how this case manager went about achieving the successes she had with patients, which illustrate her high levels of skill, experience and motivation, both in terms of clinical practice, as well as ability to negotiate organisational issues, both processual and personal, help to highlight the complexity and challenges of working with this group of patients. Being able to liaise effectively across sectors and organisations and particularly gaining the trust of people within these organisations, seems critical to the successful working of this service. In terms of sustainability and potentially rolling the service out across the whole CCG area, simply increasing the number of case managers may not be sufficient and more support may be needed to engage general practices and care homes.

Across the four care homes participating in the demonstrator, during the evaluation data collection period (January – September 2014) there were 122 attendances by ambulance to A&E at Bolton Royal Foundation Trust, compared to 158 for the same months during the previous year. This represents a decrease of 23% in demonstrator care homes compared to 9% in non-demonstrator care homes in Bolton. A comparison of non-elective admissions over the same time periods, shows a 13% decrease across demonstrator care homes compared to a 16% decrease across non demonstrator care homes in Bolton.

A CCG-employed, medicines optimisation pharmacist contributed to the demonstrator, Bolton CCG provided data showing that the cost of the pharmacist input over the duration of the demonstrator was £15,400. The pharmacist carried out medication reviews (ad hoc, MAR chart and comprehensive) which led to reported reduced medication costs of £55,611. The summary provided by the CCG shows the impact of the demonstrator on medication prescribing costs, but is not a cost-effectiveness analysis as neither the full cost of providing the reviews, nor the cost of the alternative, are known and no outcomes were observed. It should also be noted that the summary figures provided include costs related to activity carried out after the demonstrator period had ended (up to February 2015).

Stockport designed the most varied demonstrator, in terms of providing five different types of service, extending some existing services and also developing new ones. Several of these are noteworthy for bringing together a wide range of health, social care, domiciliary service and/or voluntary sector workers, working together under new management arrangements. Two services provided long-term support to people with complex needs. The complex care service had two components: high risk patients were identified using a risk stratification tool and a 'multi-disciplinary team' developed care plans; a 'multi-disciplinary group' worked with other, broader, criteria to identify patients and put support in place. The MDT was more successful in that higher numbers of care plans were provided, (152 compared to 31 for the MDG) however, the MDG work was newer, may have needed more time to bed in and/or involved more complex cases. The enhanced end of life service appears to be an example of service innovation, in that domiciliary workers, from an often overlooked service felt they could make better use of their skills and also started to work more collaboratively with district nurses.

According to the data supplied by Stockport, 90% of people who died while enrolled on the enhanced End of Life service died at home. However, without patient-specific information relating to previous years to use as a comparator, it is not possible to measure the impact of the demonstrator here. Looking at the overall figures for deaths in the region, there is no discernible impact of the service, which is likely to be a consequence of the small activity levels: 49 patients dying at home out of 105 enrolled on the enhanced end of life service relative to the 1316 people who died in 2013-14 in the two regions of Stockport where the service was provided.

Stockport had two elements which did not become operational within our data collection period. The heart failure service was not implemented due to governance concerns with the provider, while the health and wellbeing service had faced delays related to difficulties engaging with general practices and their organisational processes preventing the questionnaires from being distributed within our data collection period.

Of the demonstrators providing additional availability in general practice, Bury focussed solely on this, whilst Central Manchester, Heywood and Middleton all provided other services.

The Central Manchester demonstrator provided a variety of services, ranging from the responsiveness appointments run at most practices in the CCG, to others targeted at more specific populations. The responsiveness appointments were fitted into practice working hours, with slightly different configurations according to the organisation of the individual practice. The service successfully provided 35,729 appointments, with most practices participating and only a very small proportion of patients who had requested an appointment being unable to attain one. The homelessness service also successfully provided appointments to a previously underserved population with complex needs (203 patients); liaison with several local voluntary sector agencies was key to this.

In Heywood, care plans were developed for two groups of patients: frail elderly people (202), identified through GP practices and also a defined group of patients, within the criteria that they were

aged 85 or over and taking four or more medicines (45). The latter were visited by a multi-skilled care worker, who successfully visited all eligible patients and produced care plans; however, having reviewed all these patients, few unmet care needs were identified and staff considered that a key challenge for the future was how to identify those patients in greater need and work to putting support in place for them. The navigator service, which was based on an existing service in the area, was an innovative development; it was a new addition to the hospital where it was based and was provided by an occupational therapist, seconded into the role (previous local navigator work had mostly been undertaken by nurses). The service involved looking for alternatives to admitting the patient to hospital, which required a different approach or 'way of thinking' to some usual or standard practice, particularly liaising across sectors. Although the navigator had only taken relatively small numbers of patients (26) from the Heywood practices onto her 'caseload' and she herself acknowledged that it had taken some time, she believed that she had both built effective working relationships with other staff in the hospital and had a positive impact on the care of patients she had worked with. The extent to which the service was valued and praised as a useful innovation, by other interviewees, based in different sectors, was notable. In terms of sustaining or extending the service, there seems to be potential for greater benefit if the service was extended, for example to operate longer hours with more staffing (currently provided by one person working during weekdays). Were such an extended service to be developed, this would seem to merit careful independent evaluation.

In Middleton, the mental health crisis clinics seemed to be addressing previously unmet need, with high numbers of appointments booked and taken up. One of the GP co-leads for this demonstrator has a particular interest in mental health and whilst his practice and several others made referrals to the service, other local practices did not, indeed, this lack of engagement, from practices that were in the same area that suffers serious under-provision of mental health services, can be considered the main problem with this service, although it was not possible to explore the reasons for this within the current study.

The Bolton care home service, the Heywood navigator service and the enhanced EoL service run in Stockport share several similarities. All three built on existing local practice and involved staff taking on roles that were new for them as well as new to the respective service. Due to the relatively small numbers of patients involved, it is not possible currently to discern or assess any impact of these innovations on outcomes – for patients, carers or staff - or on service activity (such as hospital admissions or place of death) at CCG level. Considering the early stage of development at which these services were evaluated underlines both the need for caution in interpreting any indication of their 'success' or otherwise, but also the potential for further investigation. Our process evaluation has illustrated organisational and interpersonal challenges involved in establishing these innovative services as well as recurrent and strong expressions of positive views and experiences of these services and their potential, in terms of their perceived value for patients and staff alike. These three services

in particular, plus the medicines management intervention in Bolton, merit further exploration and rigorous, structured evaluation, incorporating evaluation from the patient perspective.

3.4 Discussion

Analysis of the demonstrator-reported activity data has highlighted some key conclusions regarding additional availability services:

- Central Manchester provided the most additional availability appointments in total (17,033), while Bury had the most appointments booked (10,793) in total.
- Considering provision per head of population, Bury and Heywood provided on average approximately 20-40 additional availability appointments per month per 1000 population, Central Manchester and Middleton supplied approximately 5-10 appointments per 1000 population, although the population coverage of Central Manchester was almost twice as large as the other three demonstrators combined.
- An average of 65.5% of available appointments were booked overall, with the highest utilisation rate in Bury and Central Manchester. Bury in particular had a higher percentage of booking to appointments (over 80%) and also fewer DNAs as a proportion of all appointments than the other additional availability demonstrators. Middleton had considerably fewer absolute bookings per month than the other three demonstrators.
- There was a general trend of increasing bookings over the analysis period, probably indicating increased awareness and subsequent use of the service by patients.
- The additional availability service was up and running from its initiation date, and therefore could, in theory, be contributing towards any effects seen from December 2013 onwards in the GPPS/SUS analysis (Section 4).

From the more detailed day-by-day data:

- More appointments were offered on Saturday and Sunday than on any single weekday across all sites.
- The uptake of weekend appointments appears substantially greater in Bury than in the other demonstrators (over 80% six days a week, and over 65% on Sunday), despite offering relatively more appointments per population on all days. In Central Manchester, Heywood and Middleton the relative uptake of additional availability appointments was lower on weekends (below 55%), and very low on Sunday.
- The rate of DNAs as a percentage of total bookings was higher in Central Manchester on weekends than on weekdays.
- Utilisation of weekend appointments also increased gradually across all sites over the period of the demonstrator.

4 Outcome Evaluation

4.1 Outcome Evaluation Methodology

Difference-in-Differences methodology^{xxvii}

In order to estimate the impact of the demonstrator practices (DP) it is necessary to measure the difference over and above the difference that might have been expected had the DP intervention not occurred, to take into account any existing trends, positive or negative. So, for example, if activity is already decreasing year on year, it is important to measure not only whether an intervention reduces activity but whether an intervention results in a greater (or smaller) rate of decrease. This is done by calculating the difference from before to after the intervention in the demonstrator practices, and comparing to changes in activity in practices where the intervention was not implemented (the non-demonstrator practices, which serve as a comparator here). This is called a **Difference-in-Differences (DiD)** estimate.

Consider the example in Figure 11 where an intervention takes place in 2013, with the initiation of the intervention marked by the vertical red line. The DiD estimate subtracts the change in outcome for the treated DP (80 (in 2014) $- 80$ (in 2013) $= 0$ for 2014) from the change in outcome for the non-DP comparator, or control, group ($40 - 50 = -10$ for 2014). In this example the DiD would be $+10$ (the difference in treated (0) minus the difference in the comparator (-10)). This means that the intervention increased the outcome by 10 units ($0 - (-10) = +10$). This is shown on the graph as the distance between the extrapolated treated trend (in green) and the treated intervention line (in yellow).

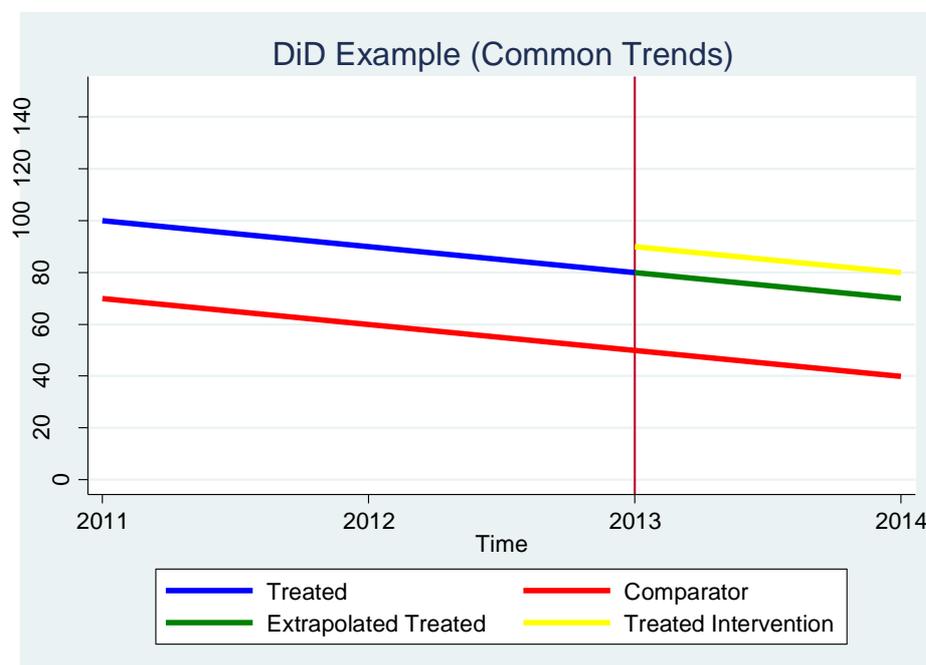


FIGURE 11: DIFFERENCE-IN-DIFFERENCE EXAMPLE (COMMON TRENDS)

Adjusted time trends

However, one of the key issues with the DiD approach is that it assumes the treated (DP) and comparator (non-DP) groups follow similar trends over time. So, looking back to our first example, Figure 11, both treated and comparator groups follow the same downwards trend per year (the gradient, or rate of decline year on year is 10 units).

The assumption of similar time trends can cause bias in our estimates of the DiD when the treated and comparator follow different trends, as in Figure 12.

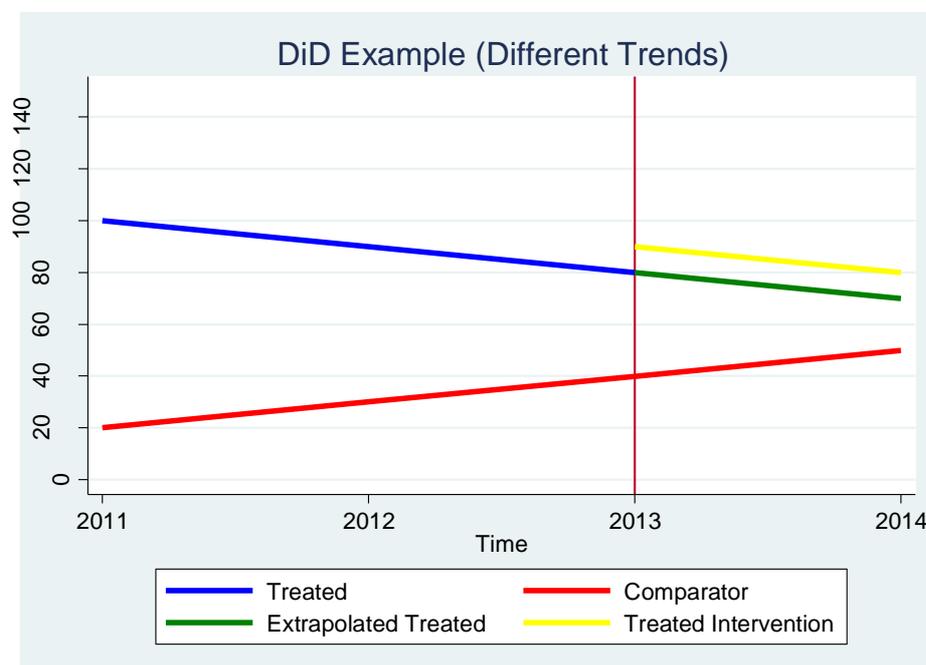


FIGURE 12: DIFFERENCE-IN-DIFFERENCE EXAMPLE (DIFFERENT TRENDS)

The DiD estimate is now the change in the treated ($80-80=0$) less the change in the comparator ($50-40=10$), which is -10 . Note how the different time trends give different DiD estimates, $+10$ where the time trends are identical, and -10 when they differ. This is because we are imposing the comparator time trend on the treated.

To reduce the bias caused by different time trends, where necessary we adjust our outcome measures so that both the treated and comparator groups have no time trend. We do this in Figure 13. Adjusted time trends are constructed by estimating the time trend for each group in the pre-intervention period, and subtracting the estimated outcome from the observed outcome.

The adjusted time trend is constructed on the basis of the pre-intervention period because any adjustment made that incorporated the post-intervention period would potentially include effects from the demonstrators.

We first test for any statistically-significant differences in the time trends for both the DP and non-DP. Where no significant difference is found we do not adjust for time trends. Where a significant difference is found we adjust both DP and non-DP outcomes so both follow no time trend.

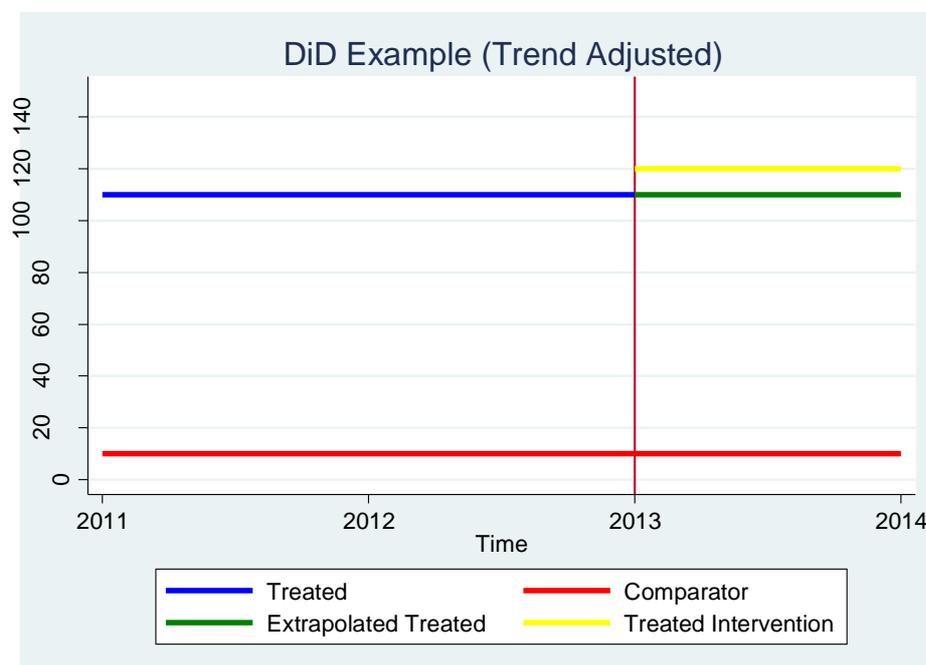


FIGURE 13: DIFFERENCE-IN-DIFFERENCE EXAMPLE (TREND ADJUSTED)

Comparators

We calculate the effects of the demonstrators relative to two different comparators:

1. *Local Comparison*; comparing each group of DP to all non-DP within each CCG
2. *Regional Comparison*; comparing each group of DP to all non-DP in Greater Manchester

As the Central Manchester demonstrator covers most GP practices in the Central Manchester CCG, North Manchester CCG and South Manchester CCG have been chosen as the nearest approximation of a 'local comparison', although given the differences between North, South and Central Manchester patient populations, this comparison should be treated with caution.

The regional comparator consists of all GP practices in Greater Manchester not involved in the additional availability demonstrators. Full details of the local and regional comparators can be found in Table 10.

Outcomes analysed

We estimate the DiD effects for a range of outcomes (see Table 10):

- A&E activity – using SUS data for April 2011 to December 2014
- Out of Hours (OOH) activity – supplied by local OOH providers
- Walk In Centre (WIC) activity – Supplied by local WIC providers
- Patient experience – using GPPS data from July-September 2011 to July-September 2014

TABLE 10: DATA SOURCES, TIME PERIODS, AND COMPARATOR ASSIGNMENT

	Bury	Heywood	Middleton	Central Manchester
SUS				
April 2011 to December 2014				
Local Comparison	Non-DP in Bury	Non-DP in Heywood, Middleton and Rochdale (HMR)	Non-DP in HMR	Non-DP in Central Manchester and all practices in North and South Manchester
Regional Comparison	All non-DP in Greater Manchester	All non-DP in Greater Manchester	All non-DP in Greater Manchester	All non-DP in Greater Manchester
OOH				
Bury & HMR data: September 2011-December 2014				
Central Manchester data: October 2011- September 2014				
Local Comparison	Non-DP in Bury (BARDOC data)	DP in Heywood and Middleton compared to non-DP in HMR (BARDOC data)	DP in Heywood and Middleton compared to non-DP in HMR (BARDOC data)	CCG level analysis comparing Central Manchester CCG to North and South Manchester CCGs (GoToDoc data)
Regional Comparison	N/A (not relevant)	N/A (not relevant)	N/A (not relevant)	N/A (not relevant)
WIC				
Bury & HMR data: September 2011-December 2014				
Central Manchester data: December 2012- December 2014				
Local Comparison	v non-DP in Bury (BARDOC data)	v non-DP in HMR (BARDOC data)	v non-DP in HMR (BARDOC data)	Practices in North and South Manchester (PCEC data)
Regional Comparison	N/A (not relevant)	N/A (not relevant)	N/A (not relevant)	N/A (not relevant)
GPPS				
July-Sept 2011 to July-Sept 2014				
Local Comparison	Non-DP in Bury	Non-DP in HMR	Non-DP in HMR	Non-DP in Central Manchester and all practices in North and South Manchester
Regional Comparison	All non-DP in Greater Manchester	All non-DP in Greater Manchester	All non-DP in Greater Manchester	All non-DP in Greater Manchester

SUS Data

The data used to assess hospital A&E activity is the Payment by Results (PbR) data from the Secondary Uses Service (SUS) managed by the Health and Social Care Information Centre (HSCIC). The data was obtained from the North West Commissioning Support Unit. The SUS PbR data contains patient level information about hospital activity.

A DiD analysis was conducted for A&E attendances in total, for minor attendances alone, and by referral source (Table 11). Total A&E visits and costs were modelled to assess the overall impact of the pilots on A&E activity. The separate analysis of minor A&E attendances was carried out because improvements in access to primary care are most likely to affect this attendance type, and very unlikely to impact on other types of attendance (intermediate and major intensity).

For each variable, the sum of activity is calculated by the practice of the patient attending A&E and by quarter. To adjust for varying practice sizes the data are analysed per 1000 practice population. Each of these variables are highly skewed (i.e. more observations have low or zero values but a few have high values, which causes problems for analysis). Therefore, data analysis was carried out using *asinh*^{xxviii} transformed dependent variables, to deal with the skewed nature of the data. This is a technical issue which is likely to be of interest only to those with an interest in statistics but does increase the robustness of the analysis.

The cost variables are the PbR tariff recorded in the SUS PbR data for the specific Healthcare Resource Group (HRG) associated with the activity type. Tariffs for 2013-14 were assigned across all years. Where a HRG code was missing, the lowest tariff (£58) was assigned. Attendances at Walk in Centres (A&E Department type 4) were omitted from the analysis, as these are analysed separately (see Section 4.4 below).

TABLE 11: DEPENDENT VARIABLES FOR MEASURING CHANGES IN HOSPITAL ACTIVITY

Dimension	Variables	Categories
A&E activity	A&E visits	
	Total A&E costs	At 2013-14 tariffs.
	Minor A&E attendances*	HRGs VB10Z, VB11Z, VB06Z or VB09Z
	A&E attendances by referral	<ul style="list-style-type: none"> • GP referral • Self-referral • Other (Local Authority Social Services, Emergency services, Work, Educational Establishment, Police, Health Care Provider: same or other, Other, General Dental Practitioner or Community Dental Service)

*Attendances coded as dead on arrival or ungrouped were omitted from the analysis.

Out of Hours Data

Data from Out of Hours (OOH) providers were supplied from two sources. For Bury Heywood and Middleton, daily activity data by practice of the attending patient was supplied by BARDOC. For Central, North and South Manchester data was supplied by GoToDoc as activity per week. The BARDOC data was treated as the SUS data, i.e. analysed by practice and quarter per 1,000 registered practice population on *asinh*-transformed variables. The GoToDoc data did not contain practice codes, and so was analysed at the CCG level. This assumes that all activity from Central Manchester originates from DPs, although some GoToDoc attendances could be from the few non-DPs in Central Manchester CCG which would dilute the estimated effect of the additional availability service. This data was also analysed per 1,000 registered patients in the CCGs on *asinh*-transformed variables.

Walk in Centre Data

Data for Walk in Centre (WIC) attendances was supplied from two sources. For Bury, Heywood and Middleton, daily activity data by practice of the attending patient was supplied by BARDOC in a format similar to the OOH data described above. The data was aggregated and analysed in a similar way. Data for Primary Care Emergency Centre (PCEC) was supplied by Central Manchester CCG. Although, in principle, some of these attendances are available in the SUS extract, for the majority of this data the practice code of the patient is not recorded. The evaluation team therefore needed to rely on practice code assignment based on free-text fields carried out by Central Manchester CCG on a special data

set sent from Central Manchester Foundation Trust (CMFT) to Central Manchester CCG containing WIC attendances at CMFT by practice of the patient per month. Again, this data has been aggregated to the practice by quarter per 1,000 patients and the dependent variables have been *asinh*-transformed.

GPPS Data

GPPS data is used to assess whether there is any evidence of a change in patients perception of general practice following the introduction of the demonstrators. A DiD analysis was conducted for five questions in the GPPS (Table 12). These were modelled as binary scores. The binary cut-offs were chosen on face validity – good (1) and poor (0) outcomes.

Q15, Q18, Q25 and Q26 directly address the issue of access, which is the primary focus of the analysis. The remaining question (Q28) relates to general perceptions of quality of care and of the GP surgery overall.

TABLE 12: GPPS QUESTIONNAIRE ITEMS ANALYSED

GPPS Outcomes
Q15: How convenient was the appointment you were able to get?
Q18: Overall, how would you describe your experience of making an appointment?
Q25: How satisfied are you with the hours that your GP surgery is open?
Q26: Is your GP currently open at times that are convenient to you?
Q28: Overall, how would you describe your experience of your GP surgery?

When comparing DPs to non-DPs, it is important to ensure as far as possible that similar practices are compared. If practices are not similar then any observed differences in the outcome variables may be due to changes and differences in the patient characteristics of practices. To mitigate such (biased) effects, selection can be controlled for observable characteristics. The GPPS models include the following patient characteristics:

- Gender (GPPS – patient reported)
- Age (GPPS – patient reported)
- Whether the patient has a limiting long-standing health condition (GPPS – patient reported)
- Index of Multiple Deprivation (IMD) score (Census 2011 – patient postcode or practice if null)

The post-intervention period is defined from 1st January 2014. This period is captured in the Y8W2 (January-March 2014) and Y9W1 (July-September 2014) waves of the GPPS. The analysis is restricted to include only those patients who have seen a GP in the past 3 months (Q1: When did you last see or speak to a GP from your GP surgery? 'In the past 3 months'). This is helpful in limiting the possibility that the post-intervention period may reflect activity in the pre-intervention period in the January-March 2014 wave. However, this does not entirely exclude the possibility that responses in the January-March 2014 wave may refer to experiences of surgery attendance prior to Jan 2014.

4.2 All Demonstrator Outcomes

The results are presented for each individual demonstrator area separately. The results are presented as proportionate changes in graphical form. The analyses present data on the 'statistical significance' of the findings (DiD estimate) via a 95% confidence interval. This refers to a 95% likelihood that the observed differences can be attributed to the intervention, rather than occurring by chance. It is not a statement of the clinical or policy significance of effects.

Prior to any discussion of these results it should be noted that this outcome analysis has certain limitations (as discussed in section 1.5.1 above). In particular, it is important to recognise that DPs were not randomly allocated funding, but received additional funding through application (self-selection) - although not all applications for funding were successful. This may mean that these practices are systematically different from other practices in Greater Manchester and within CCG. This could occur if the GPs in DPs were especially motivated or had different equipment available to deal with attendances that would otherwise have been handled in A&E before the intervention. In that case, the results of the analyses of outcomes would not be generalisable beyond the sample of practices because any effect may have been caused by the special nature of the practices that applied for inclusion in the demonstrator programme.

The representation of the effects of the A&E activity data as percentages is obtained by taking the *sinh*-transformation of the coefficients from the regression estimates. The full set of estimates can be found in the appendix.

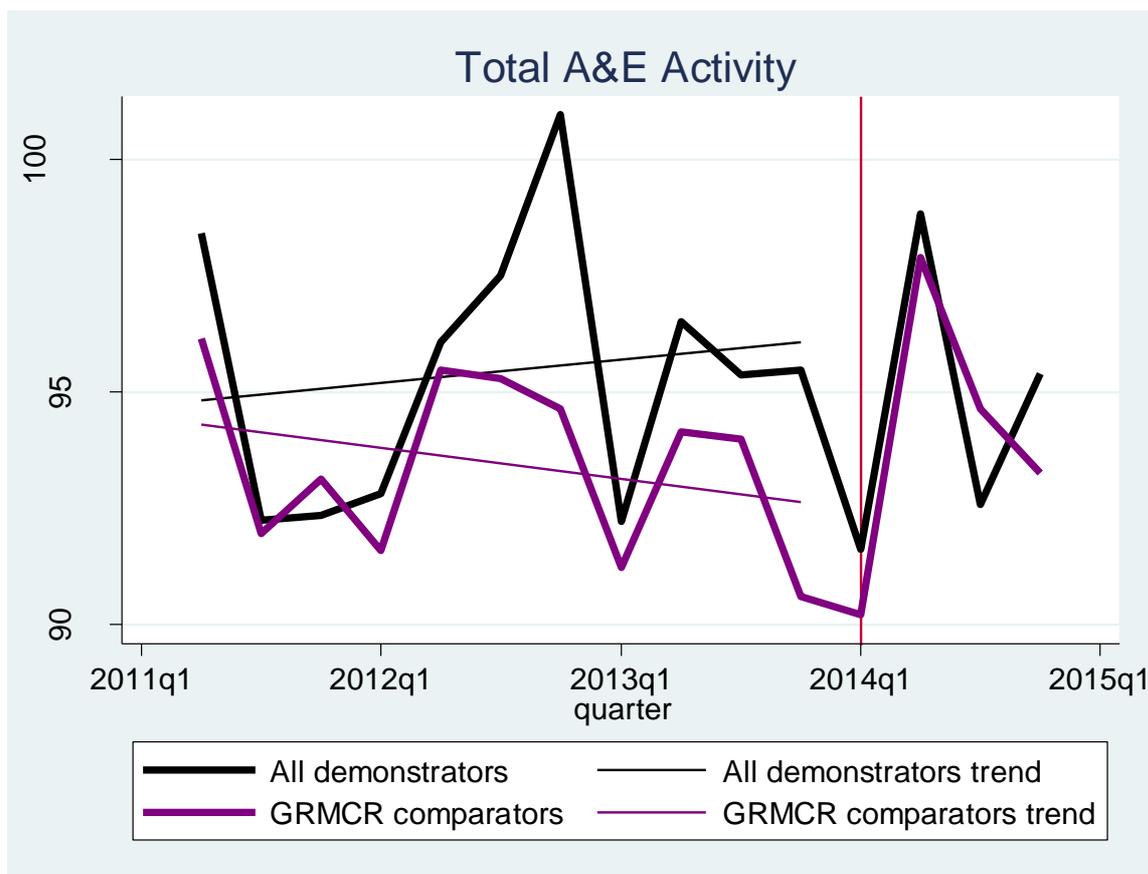


FIGURE 14: AVERAGE A&E ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER ACROSS GREATER MANCHESTER DPs AND NON-DPs

Historically, as Figure 14 shows, patients at the DPs were higher users of A&E than the rest of Greater Manchester. Moreover, the trend in the DPs up to 2014 was for increasing usage of A&E, while the trend for non-DPs prior to 2014 was a slight decline in A&E activity. This indicates that the two groups followed different trends before the intervention. As noted above, recognising these pre-existing trends is important to establish the actual estimated impact of the demonstrator interventions. Where the difference in trends is statistically-significant, we take this into account when estimating the performance difference between DPs and non-DPs after the intervention.

The figures below show the changes in A&E activity among DPs compared either locally (with non-DPs in the CCG) or regionally (with changes in A&E activity in non-DPs across Greater Manchester). The bar shows the estimated percentage change in activity. The vertical line indicates the boundaries of the 95% confidence interval. If this interval includes zero, we cannot be sure that the estimated effect is not zero. Where this occurs, we can say that there is no statistically-significant evidence of an effect

of the demonstrators on that particular variable. The simplest way to read this is as follows; **bars where the thin vertical line (the confidence interval) crosses zero are not statistically-significant.**

Figure 15 shows the difference in total A&E activity in DPs compared to non-DPs in Greater Manchester after the introduction of additional availability in 2014. Across all DPs, the analysis shows a 3% reduction in total A&E activity after the intervention compared to non-DPs across Greater Manchester. This is comprised of statistically-significant reductions in A&E activity in Bury (4%) and Middleton (3%) and non-significant reductions in Central Manchester and Heywood when comparing each of these to all Greater Manchester non-DPs.

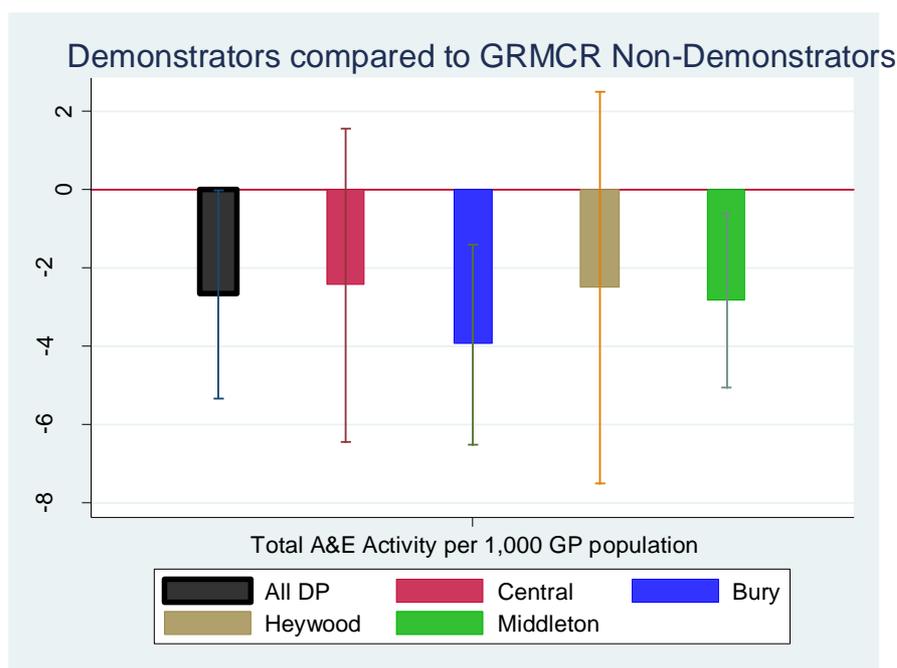


FIGURE 15: CHANGE IN TOTAL A&E ACTIVITY PER 1,000 REGISTERED POPULATION. REGIONAL COMPARISON WITH NON-DPs IN GREATER MANCHESTER

When comparing instead to non-DPs within each CCG (Figure 16), the change in A&E activity is not statistically-significantly different from zero in any of the demonstrators.

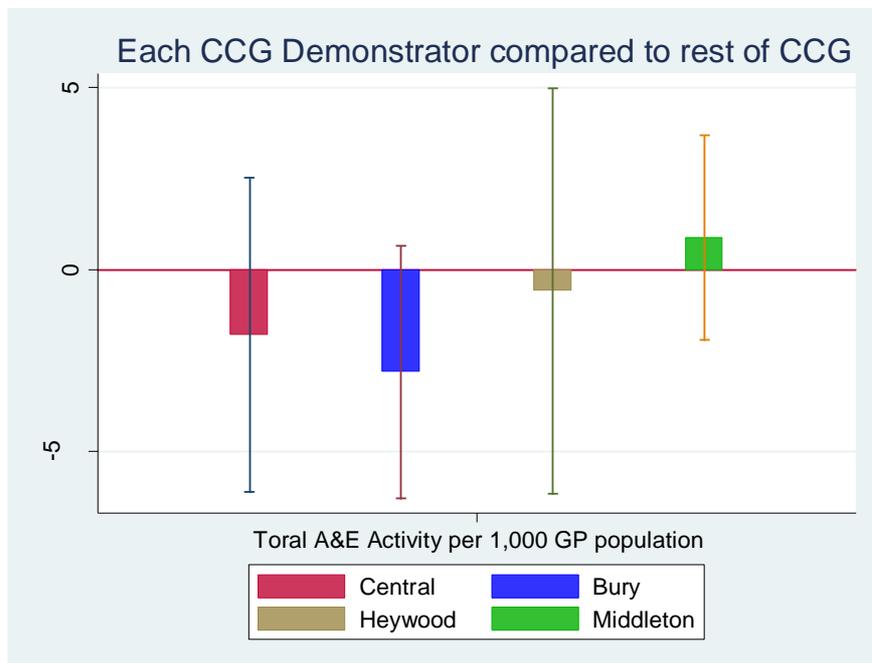


FIGURE 16: CHANGE IN TOTAL A&E ACTIVITY PER 1,000 REGISTERED POPULATION. LOCAL COMPARISON WITH NON-DPs WITHIN EACH CCG

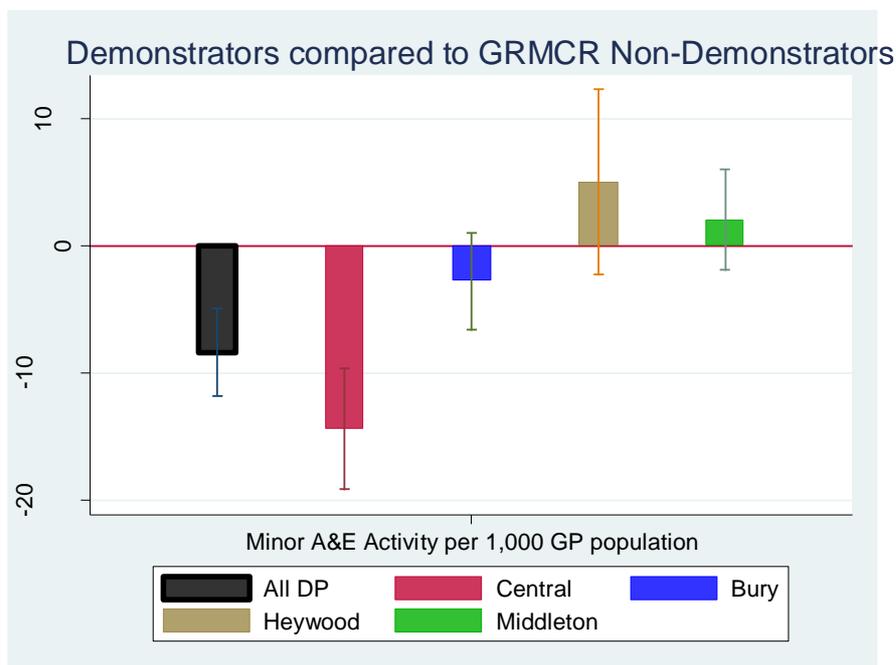


FIGURE 17: CHANGE IN MINOR A&E ATTENDANCES PER 1,000 REGISTERED POPULATION. REGIONAL COMPARISON WITH NON-DPs IN GREATER MANCHESTER

Looking at minor A&E activity alone the picture is different. Across all demonstrators (Figure 17) there is a statistically-significant reduction in minor A&E activity, comprised of a statistically-significant reduction in minor A&E attendances in Central Manchester and non-significant changes in the other demonstrators when comparing to all Greater Manchester non-demonstrators.

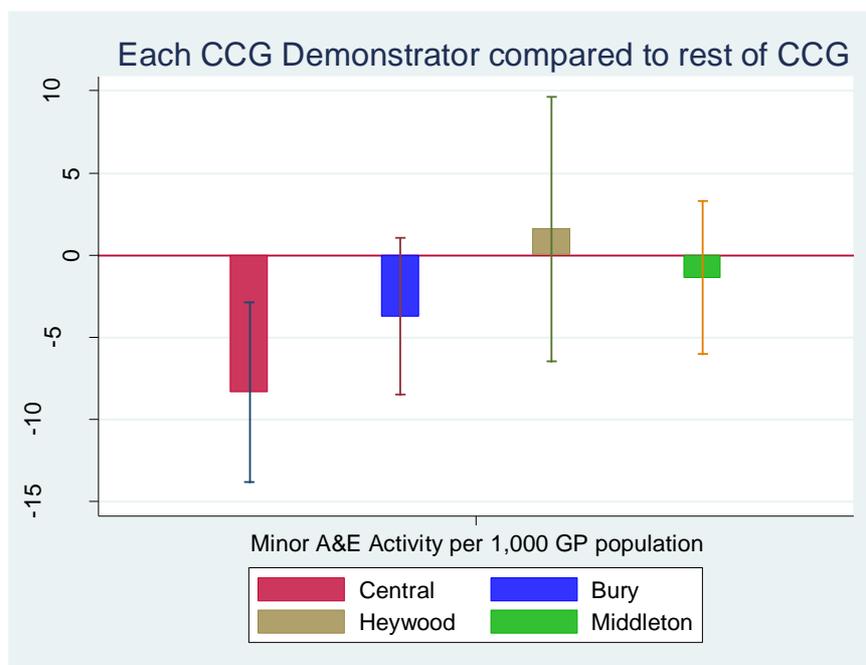


FIGURE 18: CHANGE IN MINOR A&E ATTENDANCES PER 1,000 REGISTERED POPULATION. LOCAL COMPARISON WITH NON-DPS WITHIN EACH CCG

Using local rather than regional comparisons (Figure 18), this picture remains. The reduction in A&E activity is statistically-significant at around 8% in Central Manchester CCG but not significant in the other demonstrators.

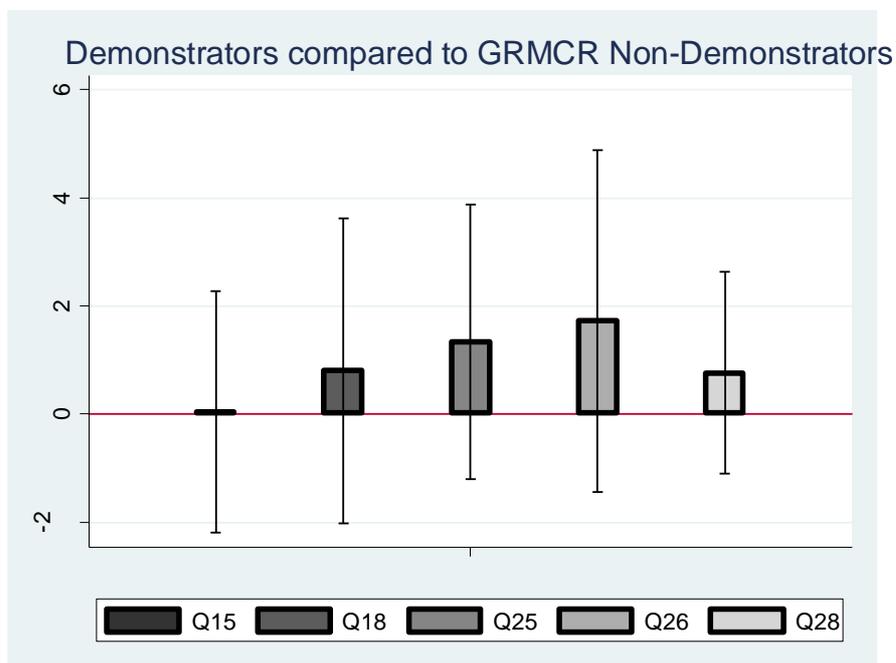


FIGURE 19: CHANGE IN GPPS RESPONSES. REGIONAL COMPARISON WITH NON-DPS IN GREATER MANCHESTER

Finally, considering the analysis of GPPS scores (Figure 19), no statistically-significant effects can be seen for all demonstrators when compared to all non-demonstrators in Greater Manchester. Though positive for each question, none are statistically-significant. In the next section, this will be considered in more detail in the site-by-site analysis.

4.3 Evaluation of Outcomes by Demonstrator

4.3.1 Bury outcomes

Total A&E activity in Bury CCG has remained fairly stable over the period (see Figure 20), except for a substantial decrease in activity within Bury non-demonstrators in 2011 from an average of 120 visits per practice per quarter to around 80 visits per practice per quarter. Since then, activity for both demonstrators and non-demonstrators has been lower in Bury than the Greater Manchester average. After 2014, as Figure 20 shows, demonstrators and non-demonstrators within Bury have followed remarkably similar trends.

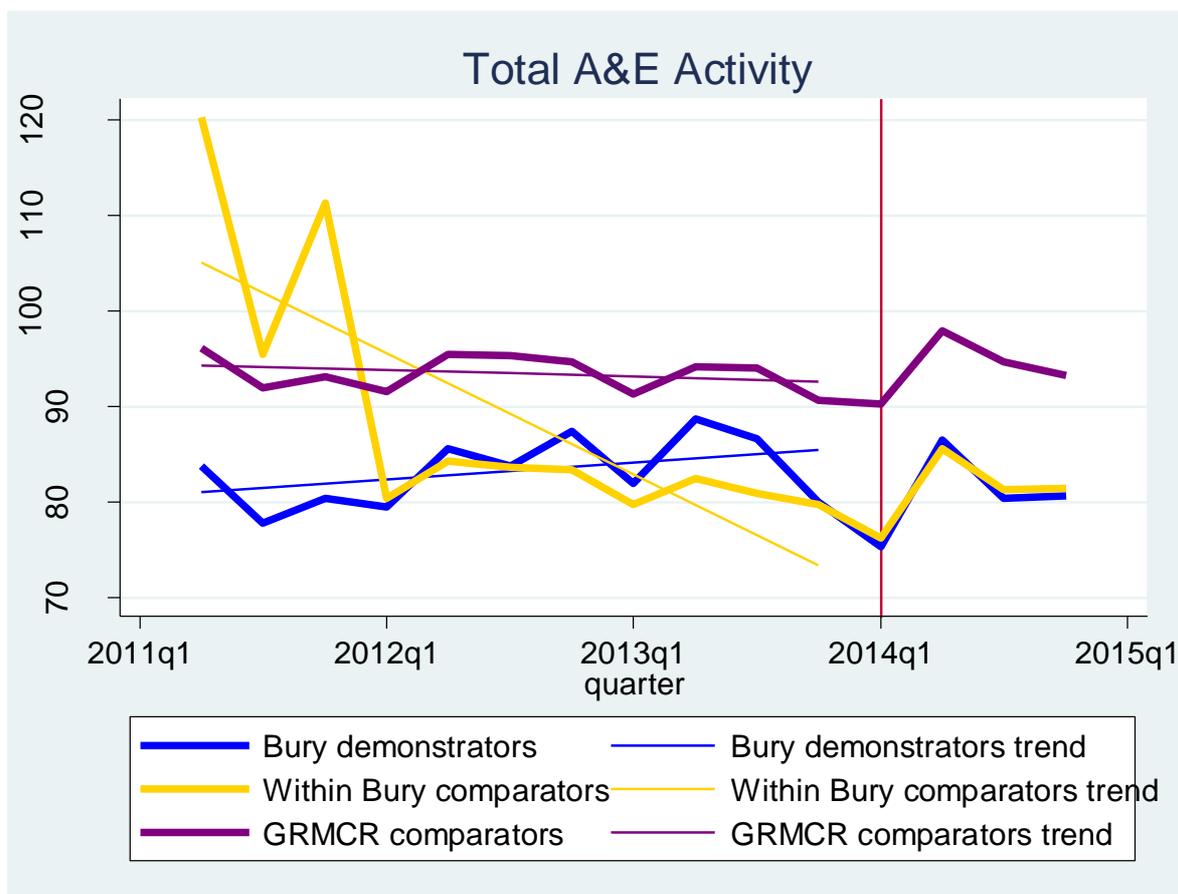


FIGURE 20: AVERAGE NUMBER OF A&E ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER; BURY, LOCAL AND REGIONAL COMPARISON

When comparing Bury regionally (with all non-demonstrators across Greater Manchester) in Figure 21, a statistically-significant decrease of around 4% in total A&E attendances from Bury demonstrators can be seen, but the decrease in minor A&E attendances is not significant. Comparing Bury demonstrators with the rest of Bury, decreases in both total and minor A&E attendances can be seen but neither effect is statistically-significant.

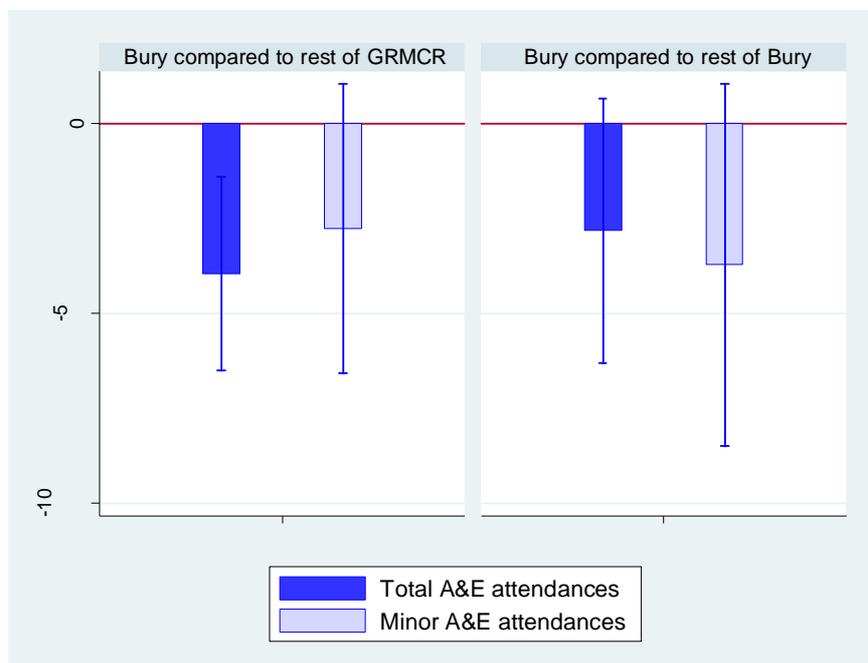


FIGURE 21: CHANGE IN TOTAL AND MINOR A&E ATTENDANCES FROM BURY DPs, LOCAL AND REGIONAL COMPARISON

Comparing Bury demonstrators to the rest of Greater Manchester (Figure 22), there was a significant decrease in self-referrals to A&E while referrals from GPs and other sources increased, although only significantly so for referrals from other sources. Using local comparators, the significant decrease in self-referrals to A&E for patients from DPs is still evident, but no statistically-significant change in referrals from GPs or other sources can be seen. For comparison, in Bury demonstrators in 2013, almost 68% of A&E visits were self-referrals, 27% were from other sources, and the remaining 5% were GP referrals.

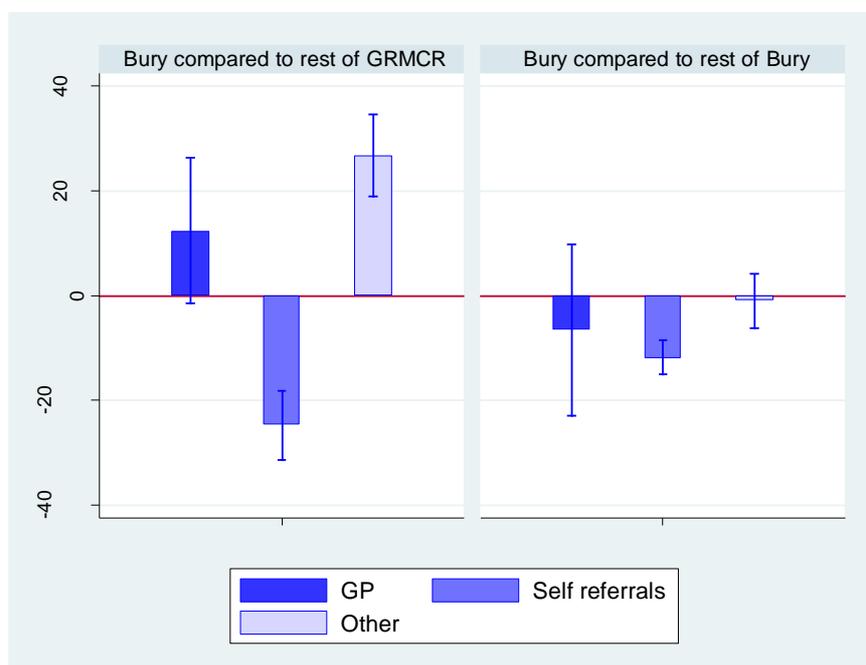


FIGURE 22: CHANGE IN A&E ACTIVITY FROM BURY DPs BY REFERRAL SOURCE, LOCAL AND REGIONAL COMPARISON

There is some evidence of improvements in patient experience and satisfaction with the GP surgery when compared to non-demonstrators in Bury CCG, whether a regional or local comparator is used (Figure 23). Two significant effects are found, Q15 and Q25 with non-demonstrators in Greater Manchester as comparator, and Q25 and Q28 with Bury CCG non-demonstrators as comparator. Overall, Q25 which reports satisfaction with the hours an individual's surgery is open, is consistently positive and statistically-significant across comparators.

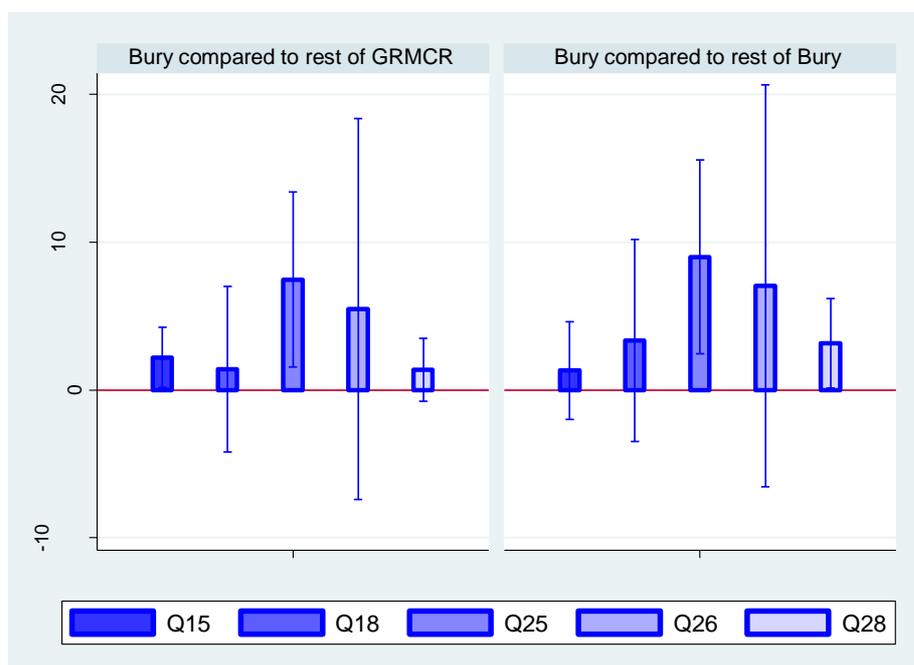


FIGURE 23: CHANGE IN GPPS RESPONSES IN BURY DPs, LOCAL AND REGIONAL COMPARISON

4.3.2 Heywood outcomes

The average total number of A&E attendances per 1,000 registered patients per practice per quarter was generally higher in Heywood than in the rest of Greater Manchester non-demonstrators before the intervention, and considerably higher in HMR non-demonstrators than in Heywood demonstrators (see Figure 24). While there has been a slight increase in activity in HMR non-demonstrators, the trend has been slightly decreasing for Heywood DPs from 2011-2013.

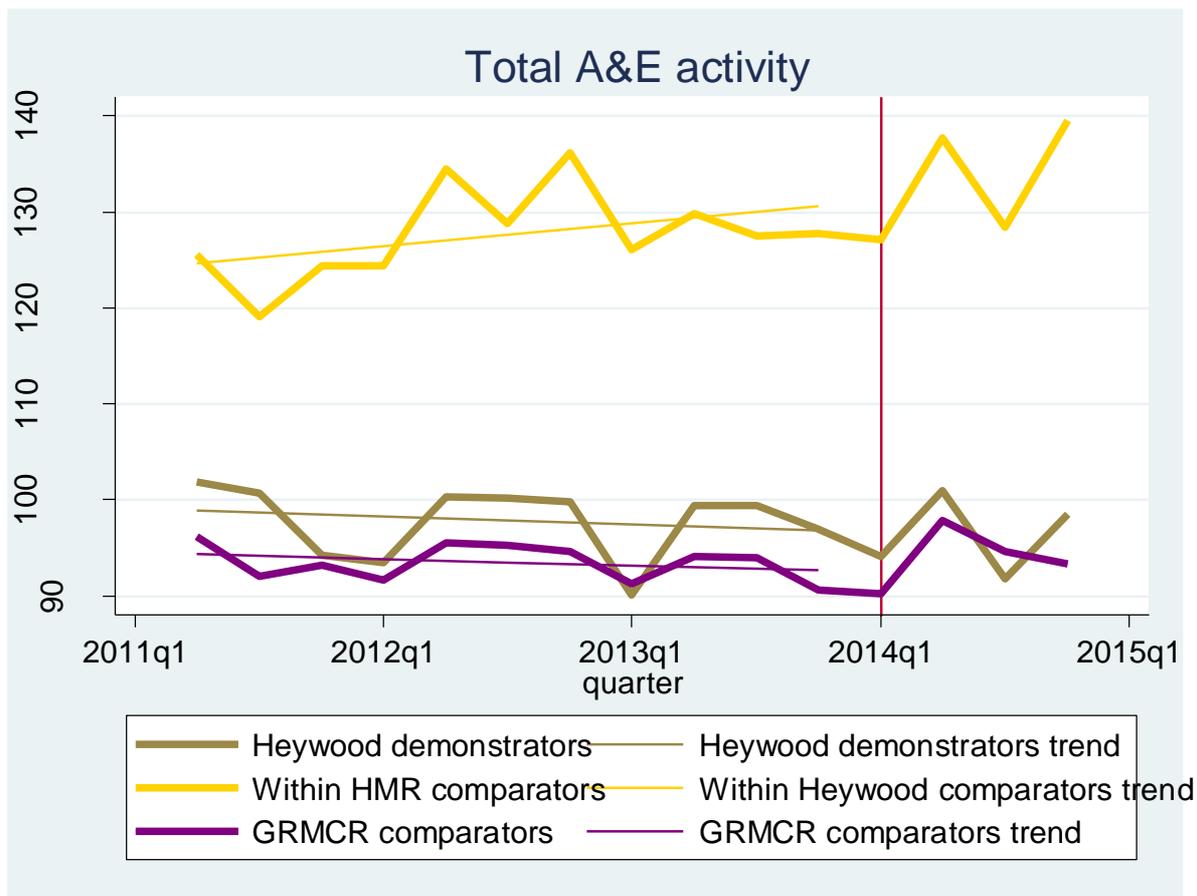


FIGURE 24: AVERAGE A&E ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN HEYWOOD, LOCAL AND REGIONAL COMPARISON

Although there is evidence of a slight increase in minor A&E attendance in the Heywood demonstrator compared to the rest of Greater Manchester (Figure 25), none of the changes in A&E activity (overall or minor) associated with the Heywood demonstrator are statistically-significant.

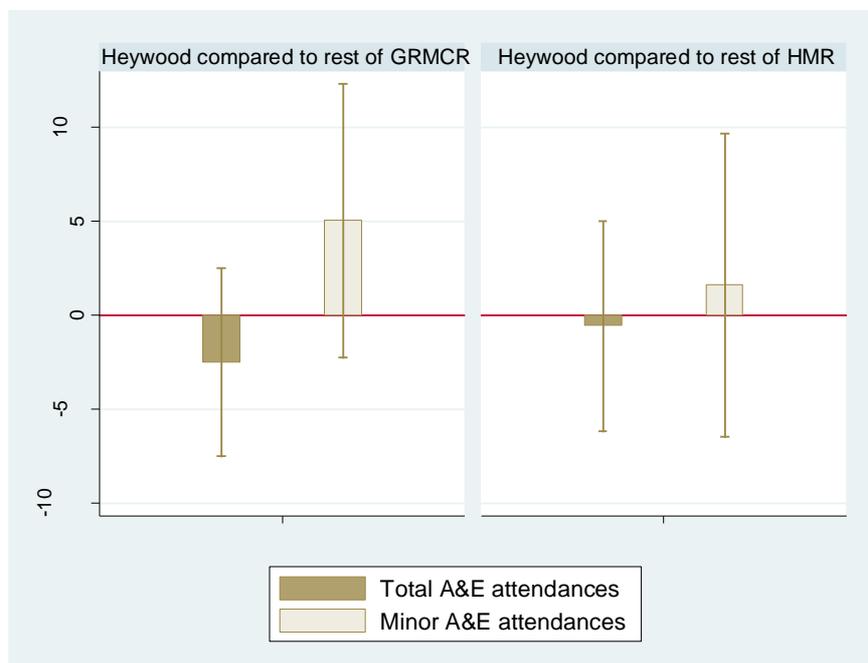


FIGURE 25: CHANGE IN TOTAL AND MINOR A&E ATTENDANCES FROM HEYWOOD DPs, LOCAL AND REGIONAL COMPARISON

Compared to Greater Manchester non-demonstrators, there has been a statistically-significant decrease in self-referrals from Heywood practices after 2014 (Figure 26), while referrals from GPs and other sources have increased, and these increases are also statistically-significant. Comparing Heywood demonstrators to HMR non-demonstrators, only the increase in GP referrals remains statistically-significant. The effect size on GP referrals should be compared to an average of 5 GP referrals per quarter per 1000 registered patients in Heywood practices before the intervention.

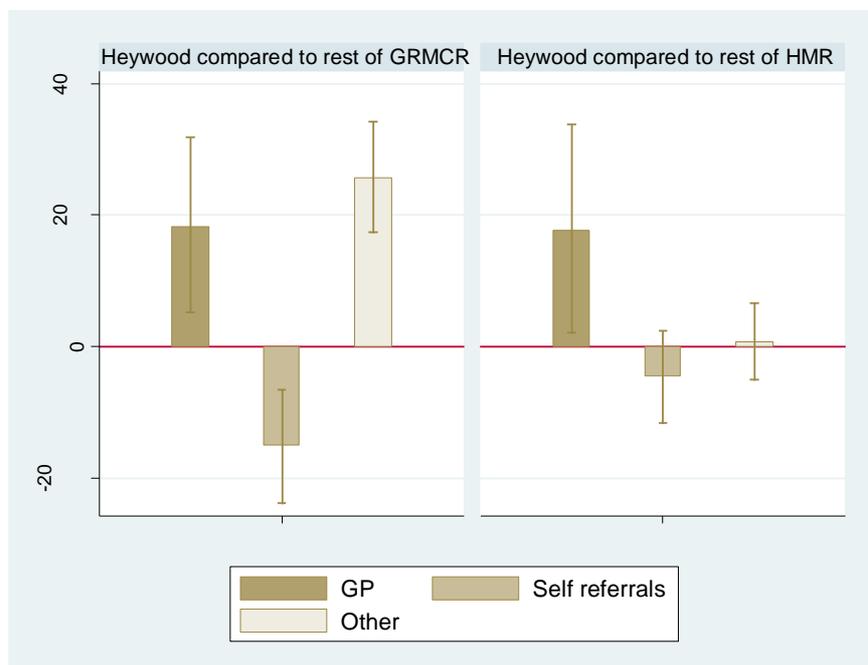


FIGURE 26: CHANGE IN A&E ACTIVITY FROM HEYWOOD DPs BY REFERRAL SOURCE, LOCAL AND REGIONAL COMPARISON

Whilst there is some evidence of improvements in most aspects of patient experience and satisfaction of the GP surgery in Heywood (Figure 27) using either a local or a regional comparison, none are statistically-significant.

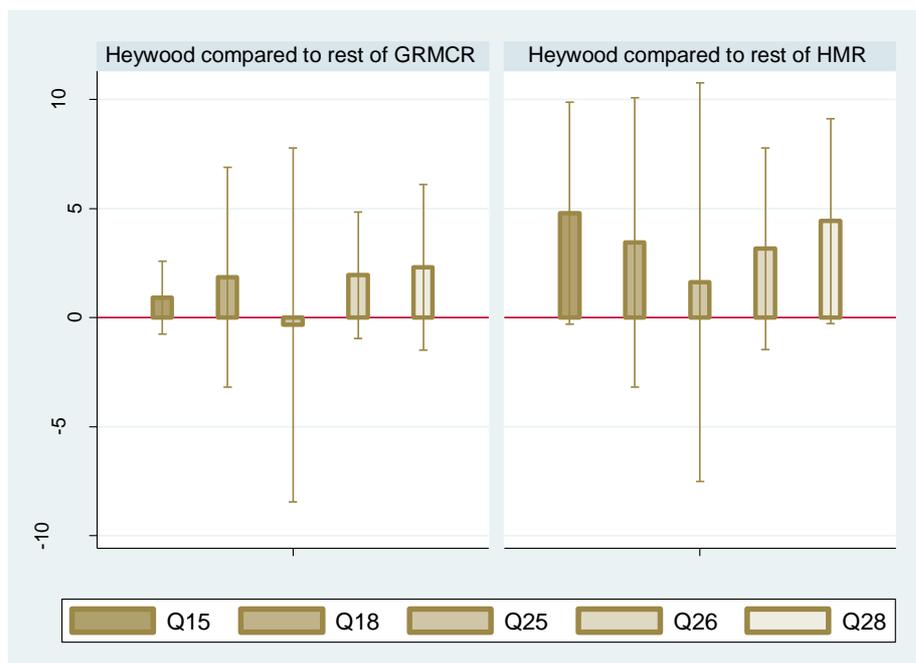


FIGURE 27: CHANGE IN GPPS RESPONSES IN HEYWOOD DPs, LOCAL AND REGIONAL COMPARISON

4.3.3 Middleton outcomes

As in Heywood, the average total A&E activity per practice per quarter was higher in Middleton demonstrators than in the rest of Greater Manchester, but has otherwise followed a roughly similar trend before 2014 (see Figure 28).

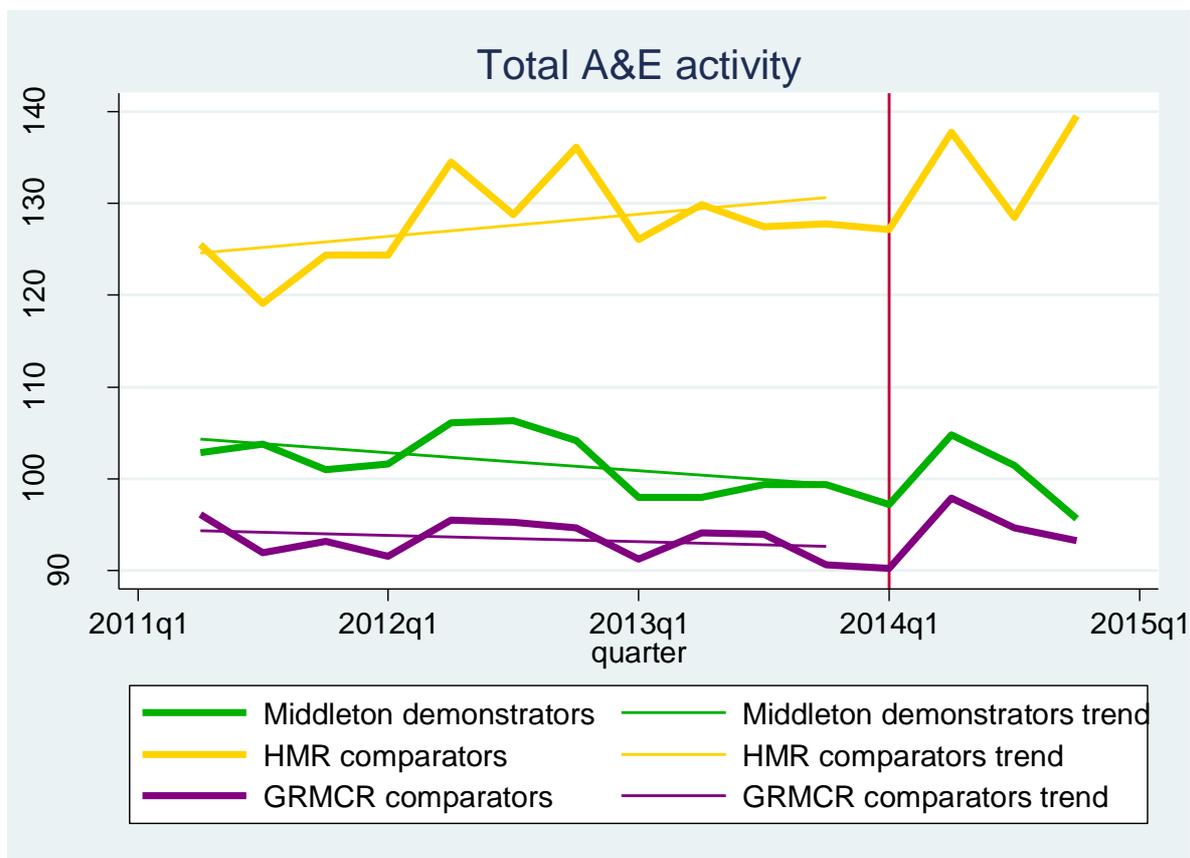


FIGURE 28: AVERAGE NUMBER OF A&E ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN MIDDLETON: LOCAL AND REGIONAL COMPARISON

Compared to the rest of Greater Manchester, a statistically-significant reduction in overall A&E attendances of 3% can be seen in Middleton (Figure 29), while the increase in minor A&E attendances is not significant. No statistically-significant effects on overall A&E attendance or minor A&E attendances can be seen using a local comparator.

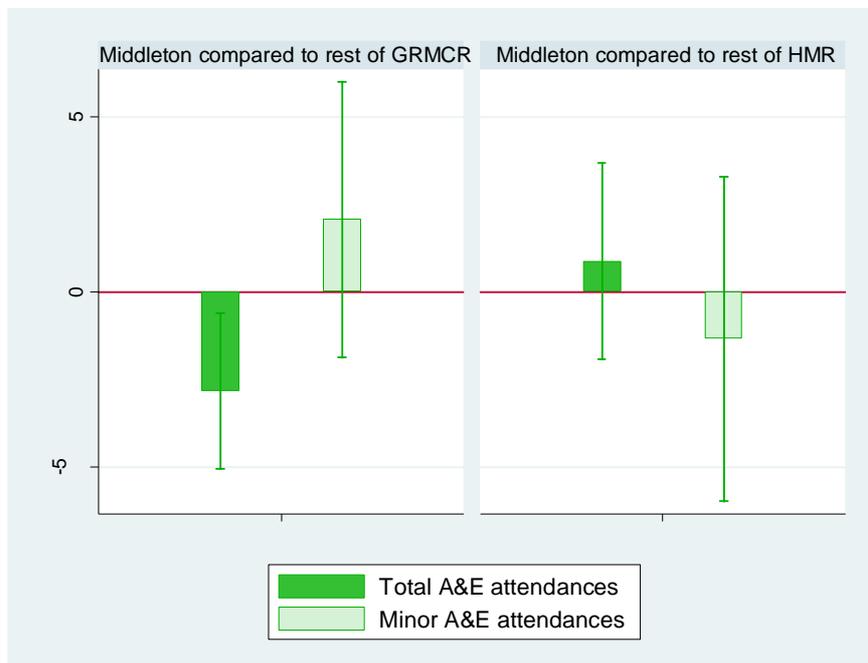


FIGURE 29: CHANGE IN TOTAL AND MINOR A&E ATTENDANCES FROM MIDDLETON DPs, LOCAL AND REGIONAL COMPARISON

When compared to Greater Manchester non-demonstrators (Figure 30), Middleton has seen a statistically-significant reduction in self-referrals to A&E, a non-significant increase in GP referrals and a statistically-significant increase in other referrals. For comparison, in 2013 self-referrals accounted for about 60% of A&E attendances from Middleton practices, amounting to about 60 attendances per 1,000 registered patients per practice per quarter on average. Compared to HMR non-demonstrators, none of these changes were statistically-significant.

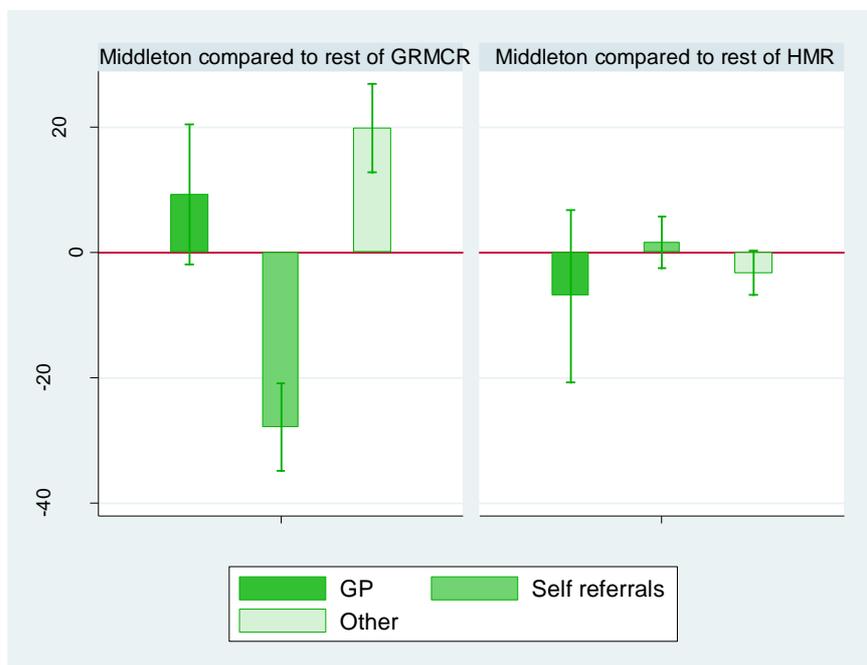


FIGURE 30: CHANGE IN A&E ACTIVITY FROM MIDDLETON DPs BY REFERRAL SOURCE, LOCAL AND REGIONAL COMPARISON

Whilst there is some evidence of improvements in patient experience and satisfaction with the GP surgery when compared to non-demonstrators in HMR CCG (Figure 31), some negative effects are seen when the comparator is non-demonstrators in Greater Manchester. No significant GPPS effects were found for demonstrators in Middleton when using either the local comparator or when compared to all non-demonstrators in Greater Manchester.

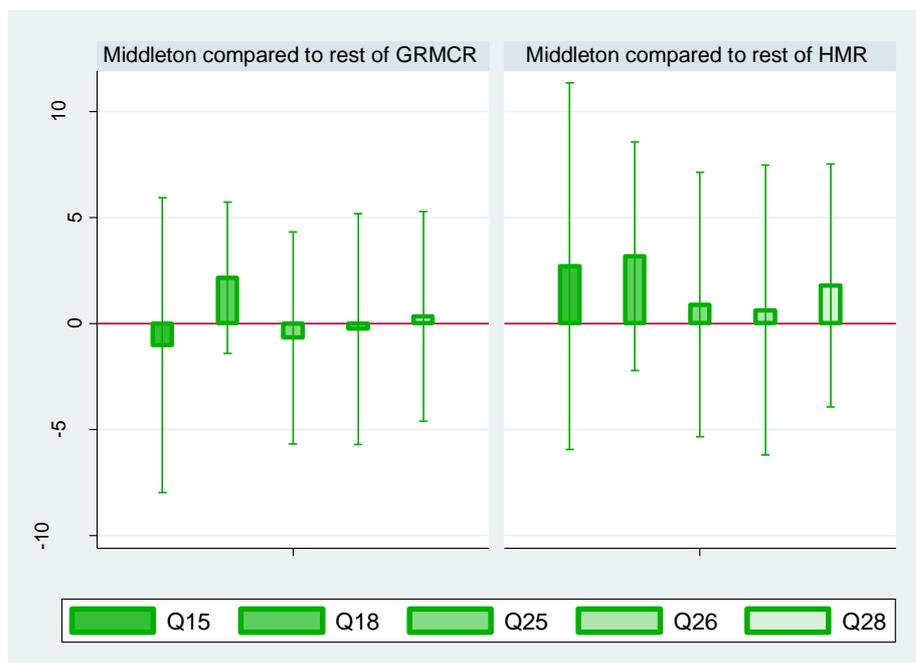


FIGURE 31: CHANGE IN GPPS RESPONSES IN MIDDLETON DPs, LOCAL AND REGIONAL COMPARISON

4.3.4 Central Manchester outcomes

Total activity per practice per quarter in Central Manchester DPs has followed activity in Greater Manchester non-demonstrators closely (Figure 32), except between mid-2012 and the end of 2013, when activity levels were higher in Central Manchester practices. Throughout the period, activity in the comparator practices in North and South Manchester was considerably higher than in the two other groups.

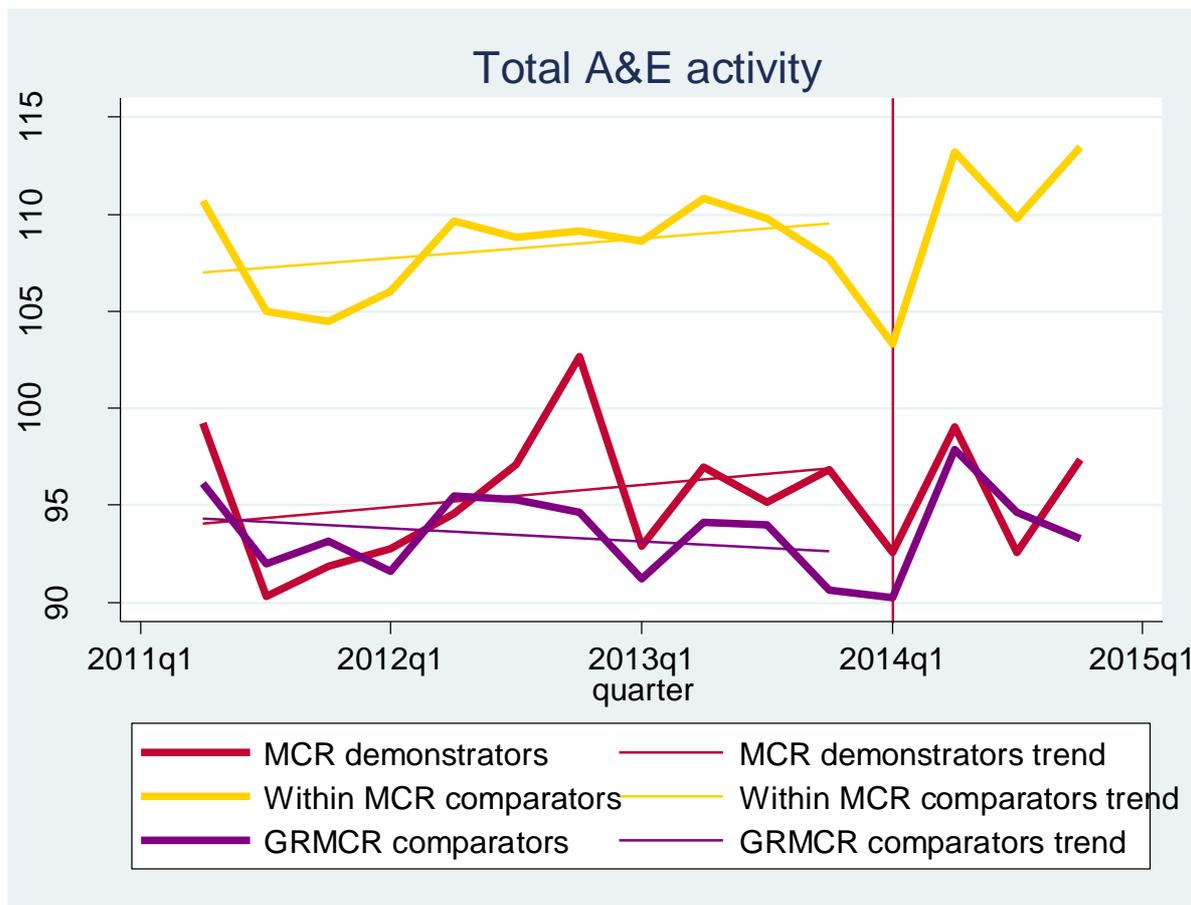


FIGURE 32: AVERAGE A&E ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN CENTRAL MANCHESTER. LOCAL AND REGIONAL COMPARISON

In Central Manchester, reductions in total A&E activity are not statistically-significant (Figure 33). However, a statistically-significant reduction in minor A&E attendances can be seen and the effect remains whether Greater Manchester or local non-demonstrator comparators are used. The reduction is around 14% when compared regionally, and around 8% when local comparators are used. For comparison, in 2013 there were on average 49 minor attendances per quarter per 1,000 registered patients per practice.

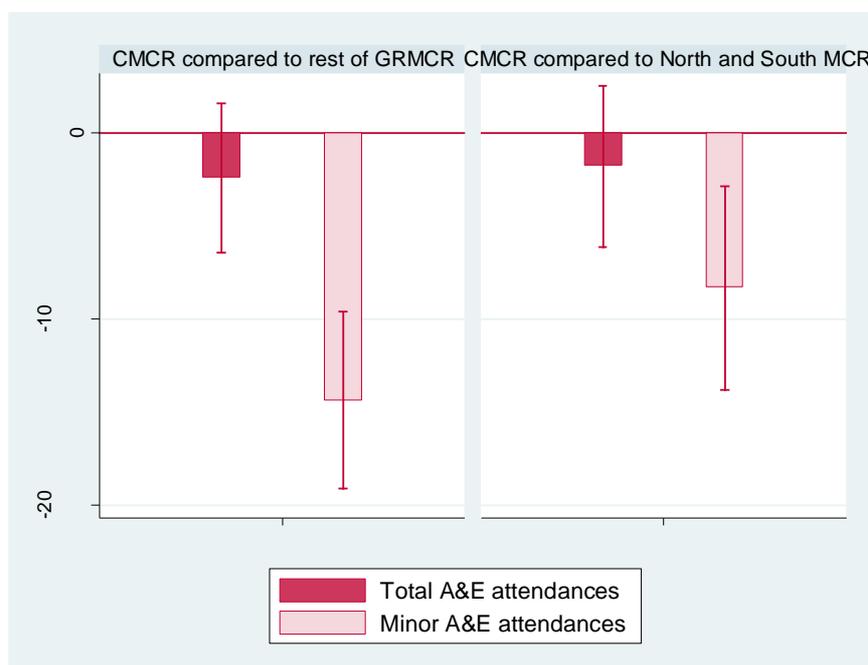


FIGURE 33: CHANGE IN TOTAL AND MINOR A&E ATTENDANCES FROM CENTRAL MANCHESTER DPs, REGIONAL AND LOCAL COMPARISON

Compared to the rest of Greater Manchester, there was a statistically-significant decrease in self-referrals to A&E from patients from Central Manchester DPs in 2014 (Figure 34). Compared to North and South Manchester the decrease in self-referrals was still statistically-significant, as was the reduction in referrals from other sources. In 2013, self-referrals accounted for around 55% of A&E attendances in Central Manchester demonstrators (or on average 52 attendances per 1,000 registered patients per practice per quarter), while referrals from other sources accounted for around 43%.

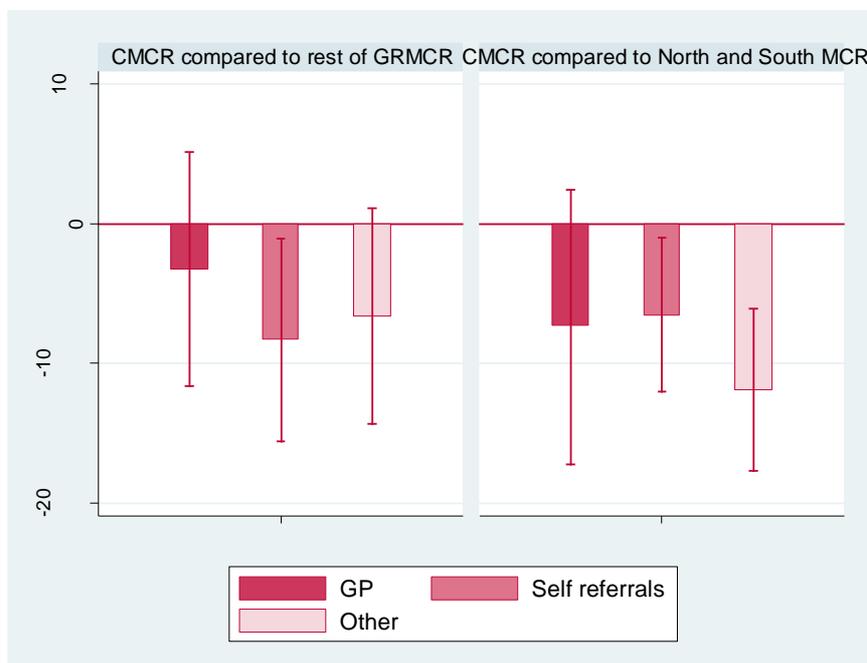


FIGURE 34: CHANGE IN A&E ACTIVITY FROM CENTRAL MANCHESTER DPs BY REFERRAL SOURCE, LOCAL AND REGIONAL COMPARISON

Whilst there is some evidence of improvements in patient experience and satisfaction of the GP surgery (Figure 35), no statistically-significant GPPS effects were found for demonstrators in Central Manchester when compared to either North and South Manchester CCG or all non-demonstrators in Greater Manchester.

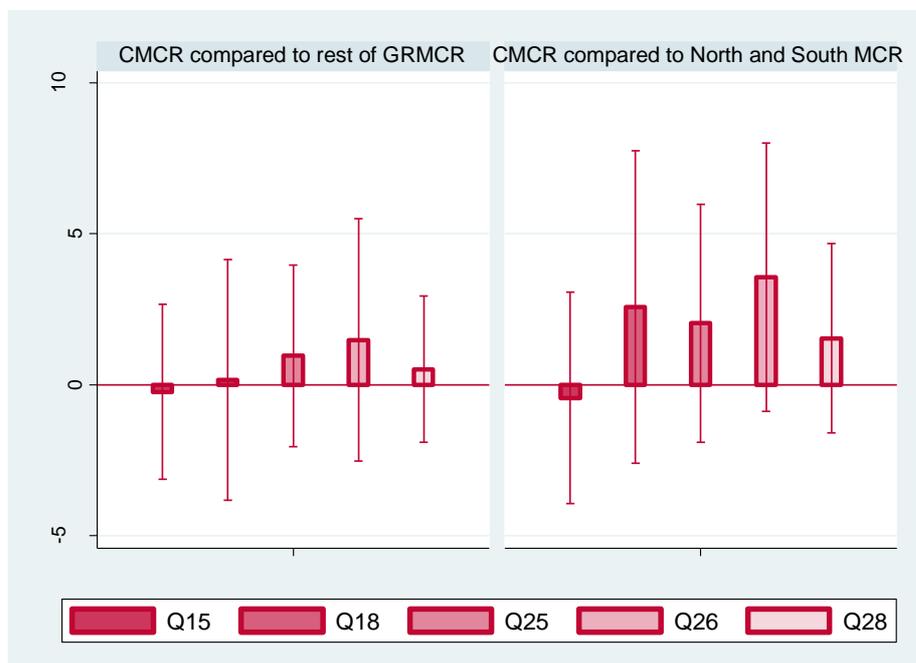


FIGURE 35: CHANGE IN GPPS RESPONSES IN CENTRAL MANCHESTER DPs, LOCAL AND REGIONAL COMPARISON

4.4 Out of Hours and Walk in Centre outcomes

Due to the limited comparability of data available on Out of Hours (OOH) and Walk in Centre (WIC) services in Greater Manchester, the following analysis of the impact of demonstrators on these services includes local (within CCG) comparisons only (See Table 3 above for full details of comparators used here). Due to the different formats and suppliers of data, this section will consider Bury and HMR together, before considering similar data for Central Manchester.

OOH attendances in HMR were higher for demonstrators and followed similar trends to non-demonstrators throughout the period (Figure 36). In Bury, OOH attendance was generally higher in the DPs before 2014, then fell considerably below Bury non-demonstrators after 2014 (Figure 37). This is reflected in the change after the introduction of the additional availability demonstrators in these areas. A statistically-significant reduction in the use of OOH services in Bury of about 38% was observed, while there was no change in HMR (Figure 38).

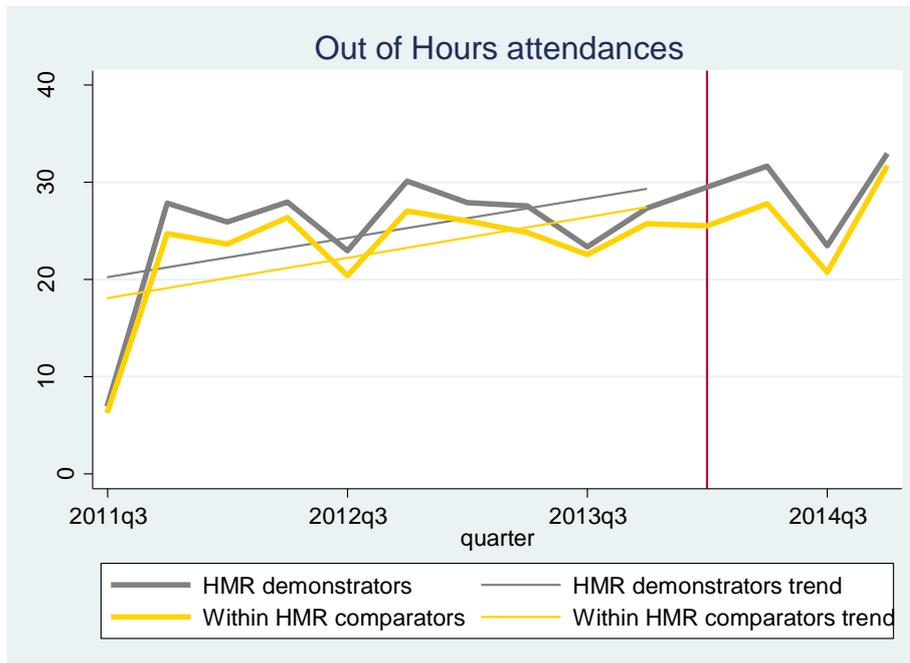


FIGURE 36: AVERAGE NUMBER OF OOH ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN HMR DPs COMPARED TO HMR NON-DPs

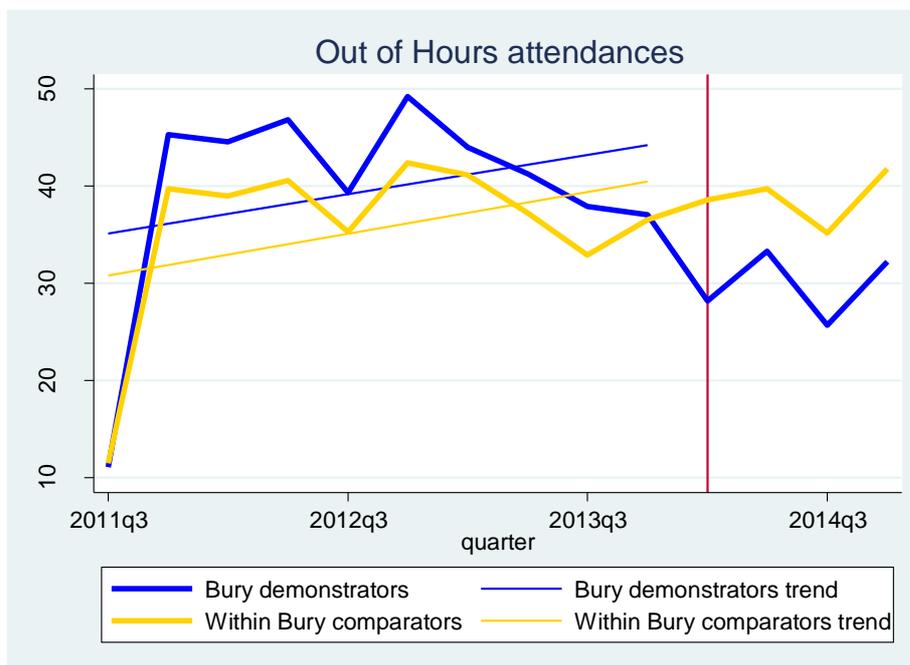


FIGURE 37: AVERAGE NUMBER OF OOH ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN BURY DPs COMPARED TO BURY NON-DPs

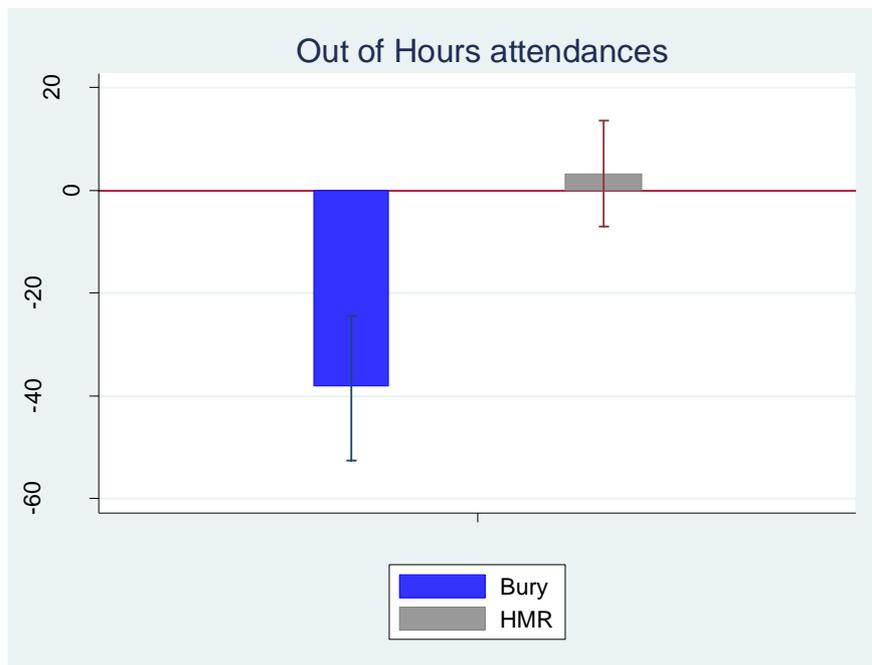


FIGURE 38: CHANGE IN OOH ATTENDANCES IN BURY AND HMR DPs COMPARED TO BURY AND HRM NON-DPS

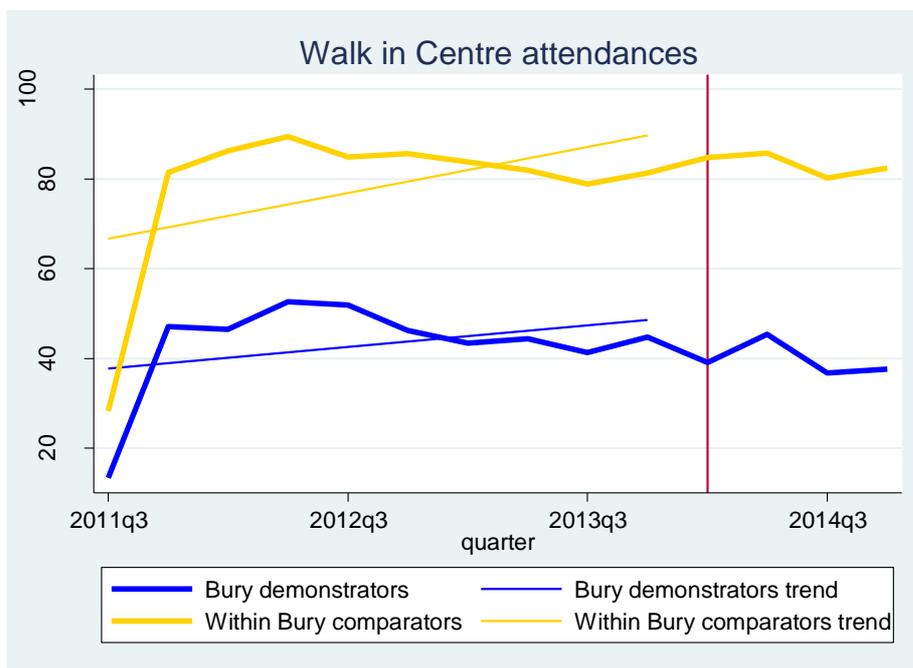


FIGURE 39: AVERAGE WIC ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN BURY DPs COMPARED TO BURY NON-DPS



FIGURE 40: CHANGE IN WIC ATTENDANCES IN BURY DPs COMPARED TO BURY NON-DPs

Looking at WIC attendances (Figure 39), attendances from DPs in Bury were generally lower than attendances for patients from non-demonstrators in Bury in the pre-intervention period. A statistically-significant decrease in WIC attendances of about 14% after 2014 is estimated for patients from Bury demonstrators compared to Bury non-demonstrators (Figure 40). Data for WIC usage in HMR did not contain enough attendances to be analysed robustly and has been excluded from the analysis.

Turning now to Central Manchester, Figure 41 shows that OOH activity in North, South and Central Manchester CCGs has been on a downward trend from 2011-2013. Activity levels prior to the demonstrator were generally higher for patients from North and South Manchester CCG practices than for patients from Central Manchester CCG through the period. The picture is reversed when looking at WIC activity at CMFT (Figure 42) where more activity came from Central Manchester practices.

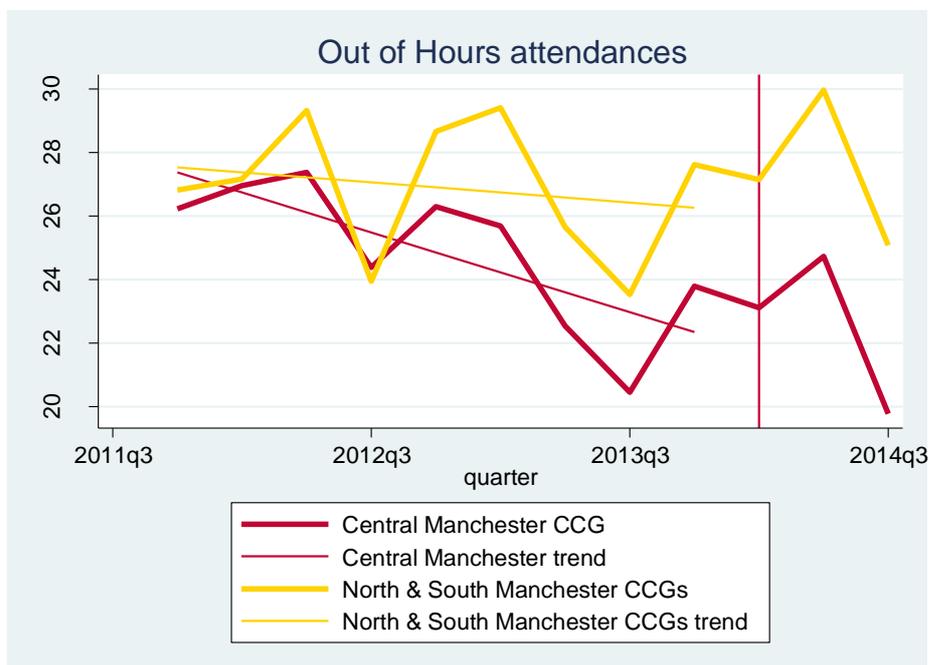


FIGURE 41: AVERAGE NUMBER OF OOH ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN CENTRAL MANCHESTER CCG COMPARED TO NORTH AND SOUTH MANCHESTER CCGS

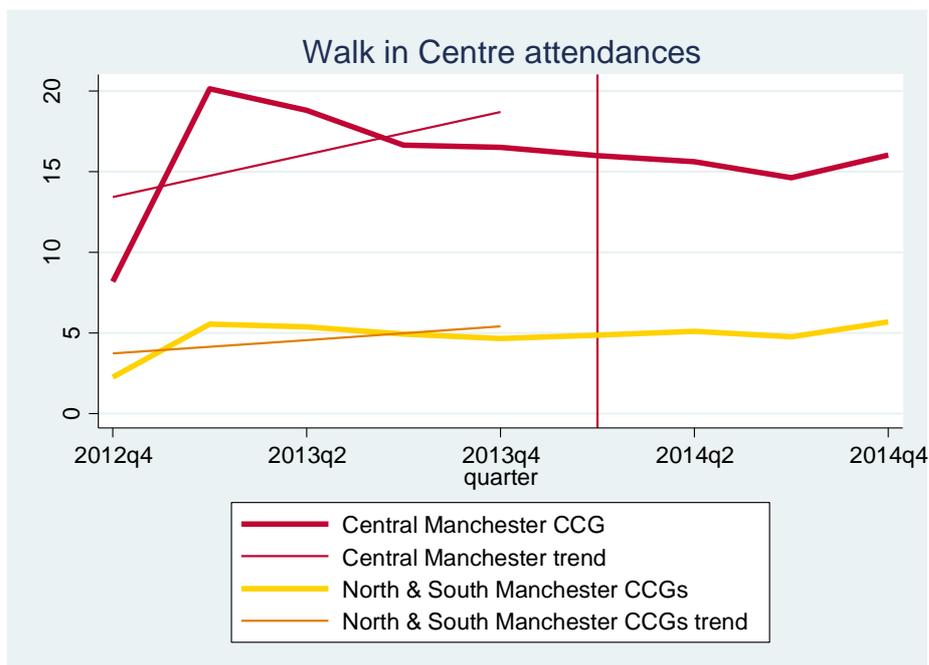


FIGURE 42: AVERAGE NUMBER WIC ATTENDANCES PER 1,000 REGISTERED POPULATION PER PRACTICE PER QUARTER IN CENTRAL MANCHESTER CCG COMPARED TO NORTH AND SOUTH MANCHESTER CCGS

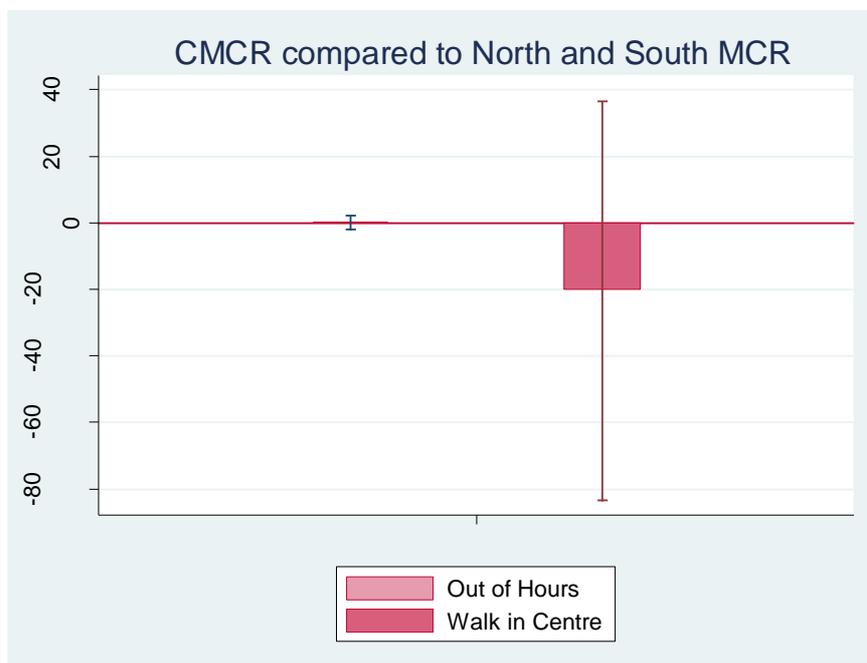


FIGURE 43: CHANGE IN WIC AND OOH ATTENDANCES IN CENTRAL MANCHESTER CCG COMPARED TO NORTH AND SOUTH MANCHESTER CCGS

As Figure 43 shows, no statistically-significant change in activity can be seen for OOH attendances or WIC attendances in Central Manchester compared with North and South Manchester.

4.5 Demonstrator Impact: Estimated Cost Implications

The demonstrators were asked to provide a summary of expenditure, organised so as to distinguish between set up costs and service delivery costs. Table 13 below shows this information, provided by the demonstrators to NHS England; the table only contains data for those services whose outcomes are evaluated in this report.

It should also be noted that, in the case of Central Manchester, the reported cost of providing the additional availability and responsiveness services alone already exceeds the total demonstrator funding provided by NHS England – this is because other funding was used to supplement the demonstrator funds here. These figures have not been independently validated by the evaluation team and are presented as reported by the demonstrator leads.

TABLE 13: SUMMARY OF COSTS ASSOCIATED WITH EVALUATED DEMONSTRATOR COMPONENTS

	Set-up Cost (£)	Service Delivery (£)	Total Cost (£)*	Services included in recurrent cost**
Bury	142,855	383,112	525,967	Additional availability
Central Manchester	121,409	1,161,520	1,282,929	Additional availability Responsiveness service
Heywood	37,200	355,829	393,029	Additional availability
Middleton	50,000	232,000	282,000	Additional availability
Stockport	25,000	260,000	285,000	Enhanced end of life service
Bolton	77,190	65,405	142,595	Care home service Pharmacist reviews

* Total cost refers to the period evaluated (Dec 2013-Dec 2014).

**For full list of services provided in each demonstrator see Table 1.

This evaluation has not included a full analysis of cost-effectiveness; the rationale for this is provided in Section 1.5. What this evaluation does provide is an estimation of the impact of the demonstrators in terms of total A&E costs and minor A&E costs, where statistically-significant findings were shown. The variables 'total A&E costs' and 'minor A&E costs' are sums of the tariffs of patients attending A&E (all patients, and minor patients only, respectively), they do not represent the total costs of providing A&E services.

Attaching financial measures to the statistically-significant changes in A&E activity analysed in the previous section involves calculating the expected change in A&E costs (where cost is measured as the tariff of A&E attendances as previously specified) associated with demonstrator impacts where these are statistically-significant: The statistically significant changes are as follows;

- Bury (4% decrease in total A&E activity)
- Middleton (5% increase in total A&E activity)
- Central Manchester (14% decrease in minor A&E activity).

The cost estimates generated below are associated with the same uncertainty as the effect estimates and so are given as a central estimate and a confidence interval around it. **Note in particular that the "true" estimated cost reduction is equally likely to be anywhere within the confidence interval.** The 'central estimate' provided is the mid point of the confidence interval and gives a broad indication of the possible cost impact.

Calculating the cost reduction is done in comparison with a base period. The effect is estimated using the period 2011-2013 as a base period. The estimated effect thus represents an average effect in comparison to this period. While technically, the cost effect should thus be calculated on the average cost per quarter over the base, for simplicity, in the following, the expected cost reduction is calculated compared to 2013 costs. **This means that if there was a large increase in 2013 tariffs, this would inflate the effect of any change in costs or activity prior to 2013, therefore there is the potential in this analysis for over-estimating the cost impact of the demonstrators.**

In Bury, the average quarterly cost of A&E attendances per 1,000 registered patients in the DPs was £7,997 in 2013. An estimated reduction of 4% corresponds to an estimated reduction in costs of A&E attendances of between £140 and £534 (central estimate £337) per 1,000 patients per quarter. The total registered population in DPs in Bury in 2013 was 34,244 patients. For the registered demonstrator population as a whole, the estimated quarterly reduction is thus between £4,800 and £18,300, with a central estimate of £11,500 on average. This amounts to a yearly reduction in A&E costs of between £19,000 and £73,000 (central estimate £43,000) for the population registered in Bury DPs as a whole.

For Middleton, a similar calculation suggests an estimated increase in A&E expenditure for the Middleton demonstrator population as a whole of between £57,000 and £137,000 (central estimate £97,000) over a year. This is equivalent to an average increase in A&E costs per 1,000 registered patients of between £275 and £666 (central estimate £471) per quarter. However, given the reduction in minor A&E activity identified here, it is likely that this increase results from an increase in costs associated intermediate and major intensity activity, which is unlikely to be a consequence of primary care changes as part of the demonstrator.

In Central Manchester, the estimated reduction in minor A&E attendances using all non-DPs as comparison group suggests a reduction per 1,000 registered patients per quarter of between £381 and £656 (central estimate £519), corresponding to a total yearly reduction of between £285,000 and £565,000 (central estimate £425,000) for the 215,000 registered patients in the demonstrator population as a whole.

The reduction in Out of Hours activity in Bury corresponds to an estimated annual reduction of between £91,000 and £181,000 (central estimate £142,000) for the population registered in Bury practices as a whole. This has been calculated using the per case tariff, and therefore does not represent an actual cost reduction as Out of Hours is subject to a block contract calculated by population. The reduction in Walk in Centre activity in Bury corresponds to an estimated annual reduction of between £13,000 and £31,000 (central estimate £22,000). This has been calculated using the tariff per non registered attendance. The total costed reduction in OOH and WIC activity in Bury is therefore in the region of £164,000.

4.6 Demonstrator Impact: Non-Additional Availability Services

Compared to the additional availability services, the aims of the non-additional availability services, and the nature of the services themselves, were more heterogeneous. In general they also did not accrue sufficient activity levels to create an impact which could be identified using the secondary data sources drawn on for the outcome analysis of the additional availability services^{xxix}. Two exceptions to this are the responsiveness service in Central Manchester and the mental health clinics in Middleton, which have contributed to the estimated effects provided in the Difference-in-Difference analysis above. For the remaining non-additional availability services it was not feasible to perform a dedicated outcome analysis of these services, which formed part of the Central Manchester, Heywood and Middleton demonstrators, and the entirety of the Stockport and Bolton demonstrators. Several services (rapid response, the navigator, homelessness and mental health clinics) addressed acute problems in the first instance, then worked to organise care, which would often be provided by other organisations. Others focussed more on preventative or long term (including palliative) care (complex care, enhanced end of life, care homes, and care planning services). Most required a great deal of collaboration and coordination beyond the immediate demonstrator teams and across care providers. Using the activity data provided by the demonstrators, the following estimates of impact can be made.

- In Bolton, across the four care homes participating in the demonstrator, during the evaluation data collection period there was a decrease of 23% in A&E attendances by ambulance at Royal Bolton Foundation Trust compared to the same months during the previous year. This compares to a 9% reduction in non-demonstrator care homes in Bolton during the same period. A comparison of non-elective admissions over the same time periods shows a 13% decrease in demonstrator care homes compared to a 16% decrease in non-demonstrator care homes in Bolton.
- In addition, the employment of a medicines optimisation pharmacist contributed to the demonstrator, performing medication reviews with some patients. Bolton CCG provided data showing that the cost of the pharmacist input over the duration of the demonstrator was £15,400. The pharmacist carried out medication reviews (ad hoc, MAR chart and comprehensive) which led to reported reduced medication costs of £55,611. The summary provided by the CCG shows the impact of the demonstrator on medication prescribing costs, but is not a cost-effectiveness analysis as neither the full cost of providing the reviews, nor the cost of the alternative, are known and no outcomes were observed. It should also be noted that the summary figures provided include costs related to activity carried out after the demonstrator evaluation period had ended (up to February 2015).
- In Stockport, 90% of people who died while enrolled on the enhanced End of Life service died at home. However, without patient-specific information relating to previous years to use as a comparator, it is not possible to measure the impact of the demonstrator here. Due to the

small activity levels (105 patients in total) there has been no discernible impact on the overall rate of deaths at home across the areas covered by the service.

4.7 Summary of Outcome Analysis

A&E attendances

Across all demonstrators an average 3% reduction in all A&E activity after the intervention is estimated, when compared regionally with all non-DPs in Greater Manchester. This is comprised of statistically-significant reductions in activity in Bury (4%) and Middleton (3%) and non-significant reductions in Central Manchester CCG and Heywood. This effect, however, is not replicated when demonstrators are compared to non-demonstrators within their own CCG. Using local comparisons, none of the demonstrators were associated with statistically-significant reductions in total A&E activity.

Focusing solely on minor A&E attendances, only Central Manchester showed a statistically-significant reduction in activity following the inception of the demonstrator. When compared regionally (with all non-demonstrators in Greater Manchester), a statistically-significant reduction of about 14% was observed; when compared locally (with North and South Manchester) a reduction of 8% was measured.

Finally, examining the data in terms of the way people were referred to A&E, a slightly different picture emerges. In all demonstrators there was a statistically-significant reduction in self-referrals to A&E compared regionally (to all non-demonstrators in Greater Manchester). Using local within-CCG comparisons, the reduction was not statistically-significant in Heywood and Middleton, but remained significant in Central Manchester and Bury. There were also statistically-significant increases in GP referrals to A&E from Heywood demonstrators using either regional or local comparisons. Referrals to A&E from other sources increased in Bury, Heywood, and Middleton demonstrators when using Greater Manchester as a comparison group, but none of these were statistically-significant when compared locally.

Out of Hours and Walk in Centre attendances

Both OOH attendances and WIC attendances decreased in Bury DPs; WIC usage fell by around 14% while OOH usage fell by around 38% compared to the rest of the CCG: both findings were statistically-significant. By contrast, there was no statistically-significant change in WIC or OOH attendances in patients from the Central Manchester, Heywood or Middleton demonstrators.

Patient Satisfaction

The GPPS was used to test for any significant differences in patient perceptions of their GP and GP surgery following the introduction of the demonstrators in 2014. The only demonstrator to experience

significant changes in items related to access was Bury. Here, improvements can be seen in satisfaction with opening hours and whether using a local or a regional comparison, the effect remains. Improvements with the convenience of appointment in Bury were found when using a regional comparison, as were improvements with the experience of the surgery using a local comparison.

A summary table of the outcome analysis by demonstrator site is presented below (Table 14), orange cells show statistically-significant increases in activity and purple cells show statistically-significant decreases in activity. Only statistically significant results have been included.

TABLE 14: SUMMARY OF ADDITIONAL AVAILABILITY OUTCOME ANALYSIS

	Total A&E Activity	Total A&E Cost	Minor A&E Activity	GP Referral	Self-Referral	Other Referral	Out Of Hours GP	Walk In Centre
Bury	-4%	-4%			-25%	+27%	-38%	-14%
C. Mcr			-14%		-8%			
Heywood				+18%	-15%	+26%		
Middleton	-3%	+5%			-9%	+22%		

Percentages given are estimates based on sinh transformations of the regression coefficients, and have been rounded. All results are with Greater Manchester non-demonstrators as the comparator (except for OOH and WIC where for Bury, Heywood and Middleton within-CCG comparators are used, and for Central Manchester where non-demonstrator practices in North and South Manchester CCG are the comparator).

Two important clarifications should be made here. Firstly, the reduction in total A&E activity in Middleton accompanied by a rise in total A&E costs can be explained by the precise mix of A&E activity; a total decrease may include a large decrease in less-costly minor activity accompanied by a smaller increase in more costly intermediate and major intensity activity. It is also important to note that this table refers to percentage changes, not absolute changes. So, for instance, where Bury sees a reduction of 25% in self-referrals but an increase in other referrals of 27%, these should not be taken as equivalent in size; there are roughly twice as many self-referrals to A&E in total as 'other' referrals.

Non-Additional Availability Services

As noted, compared to the additional availability services, the aims of the non-additional availability services were generally more heterogeneous; the services themselves, also, were diverse in terms of what was actually provided and the range of people doing this. Several of the services (rapid response, the navigator, homelessness and mental health clinics) addressed acute problems in the first instance then worked to organise ongoing care, which would often be provided by other organisations, so signposting, referring and liaison were central to the service provided. Others focussed more on preventative or long-term (including palliative) care (complex care, enhanced end of life, care homes

and care planning services) tended to address less urgent needs, but also required a great deal of collaboration and coordination beyond the immediate demonstrator teams. Another difference between these and the additional availability services was the degree of change to roles, and shifts into roles newly created, or new for the individual practitioner, identified across these services. Whilst several of the Stockport services built on ongoing changes such as co-location of services, others seemed to represent further developments, stemming from the demonstrators themselves. Three services in particular, the care home service (Bolton), the navigator service (Heywood) and the enhanced EoL service (Stockport) have been singled out as being particularly innovative. Demonstrator-provided outcome data also suggested cost savings associated with the care home and medicines management service (in Bolton) and the enhanced EoL service (in Stockport). Although relatively small numbers of patients were involved, the recurrent and strong expression of positive views and experiences of these services and their potential, in terms of their perceived value for patients and staff alike, discerned through our process evaluation, suggest that these services in particular merit further exploration and rigorous, structured evaluation, including from the patient perspective.

5 Process Evaluation

5.1 Process Evaluation Methods

The aim of this component of the evaluation was to understand and explore the processes involved in planning and implementing the demonstrators. In order to gain an in-depth understanding of each demonstrator, a qualitative approach was adopted, semi-structured interviews were used. The sampling strategy was purposive in that it was driven by the characteristics of the case study sites and to capture a range of views from people working at strategic and operational levels, both within the provider organisations and other relevant organisations (including hospitals pharmacies, local authorities, etc). Snowball sampling was employed; project leads were initially interviewed, and they suggested other relevant interviewees, such as service managers, who in turn provided further contacts. The interviews were conducted across three stages.

Stage 1 in the process evaluation involved generating qualitative data from key informants (typically demonstrator leads) within each of the demonstrator communities during January-February 2014. These interviews were designed to provide an in-depth and detailed understanding of the interventions themselves, what they intended to achieve and how their impact was to be measured by the demonstrator site. Across the demonstrators, these initial questions were designed to help identify:

- How integration/access/technology is defined by each demonstrator.
- The specific service interventions used by each demonstrator to address the key issues of access/integration /use of technology?
- How improvements associated with access/integration/use of technology are being measured by each demonstrator.

Based on these initial key informant interviews, Stage 2 of the process evaluation involved focused interviews with a range of individuals who were either directly or indirectly involved in the demonstrators. These interviews were designed to explore how the process of implementing these interventions unfolded in practice from the point of view of the demonstrator participants. As evidenced in other evaluations of demonstrator projects^{xxx}, the effectiveness of each demonstrator, and the factors influencing this, depend substantially on the context in which the intervention takes place. Particular attention was therefore paid, at this stage, to the impact of the local context on implementation (e.g. what helps or hinders their implementation).

Finally, in Stage 3 a set of 'round-up' interviews were conducted towards the close of the demonstrator period with the leads in each demonstrator. Mirroring the initial key informant interviews, the intention of these interviews was to gain a retrospective account of the performance of each demonstrator.

NHS ethical approval was not required for the conduct of this service evaluation, which involved no direct patient contact by the research team. In line with university ethics procedures, all potential participants were contacted by the research team, by email or telephone, given information about the project and purpose of the interview, and invited to participate. Semi-structured interviews were used; where permission was granted the interviews were audio-recorded and fully transcribed using a secure and confidential transcription service. All data was anonymised prior to reporting. Qualitative data analysis software (NVivo 10) was used to store and manage the data. The qualitative research team read the transcripts and devised a coding framework, detailed below;

1. Six domains were identified during primary content analysis of all data. These domains established a primary coding frame consisting of 'policy', 'enablers', 'context', 'demonstrators', 'free (open) nodes' and 'lists'.
2. Thematic analysis then established a wider framework that consisted of 60 separate codes (in which each code represented a single theme or topic discussed during interview)
3. Following the creation of the above analytical frameworks, all codes were cross-checked and validated for relevance and rigour by the full membership of the qualitative research team
4. Primary and secondary analysis sought to quantify and identify patterns/similarities of experience throughout the demonstrators. Various forms of analysis (including thematic, content, narrative, and 'rapid appraisal' focusing upon a project's 'Strengths, Weaknesses, Opportunities and Threats') also provided further substantiation and confirmation of the emergent findings previously documented in the Interim Report of June 2014

Ninety-one people participated in interviews between January and October 2014. Most were conducted in person, at the participants' place of work and four were conducted via the telephone. The majority of interviews were individual, with a few being conducted in pairs or groups of three. Such group interviews were conducted for pragmatic reasons, such as availability (e.g. two managers running the same service being interviewed together). The interviews lasted between fifteen minutes and two hours, with most around one hour long.

Throughout this report, all respondents have been anonymised with a numeric reference prefixed by R (respondent). The numeric value corresponds to the named respondent interview contained within the NVivo database. In this instance R049 represents the 49th (of 80) respondent transcript within the NVivo framework.

Interview participants in stages one and two are summarised below; in Table 15 by sector and in Table 16 by occupational type.

TABLE 15: INTERVIEWEES BY SECTOR AND DEMONSTRATOR

Site	Sector						Total
	CCG	General practice	Acute services	Community services	Local authority	Other*	
Bolton	3	6	0	2	0	2	13
Bury	3	4	3	2	1	7	20
Central Mcr	3	6	1	0	0	1	11
Heywood	1	5	4	3	0	3	16
Middleton	1	6	4	1	0	3	15
Stockport	5	0	0	2	16	0	23
Total	16	27	12	10	17	16	98**

*Care home (3), GP federation (4), Ambulance Trust (1), CSU (3), Third Sector (2) OOH (2)

**8 individuals double-counted due to roles spanning Heywood and Middleton (7) and Bury, Heywood and Middleton (1)

TABLE 16: INTERVIEWEES BY OCCUPATION AND DEMONSTRATOR

Site	Profession/occupation*							Total
	Manager	Nurse	Doctor	Pharmacist	Support worker	Administrator	Other**	
Bolton	7	1	2	1	1	1	0	13
Bury	13	0	5	1	1	0	0	20
Central Mcr	7	0	3	0	0	1	0	11
Heywood	9	1	4	0	1	0	1	16
Middleton	6	1	6	0	0	1	1	15
Stockport	18	1	1	1	2	0	0	23
Total	60	4	21	3	5	3	2	98***

* Hybrid roles have been categorised by professional background of individual when they retain a clinical role (3) and by organisational role when they do not (3)

**Occupational therapist (1), Counsellor (1)

*** 8 individuals double-counted due to roles spanning Heywood and Middleton (7) and Bury, Heywood and Middleton (1)

5.2 Enablers and Challenges

This Final Report builds upon the Interim Report which identified a set of ‘enablers’ which appear instrumental in the effectiveness of particular demonstrators. In this report, analysis of the enablers is developed through a full analysis of the qualitative data from the interviews, supplemented by documentary analysis where appropriate. Overall, analysis of the full dataset supported the relevance

of these enablers, often providing important additional detail to help understanding of each theme. Under each heading below, the findings on each of the enablers in the Interim Report are summarised, before specifying how the understanding of each is extended in this report.

5.2.1 Federations and Alliances

The Interim Report of June 2014 documented an enabling role attributed to federated General Practice (within specific demonstrators) and described:

- Ways in which federations may influence more positive relationships and/or co-operation between individual GPs
- Opportunities for newly-established federations to deliver a focussed program of work
- Various challenges concerning the establishment of federations (such as ownership, management and sustainable funding)

Following in-depth analysis of a complete qualitative dataset during June – December 2014, each of the above findings documented within the Interim Report (regarding federations) remain largely unchanged. In the following section however, the various benefits and challenges associated with federations in the three relevant geographic locations is developed further (namely, Bury, Central Manchester and Stockport).

It is perhaps necessary to note that while the federations in these areas are at a more advanced stage than elsewhere in the demonstrators, these are relatively new ‘experimental’ organisations. As such, formalised processes and structures are not yet fixed; they have not yet developed a robust financial status and are organisations that may be subject to local contestation. However, while each federation has developed according to specific local requirements, there is consensus regarding the advantages of this organisational model. These advantages may be categorised across three broad themes. Namely:

- Federations and common purpose
- Perceived benefits produced via federation (for service delivery)
- Perceived role of federations in ‘protecting’ primary care

5.2.1.1. Federations and Common Purpose

Under the heading of ‘common purpose’, empirical data is examined relating to how respondents perceive and regard the notion of a federated model of practice within primary care settings. In particular, this relates to the degree to which understandings of a federation are shared or contested, and the ways in which this common purpose is negotiated and established, both of which have direct implications for the primary care demonstrators.

In each of the three geographical areas, federations have developed as legally underwritten provider entities, limited by shareholders, all of whom are drawn from locality-based GP practices. In the interests of the public institutional setting in which these private enterprises are situated, they can be established as Community Interest Companies or social enterprises^{xxxii}. Within this model of practice, a set of foundational principles may be embedded. For example:

We started ... to look at setting up our shareholders' agreement and all the articles of association associated with setting up an organisation. So in essence the way the Primary Care Manchester works is it's owned by the shareholders which are all practices within Central Manchester...The articles of association essentially limit the organisation to work as a Community Interest Corporation ... So the actual company is a limited company. But the intent is to be a community interest type organisation, so profits go back into primary healthcare and development of primary care.

(R049)

The notion of 'membership' implicit in federations, and its role in creating a common identity and purpose amongst GP practices, may be noted in the following interview extracts:

The Federation, people wanted to do it, as opposed to being told to do it. And although our lot I don't think fully grasp ... they actually do realise that there is strength in working in numbers. And so we're actually working through some of the difficulties of individual practitioners who are not working together to come to ... we haven't begun to tackle some of the tricky ones yet.

(R078)

There was an Out of Hours service but there were significant shortcomings within the wider system of being able to deal with certain types of patients ... So the olive branch to our practices in a way was 'we are you, we are owned by yourselves', why don't we come together collectively and offer additional access? That would allow practice to absolutely carry on doing what we're doing, but also feel part of something bigger and answering essentially the call to action from NHS England at that time.

(R051)

The way that that came about is the six current directors approached all of the practices and asked for a mandate to set up this organisation in order to protect primary care. So the idea of the federation was really collaborative working and how to ultimately protect primary care.

(R049)

In the latter extract, the federation is perceived as a 'protective' force for primary care to negotiate potential threats associated with policy change (see further detail on this issue below). Elsewhere, federation membership (and shared identity) appears to provide the benefits of an umbrella organisation; draw together knowledge and experience as well as provide learning opportunities for developing/organising new initiatives. These perceived benefits are noted in each the following:

So December and January were great, and we got stuck on the IT and making the decisions, and as the federation it was easy for me to go in and be independent. We had a session in, it must have been February, and I just put some slides up and said, right, these are four decisions we're going to make and none of you are leaving this room till we make them, and that you've all agreed. So it allowed them to

sort of sit in a room (and discuss issues) in an environment where I was there to be able to referee. So, yes, I think it's taught them a lot.

(R032)

And the Federation have been behind us all the way, and been there with us, and watched us do it. Not particularly they've guided us on bits and pieces, but as a learning experience more than anything. (For example) 'you could do this, you could do that, that's not gonna work, that amount of money is not right'. ... They've guided us through that with us... and said come along with us for the ride more than anything! So to roll it out across, they wouldn't have as much of an issue with the other practices, because they've done it, they've done it with us. They've seen where the pitfalls are, they've seen where the arguments occur, they've seen the good bits, they've seen an end product, and they've seen what works and what doesn't. Now all of them may not want to do it the way we've done it, they may choose a different route. But we know that it works.

(R016)

At a provider-level, further aspiration was noted in the vision that federations may be employers in future times, able to attain various advantages of working at scale. For example:

Staffing wise, it's all gone really well. PCM employ, or organise, all the GP cover, so they have a list of GPs they want to work and they schedule all that in. And then the host practice organises the reception staff and the management cover ... I think we've had the occasional receptionist phone in sick, when the practice manager's stayed on. And I think the contingency is if a GP doesn't turn up, one of the PCM directors will step in and do the slot... one of the GPs, not the practice managers.

(R048)

I guess the next bit we're looking at is as part of this new investment that we're putting into general practice... is about seeing more long term condition patients, not necessarily only within the extended hours but within the day as well. A lot of practices are looking at 'a bit of a nurse' or 'a bit of a healthcare assistant' et cetera. We're anticipating that some of those posts will be difficult to fill because they're all 'bits', part-time, and we may well get to the point where the federation starts to pull some of that together and make some of those jobs more attractive.

(R065)

In contrast, each of these perceived benefits may also challenge notions of a common purpose. As noted above, federations are essentially 'developing organisations' that, in turn, creates challenges relating to collective membership/identity, foundational workforce and/or specific infrastructure. These concerns may be noted below:

And the other challenge is about the fact that some of this is being developed through a provider organisation that's still quite immature. And I think it's growing its robustness, slowly. So it's just got CQC registration, it's just produced a business plan that sets out the direction of travel. Still haven't yet recruited a business manager, so they're not yet at the point of being as strong a provider as other providers yet

(R045)

I'm not sure what the GPs perceive the Federation as. I'm sure that varies. I'm not sure that people here view the federation in the same way. And I think...and the (CCGG) has no idea what the federation is, that has caused problems

(R078)

Whilst the potential benefits of the 'umbrella' organisation are perhaps clear, there is equally a need for greater relational work associated with attempts to unite independent and autonomous businesses. For example:

But that legal entity is only to provide [the demonstrator services], because as a member of the Federation you can't bid for any new business. You cannot compete with the Federation unless it's for an APMS (Alternative Provider Medical Services), GMS (General Medical Services) or PMS (Personal Medical Services) practice. Any new business comes to the Federation. We do the business case. If it's viable, we'll go and get it. If it's not, we'll have it back to our members and they can go and get it.

(R013)

The big weaknesses we discovered is we could not control what the practices were doing, especially when you've got someone who is the Urgent Care Lead, who is the organisational Medical Director getting very confused as to what role they're playing at any one time. Because basically they are subcontracted to the Federation to provide a service, end of. The fact they may be commissioners, the fact they may be shareholders is a pure and utter coincidence and completely irrelevant. They become the subcontractors to us and they need to comply, otherwise we have to take action. That's a thought that hasn't really sunk through, but it's beginning to get there.

(R078)

Whilst challenges relating to the 'control' of practices are evident above, other respondents perceived the issue as a matter of 'leadership' within given organisations. For example:

I think the reason we work is a combination of features that you can't manufacture. You can understand it and you can help promote that, but you can't just say to a group of practices you've got to set up a federation, because you've then got to include in the federation something that actually challenges the thinking. And the critics of the Federation, apart from saying 'what the hell do they do', the critics of the Federation will say it's between [the Chief Executive Officer and Chair]. If they want to do something they'll just do it.

(R078)

In summary, discussions of the commonality of purpose associated with federations typically highlight advantages associated with a locality-based, legally underwritten, provider entity. Nevertheless, these aspirations are bounded by limitations associated with the developmental nature of such organisations in which structures and processes are not yet formally established (even to some of their own members). In addition, various challenges exist in attempts to realise an 'umbrella' organisation within general practice and the formation of federations may be contested at a local level.

5.2.1.2. Perceived benefits produced via federation (for service delivery)

The following section develops the themes raised above (Common Purpose and Federations) and focuses specifically upon the perceived products of a federated arrangement. Most notable in this regard is the federations' role in facilitating the sharing of patient records among member practices (see also sections 5.2.2 and 5.2.3). For example:

So we went to all of the practices and said what we would like to do is set up a data sharing agreement between all the practices and Primary Care Manchester and that would allow ... Primary Care Manchester have full access to the patients' records. That is the unique bit. That's what sets out this project different from any other Out of Hours service ... So this is where we start looking at some of our issues that we face, and that's around governance. The practices wanted to know who in Primary Care Manchester is looking at this data, et cetera. So obviously we have to put in some very strong governance behind this and consent models ... I see the data sharing agreement being a USP for each individual CCG if you like. Because I don't see that another CCG would have access to that practice data. The reason, GPs are very protective of their patient data and rightly so. But because the GPs in central are shareholders of this organisation, so therefore they've got a vested interest in this organisation, they work collaboratively, and they know who they're sharing their data with, and they'll know them intimately ... So in order to get that data sharing agreement you have to have some kind collaboration going on in the background. And I see GP provider organisations being the way forward for that.

(R049)

The extract above suggests the notion that the federation (as a GP member-based organisation) is best placed to implement the 'unique' practice of sharing data relating to patient records. However, as previously noted in the Interim Report (June 2014), there is no reason why a data sharing agreement could not be developed through a less formal alliance between practices wishing to share records.

A second perceived benefit associated with federations relates to raised professional standards and reduced variability throughout general practice. This may be noted in the following illustration:

Our vision was to reduce expenditure, increase income, look at the quality of services across our 30 practices, make sure that they're all delivering to a standard level, and helping those that weren't, so that all patients, when you go to a federation practice, can accept that they're going to get the same level of service ... The demonstrator's allowed us to look at some of the quality standard recording, GPs looking at each other's records and their treatment plans and being able to challenge each other.

(R032)

Finally, federations offer the possibility of wider population coverage as a result of joining-up practices across a given locality. Such an outcome was regarded as increasing the accessibility of primary health services within those particular areas.

R: [with the additional availability service] the whole population is covered, yeah, any patient registered with any practice can book into one of those sites, yeah...

I2: So do you think that would have happened, how different would it have been without (the federation)?

R: It would have been doable, because you could have still gone to the host practices. But I think it was easier for the practices referring in to kind of trust PCM because ... it's a federation, rather than the practice down the road seeing my patients. Yeah, so I think it may have worked, but possibly wouldn't have got the coverage that having the PCM did.

(R048)

Federations were regarded positively throughout the various demonstrator sites as a result of being locality-led organisations and, in-part, the product of autonomy and entrepreneurialism within general practice. However, the notion of variability within general practice suggests that some of the membership in each area may be required to invest resources in service improvement if this outcome is to be fully realised. For some respondents this issue created limits upon organisations that may consider joining a federation. This is reflected in the following extracts:

We've got a very conservative practice who are one of the biggest practices in the town and their motto is 'when in doubt do nowt' and inertia is the best policy and ... they have to be dragged kicking and screaming to do anything ... And it's not that they're unfriendly, it's just that won't change unless there's a reason to change, you know.

(R033)

What's going to stop that or slow it down to some degree is the cynicism that GPs have of why it's happening. Because GPs are quite cynical in lots of ways, and there's always 'why is this happening? Why is the Government making this change? And what will that mean to my GMS contract or PMS contract', whatever it is. There's always this, 'what's the ulterior motive?'

(R049)

The latter extract indicates of a wider resistance to a federated model of general practice and of the unknown implications such a model may represent for the future of primary care. This is further illustrated below in relation to meeting professional standards appropriate for federated practice:

The other thing ... is ... 'are you good enough to be in the Federation?' 'Do you actually meet the standards?' ... (We've) started talking about it but that's going to be one of the things that we're going to be discussing in the future. At the moment they can opt to be in it. What happens if we say 'you're not good enough, bye-bye?' ... Because ... if I was a commissioner I would say 'how are you going to assure me that the services you are going to provide are of a specific standard?' I've got to be able to do that. That means I've got to get that from my people. If I've got someone who's not going to do it I'm going to take action on that. So I think that's coming.

(R078)

In summary, perceived benefits associated with federations typically highlight advantages associated with data sharing (patient records), enhanced professional standards and improved population coverage (including access to primary care). In addition, federations may offer a forum and a

mechanism to articulate and resolve engrained differences and in some cases deeply-engrained poor relations between practices in an area. However, references to this final aspect tended to be more aspirational and typically cited the ongoing and future challenges associated with federation membership.

5.2.1.3. Perceived role of federations in 'protecting' primary care

In addition to the above items, supporters of federations reported resistance to the concept from within primary care (including interactions with other sectors of the health service), due to the developmental stage (or 'adolescent' nature, according to several respondents) of such models of practice. Despite this opposition, federation supporters remain resolute in the view that such a model of practice provides sound innovation, economic value, improves professional standards and is able to meet current and perceived future policy shifts surrounding 'extended opening hours'.

These issues are brought together under the umbrella of the federation, which is seen by some as the best means of 'protecting' primary care towards the effective integration of health services^{xxxii}. However, as noted above, perceived benefits are accompanied by actual challenges. For example, the issue of 'protection' only remains viable within the context of policy and workload demands. This is perhaps made more evident in the following extract:

I think there's gonna be sort of coming together of practices. So going forward I can only see the federation will get bigger as individual practices struggle more to meet all the policy demands which is the right thing, I mean quality demands, if extended hours becomes the norm. It would become really hard for an individual practice to manage that. And I can see what I would hope the federation will do is provide the assistance but eventually you can see what would happen is they would just get subsumed into an organisation.

(R022)

Also allied with the notion of protection is the perspective that some aspects of general practice may be subject to system change in order to be viable models of primary care. For example:

We started it and the GPs had their heads firmly buried in the ground, in sand, and they all think they had primacy or thought they had primacy in the delivery of primary care services, and hell will freeze over before they ever lost that primacy and everybody had to bow down in front of them... now they're beginning to realise, or some are beginning to realise that things are changing. Some are looking to build on existing systems, but some are actually now beginning to recognise that the wolf is at the gates, and that people like Virgin will come along. And there is a genuine recognition now that singlehanded practitioners will simply go to the wall. Two partner practices may probably go to the wall in their current format. Three will probably find it difficult to survive.

(R078)

As such, 'protecting' primary care, does not necessarily relate to 'protecting' individual GP practices;

Where I'm coming from with the Federation is it is a group of shareholders, and that the Federation should place itself in a position whereby it can secure work within the area for its shareholders. I think also it is there that when the shareholders ... or sorry, when the practices collapse, it can step in and

provide services. So I think ultimately the role of the Federation is around providing good quality primary care and becoming a good provider in this area, and utilising the talents of the existing people. But that will change and relationships will change.

(R078)

According to the latter comments, the influence of private providers (such *Virgin*, as cited above) are seen by several as a potential negative outcome which would result from *failing* to federate general practice. In short, these speculative comments indicate at an uncertain future in which the structure of local health economies may be fragmented by conflicting models of primary care and understandings of the role federations will (or should) play.

5.2.1.4 Statement of Sustainability

Considerable speculation was noted in respondents' opinions about federations and in discussions of their value. This speculation perhaps related to the developmental stage at which federations currently exist in addition to being an untested organisational entity within primary care. Nevertheless, for a federated model of practice to be sustainable there has to be income generation that exceeds the costs of service provision. Whereas the latter issue lies beyond the remit of this study, the following items (informed by the above findings) may have particular bearing and influence upon the sustainability of a federated model of general practice.

1. The legal status of the federation, its purpose and principles should be clarified with the full participation of its members.
2. The common identity of the federation is one of its greatest strengths. However, the creation and maintenance of it may be one of its greatest challenges.
3. Concrete realisations of benefits which can improve the quality of care (such as data sharing) are essential to the early development of federations.
4. Concrete realisations of cost savings are equally important. However, local agreement will need to be reached concerning the principles of value associated with any cost-benefit analysis.

5.2.2 Information Technology

The Interim Report of June 2014 documented several challenges experienced across the demonstrators that prioritised IT. These issues typically concerned the integration of various clinical systems used in different GP practices and/or the associated technical implications raised with regard to data/patient-record sharing. Section 2 above provides a brief introduction to the development of GP IT systems, and explains the variety of systems available. It is important simply to note here that GP practices have historically had freedom to adopt whichever system they wished, and that there have been no incentives for commercial suppliers to ensure interoperability between their systems. Furthermore, practices depend upon their systems to generate data linked to payment systems, and this fuels a reluctance to allow outsiders access to systems even where governance requirements are met.

Following in-depth analysis of a complete qualitative dataset during June – December 2014, each of the findings documented within the Interim Report (regarding IT) remain unchanged. Current analysis identified further appreciations of the various challenges attached to the introduction of IT (including hardware, software and technological innovation) within the development of the various demonstrators. These difficulties and frustrations were noted throughout the demonstrators and at all organisational levels concerned; namely, between different organisations (including different practices) at a ‘strategic’ level and within an organisation/demonstrator project itself at a more ‘operational’ level. More simply, IT challenges were noted at an ‘inter’ and ‘intra’ level of organisation throughout the geographic areas housing the demonstrators.

Furthermore, the various IT-related challenges described by respondents (at both inter and intra levels of organisation) may be further interpreted as conforming to at least one of the following three categories. Namely:

- over-optimism regarding IT and its potential for integration
- the IT roles of other parties
- unrecognised costs of IT change

Each of the above is illustrated in greater detail in the following sections.

5.2.2.1. Over-optimism regarding IT and its potential for integration

Responses of this regard typically include those that express disappointment, dissatisfaction and/or difficulties attached to specific IT components within a given demonstrator. These challenges often related to the rapid installation, management and operation of clinical systems; the use of particular software, the introduction of IT peripherals (cameras, hand-held devices), the lack of training opportunities and the limited ‘lead-in time’ relating to system start-up.

As such, each individual experience described during interview is typically contextual and often relates to particular forms of innovation attached to a given demonstrator. However, when all of these specific contexts are collated as a generalised response to IT development, the various challenges described during interview may be interpreted as reflecting a collective, cohort-wide, response that is characterised by high expectations of, and over-optimism with, IT per se. This is immediately evident in the following responses relating to the various levels of clinical system failure at an inter-organisational level (in which examples of over-optimism have been emphasised throughout).

The other thing we found with the system is that ... do you remember I said that EMIS had a configure switch where you can just turn up and log into? That didn't work. There were a couple of things we had to do to test it. Once we realised that (it) wasn't working, we had to stop.

(R037 describing actual system failure)

So we realised then that the system isn't working, both Vision and EMIS, this wasn't working. It's just not going to happen. We've got to stop this now. We've tried it. We looked at putting extra memory in for the PC. We later found out that the reason it doesn't work is, because they're hosting systems, each

area, so many of the sites are on different servers back at wherever EMIS house them. ... So we had to put that on hold.

(R034 describing actual IT failure caused by multiple systems operating from single hosts)

Similarly:

(It took) two months to set it all up, figure out how to do (IT)... (and) the worst part of it was the IT, was to get everybody working together, and to come up with the processes and protocols and everything. And make sure the data sharing was correct and people were happy to do it that way, and other people accessing the system, setting up the rules as to, you know, we can look at what we want to and stuff, as a group. ... and we're all on the same clinical system, which helped, but we didn't use the clinical system in the same way. Some of us used it as a local server, which was two of us, and the others were on a hosted server, in London. And we've pushed to try and get it into a hosted server, and we've just gone hosted along with (GP Practice). Which was part of the project as well, to try and pull everybody in together, and then once we'd got it was to use the clinical system in a completely different way, which we haven't got that far.

(R014 describing the problematic use of shared clinical systems at different levels of operation)

Issues surrounding the use and installation of specific systems also established unexpected difficulties surrounding consensus of use and the perception that work patterns were to be based around the clinical system (rather than vice versa). The following extract emphasises this opinion:

The next thing then was we thought we had EMIS sewn up. I then went to speak to Vision. ... Now they've got a solution called Vision 360. Now at the time (deleted) was running their pilot and I think they still are, and they were looking at Vision 360 as well. ... But there are so many different modules within 360 ... and at that time (deleted) were still arguing whether or not they wanted to do the 360 and what module they were using, and I think it was a case of, instead of the system being able to work for them, I think it was a case of they would have to move their work patterns to fit in with the system.

(R035)

Other responses inferred a lack of 'ownership' associated with the introduction, installation and operation of IT systems such as the following account of a failed 'penetration' test.

So (IT has) been a steep learning curve, but it's been a learning curve worth doing and can you learn many lessons from it? ... a lot of hospital trusts around the country are their own kind of monster, so to speak, and unlike primary care where you can take lessons from one CCG to another, I think as Foundation Trusts go, it's really very independent and it's what their IT team thinks and what their IT security people think. ... for our stuff, for the diary, and stuff, we had to have penetration tests done, which their IT security guy recommended various government approved bodies, they did it and brought up minor security issues which were rectified.

(R060)

Some respondents cautioned of the potential drawbacks and complexities of developing fully integrated clinical system across various practices. These difficulties related to the (actual/potential) absence of specific technical components (such as hardware, software or peripherals). For example:

The IT is a real challenge and we know that. We're trying to offer some solutions around that but because the six practices...and the way it's set up actually... it's just the system and we're trying to

resolve it because at the moment you have to access each individual practice. Each of the GPs have got to make sure they have a swipe card. If they don't have a swipe card that means they have to work offline therefore they might be able to access some of the patient details but they'll not be able to complete it completely if you see what I'm saying.

(R024)

Similar reservations were offered with regard to the potential and actual 'interoperability' of shared clinical systems across regions/practices:

I've been in disagreement with a number of people on this, but I have a strong view that you need, in a CCG, to just have one system. You might have interoperability between systems but it's just adding complication, it's going to make it difficult. And I know a number of places, (deleted) have got two systems and I think they've got quite a number on each. And not all systems are able to communicate, depending on which version, but at least (with) Vision - that's sorted.

(R021)

A similar response regarding disappointment with a particular IT system echoes the views above. In this instance, steps towards developing integration and the system itself are described negatively and respectively as a 'longwinded' multi-stage process that fails to meet expectations of the practitioners concerned. Namely:

But the Vision 360 - although there's a bit of light at the end of the tunnel - is not the all singing and all dancing as we thought it might be. They're still going to have to have the six logins for the six GP practices but what will be easier...because at the moment what they have to do is GP logs onto windows, once they've logged onto windows then they have to have six icons on the desktop for each of the practices. They have to log onto that and log on with their username and password. ... So, once they've got onto that then there's another step then to go onto the Vision system. So, there's three steps in the process so I think it's so longwinded to get to A to B.

(R024)

Indeed, responses such as that below further highlight a general dissatisfaction with attempts at integrating IT systems.

From an IT point of view ... as with all IT ... it's been a nightmare. From having to deal with registration authority issues, getting access to clinical systems and not just getting access to clinical systems within the practice, but getting that remotely and having all those permissions sorted out. Then the software that was being used for the e-consultations came from a third provider if you like.

(R001)

In addition to the assorted inter-organisational IT issues (summarised above) were those identified at more operational levels. These IT difficulties were typically located within particular settings and affected the working procedures of specific demonstrators. As such, these intra-organisational issues may also be regarded as context specific, but the associated responses and accounts obtained equally reflect over-optimism associated with specific IT innovation.

Examples of over-optimism and disappointment with IT in this regard include:

- frustrations concerning the installation of telephone systems (R002)
- physical obstructions associated with line installation (R053)
- challenges established by setting up 'firewalls' in order to successfully manage teleconferencing (R004)
- remote devices connecting to hardware and systems without human recognition (R010)
- reverting to facsimile machines to transfer summary care records following failure to access clinical systems (R032)
- time consuming procedures involved in allocating and issuing passwords to provide access to clinical systems (R032)
- the absence of mobile devices that would facilitate remote access to patient records (R004, R077)
- difficulties in accessing systems whilst working from moving vehicles (R017)

Perhaps the most illustrative accounts of responses within this intra-organisational category concerns the following use of IT peripherals and the 'dying' of clinical systems. In the following account, it is perhaps evident that potential innovation is diminished by human limitations involved in operating such equipment. Namely:

They have a laptop with the camera on, and the camera comes off so they can do close up things. It's just a plug they put in the room for the wireless, it's not attached to the laptop, so they can just take the laptop in, put this plug in and then they're away. And, it is literally press a button and it just rings like a phone call, the picture comes up, it does work and it is good, but we just haven't got it working right...that part of the project, we haven't figured out how to work it properly. I was just telling the consultant at the frailty unit, she thought it was brilliant, because we could link in with her MDTs, and she said, 'why can't I have one'. So, I think there's uses (for IT) ... I think there's ways it can work, but I'd say personally at the moment that part of it we haven't figured out how to do it properly yet.

(R004)

In the following however, frustrations associated with multiple attempts at launching a clinical system in a 'live' environment are perhaps apparent.

... (we coordinated) getting these two practice managers, a member of BARDOC training staff and this GP in this office on a Friday and to make sure that passwords were all set properly on all these six sites as well, so we sat down and we did a trial, and it worked. The GP herself, she had to have a little bit of training but she was happy, 'yes, this was going to work'. So that night we then did it for live. And it died on us and there were various reasons why it died.

(R036)

Furthermore, the same system crashed on a second occasion despite assistance from an external organisation.

... we brought another trial on another Friday. This time we had (deleted) on board now, a breath of fresh air. We went in together. We worked it through and it worked. We realised what we'd done wrong and (deleted) then said that he would come in that evening with the GP in a live environment and then

record it, because we needed to record how we're doing it for a process. And on that night it worked for so long and then it died on us as well.

(R036)

In summary, the introduction and expansion of innovative and established forms of IT raised context-specific challenges across all of the demonstrators. These assorted challenges existed at *inter-* and *intra-*organisation level and related to issues concerning project planning; technical ability, installation of equipment, 'interoperability' and integration of clinical systems. The collective expression of disappointment regarding the unexpected challenges posed by the introduction of IT perhaps confirms the overall raised expectations that such technology could provide to each of the demonstrators.

5.2.2.2 The IT roles of other parties

The contributory and developmental roles of other parties, regarding IT innovation, were not necessarily regarded as processes of enablement within several of the demonstrator. The IT sections of various CSUs were especially subject to criticism in this regard. These criticisms included comments inferring incompetency and the perception that various governance protocols attached to IT created unnecessary protracted working procedures. These critical views may be noted below:

I would say it's been a fantastic opportunity to explore the current state of the system and the potential future state of the system and without the demonstrator, (...) we never would have realised how bad CSU IT was!

(R059)

However, it is perhaps necessary to note that such views of CSU were not unanimous throughout the various demonstrators, as the following extract may confirm:

I think CSU are really, really, really good if you tell them what you want. I don't think we knew what we wanted from them, and so we didn't tell them what we wanted. And so we were changing as we were going along, and then we were blaming them for not delivering. But actually, it was because we didn't tell them what we wanted them to deliver. ... Nobody had thought about IT and how you integrate with practices. That wasn't in the bid. And so I think if people clearly thought what do they need CSU for, and told them and it was right, I think CSU would deliver. I think the problem we had is, we didn't know what we wanted them to deliver, we hadn't really thought about the implications of it, and so we were changing and chopping as we were going along. And they were pulling their hair out and we were saying CSU need to deliver it. And actually, we weren't telling CSU what we wanted them to deliver.

(R005)

Associated with the above was the observation that IT development may involve the contribution of multiple parties that may not necessarily be delivered in a fully co-ordinated manner. This is perhaps inferred in the following extract, in which the respondent highlights the complications raised by IT development at an inter-organisational level (involving CSU once more).

So then it was working between the hospital IT system with the CSU IT people that we have a contract with, and then the third party IT. So there were three lots of IT people getting involved. So lots of issues

around IT, getting access to clinical systems remotely. Training was a massive issue. The practices that are all involved in this project were on different clinical systems and EMIS, TPP, Vision, they're on different systems. So then it's the people that are remotely accessing the clinical system have to have training, so there's lots of training implications that we had to consider. But then every individual practice has its own data entry protocol. So it's not just learning the clinical system, it's then learning how the practice does the data entry, making sure that if you do something it's appropriately re-coded so that the practice can have evidence that they've done it for QOF (Quality and Outcomes Framework) and things like that. So lots of training, lots of IT issues around the three working together.

(R001)

As indicated in the *two* previous extracts, limited levels of training and knowledge in specific IT systems at an operational level by key individuals also had negative consequences upon any enabling processes. For example, with regard to GP competency:

The GPs that turned up didn't understand how to use the system so they may have used EMIS but if a patient was from Vision, they'd used it once or twice a long time ago but they weren't 100 per cent sure how to use that Vision system. BARDOC did have staff there that had some experience of both systems but not enough to get into the nitty-gritty of it.

(R036)

... the other night we did have problems with the IT system simply because of just the logistics and because what we're finding is also when we get new doctors on board or additional doctors or whoever obviously we've got to set them a password, username and all of this lot so it's all about setup.

(R043)

... at our operational delivery group meeting it was like, 'oh, yes, we've had locums before and, yes, they didn't come back because of the IT system!' I thought, 'oh, thanks, now you tell me'.

(R024)

In addition to the above comments were those that provided more optimistic responses regarding the role of others in the development of IT innovation. For example, numerous respondents described resolving IT-related difficulties through a process of 'learning'; through intra-organisational teamwork and by inter-agency joint working. These approaches are highlighted below:

... whilst there were loads of (IT) teething problems and some really frustrating ones in the beginning, they all seem to have - I keep touching wood when I'm saying this. They do seem to have ironed out pretty well these last couple of months. I haven't had receptionists or GPs giving me any earache about the service, so I can only imagine that (they have been resolved) ...

(R037)

... we did operational development groups. The managers did them together ... and we all ... all have our own expertise, if you like, anyway. So (deleted) is more IT based ... and the IT base is me. (Deleted) has been a practice manager for donkeys so she was more in with the protocols and the building, because she was used to actually...so she sorted out all the access to the building and everything like that. And (deleted) did policies, protocols, all sorts; we all did. And I did the IT side of it and the rotas.

(R015)

The learning that's come from it has been invaluable in terms of shaping the future integration work so we're now thinking of turning the technology on its head, in a way, and linking this to a frailty unit that we've just developed.

(R011)

We've got a couple of different solutions, some a bit more clunky than others, but there are solutions there... but to get value added stuff to it is also getting the other agencies in it. So I think the technology I'm sure can be pretty easily worked out in a town like (deleted) anyway.

(R020)

However, a final observation made by one respondent in this regard focused upon the issue of trust as an important component in relational arrangements between practices and individuals; particularly with regard to data sharing and the use of clinical systems.

I think the IT integration ... is not that bad. That's just complicated easy stuff. And that's really complicated but quite easy. It's the simple hard stuff. It's the getting agreement for somebody else to put data onto a system that you're being paid for. And it's the relational stuff, it's trusting somebody outside to come in, that you've got really no control over. You know, that relational stuff. Who is it; what are they doing; what training, you know, all that kind of stuff. So ... that integration stuff is, I think, a learning that we need to take forward from this is, it's really good but you've got to have the GPs on board to allow people to come in and do this. And it's not just the IT. The IT, as I say is complicated, but actually it's tick this, do that. So that was that bit of it.

(R005)

In summary, the introduction of IT often involved the joint working of key individuals from multiple organisations. Similarly, the use of new IT required operators familiar with such systems or had had received training prior to the launch of new technology. However, the speed with which systems were installed and the relatively short time frame dedicated to project delivery (as a demonstrator) appears to have hindered development. The various disappointments noted above (with regard to the IT roles of others) perhaps further supports the raised expectations (section 4.2.2.2) attached to technology noted across the various demonstrators.

5.2.2.3 Unrecognised costs of IT change

Responses from specific demonstrators highlighted an IT-related issue that appears most exclusive to these particular projects. Namely, that of difficulties attached to project development as a result of previously unrecognised (or unexpected) costs attached to IT development. Perhaps more accurately, responses from these projects typically focused upon further criticisms of the role and costings of CSU regarding IT support and development. For example:

So CSU IT has been the big hurdle. Some things we've had to terminate. I think at the previous meeting, I might have mentioned about CSU's engagement to create a model for us in terms of how do we access these medical records and after a couple of months of trying they couldn't do it.

(R059)

The following extract highlights a financial challenge in moving from one clinical system to another, despite the potential strategic benefits this may support in longer term planning. Perhaps most revealing in this respect is the notion that 'perceived benefits' from system change does not appear financially attractive to current general practice, but would also appear to have implications upon the implementation of the demonstrator concerned.

It would help if we all shared the same clinical system, and at least one of the two non-EMIS web practices would change but GP SoC (System of Choice) prevents them from changing. We couldn't find the money from the GP SoC system because they already have a GP SoC system, so there's an issue financially of moving the practice, say in Heywood, where this full EMIS web practice is, moving the VES practice to EMIS web. Longer term it makes a lot of sense, moving the two VESs so EMIS, but there's not money in the system to do that but strategically it makes a helluva lot of sense, because then they could all have read and write, back office like coding, scanning, repeat prescriptions, EPS (Electronic Prescription Service), electronic prescriptions, could all be. We could all share a little office where all of this work is done and there would be economies of scale there. But no GP practice is going to fund a system change for perceived benefits like that in the future and maybe some priming needs to be done around that.

(R032)

The time-limited nature of the demonstrator projects appears to have inadvertently influenced a negative impact upon funding decisions that may have assisted with further development of particular aspects of the demonstrator. The following extract demonstrates the loss of training opportunities as a direct result of such decision-making:

There is a quote that's gone through this training, and BARDOC's involvement in that is to kind of train the clinicians obviously, so we've got that input in it. But, that quote has gone through. But we're at that stage where they don't really want to sign the quote off, if there's only six, seven weeks left of the pilot; it's just not viable, not feasible...

(R035)

Finally, there were some concerns expressed that the current 'commercialisation' of IT within the NHS would create barriers to service design, delivery and innovative development in the future. This is emphasised in the final sentences of the following extract:

The idea that we would like to work on, which is kind of just outside the boundaries of this bid shall we say, is to look at CCG as commissioning with translator services, but instead of sending a translator out, which could be an hour of transport, then they sit here for 15, 20 minutes, then they come in and spend 10 minutes with me, and then they go back and it's an hour's...and the CCG are paying for all this time, the idea is when a patient comes in, speak Polish, no English, no problem, come in. I ring them up, get you online, we've got a translator on the screen. And yeah, we have got access to translators on the telephone, but trying to communicate three ways on the telephone isn't always easy, and I think from a patient's perspective to have a face on the screen ... And you can have sign language, lip reading. It just opens up so many opportunities. So essentially IT in the past has always been great. It's never been a cost implication. What's worked in one place has then been spread to the rest of the borough. But now that we've moved to CSU and it's all commercial I think it's just going to hinder IT innovation.

(R053)

In summary, the introduction of new IT occasionally raised concerns regarding unexpected costs, relating to procurement and/or installation. Other funding related costs (relating to time-limited, budgeted projects) raised concerns over the viability and introduction of planned technological innovation. For *some* of the demonstrators, these issues appear to have been divisive between specific individuals and organisations. This in turn established critical relationships that were not necessarily enabling partnerships.

5.2.2.4 Statement of Sustainability

The sustainability of IT developments in the demonstrators is affected by:

- Problematic installation of clinical systems
- Variation in clinical systems and uptake of preferred/advised systems
- Lack of lead in time to secure trial and test of new systems
- Working environments (especially when mobile) affects use of IT
- Limited skills base or training for wider uptake (over-optimism)
- Dependence upon key individuals as drivers of IT components project
- Unexpected costs associated with IT
- Conflicting roles and responsibilities regarding IT competency

As indicated in the Interim Report (June 2014) each of the above issues point to the need for detailed engagement with a range of parties on technical as well as clinical and organisational matters prior to (and throughout) the project inception.

To enable further IT development within demonstrators there is a need to:

- Counter over-optimism with pragmatically-informed processes involving multiple organisations and/or individuals with specific IT roles
 - including planned timescales for installation
 - key individuals act as 'drivers' of IT within organisation and act as coordinator/conduit of other IT drivers (individuals) from other organisations
 - development and introduction of IT in a planned 'step-wise' programme (as phases or stages)
 - development of IT within and across organisations to adopt a phased staging from small-medium-large scale (in order to conduct trial-pilot-full launch respectively)
- Integration of demonstrator practices appears to depend upon interoperability of mutually comprehensive and mutually accessible clinical systems. This is complicated in an environment in which GP computer systems have developed in piecemeal fashion over time. Whilst it may be the ideal to have all practices in one area using the same system, this is difficult to achieve and would be expensive. True inter-operability between different systems requires action from computer suppliers, who need to be incentivised to make the necessary changes to their systems.

- Interoperability of clinical systems needs to address issues in order to determine the ‘best fit’ for integration in projects requiring data sharing. These include cost; operation, availability, installation, training packages, wider access (read and write to availability) and if they can be accessed in a multidisciplinary manner (health and social care).
- Where interoperability can be achieved, there remains a need for high quality training and trust between partners. Allowing those identified as ‘outsider’ access to write in practice records requires those involved to be able to trust that no adverse consequences (e.g. in relation to payments systems) will ensue.

5.2.3 Information Governance

The Interim Report of June 2014 documented several challenges experienced across the demonstrators relating specifically to IG. These issues typically concerned difficulties associated with access to, and the sharing of, confidential material as part of the process of integrating systems.

The various challenges and solutions relating to IG described by respondents are summarised below.

5.2.3.1. The challenges of Information Governance

Challenges raised by IG across all demonstrator projects may be summarised as involving:

- Problematic governance procedures attached to the integration of clinical systems across/within organisations
- A disparity in IG protocols across different organisations (involving different levels of requirements)
- Problems (inadvertent or otherwise) relating to who may access clinical systems and those associated skill-sets required for using such systems
- The lengthy procedures associated with providing honorary contracts to facilitate access to systems by relevant individuals (clinicians or otherwise)
- Issues of trust that prevent/delay integration across organisations as individuals seek to protect established and recognised confidentiality protocols

Problematic governance procedures

Discussions of the protocols and requirements underlying IG included terms of references such as ‘hurdle’; an ‘organisational hoop’ that creates a ‘major issue’ and ‘delays’ project set up and creates an ‘issue of conflict’ amongst those responsible for data protection (GPs). Similarly, others viewed the process of securing IG as an overly complicated procedure in which some organisations were regarded as more ‘stringent’ than others in their IG requirements. These various concerns may be noted below with regard to the use of clinical systems:

So the problems we’ve had is that the diary had to be fit for information governance at – this is primarily (geographic location deleted) – and so we had to go through lots of stages with them playing with it

and tweaking it before they would accept that it was ready for use in their system, even though it's happily being used by general practice. So that's been tweaked and I think we've cleared that.

(R058)

Overall, the negative variation in IG experiences further demonstrate earlier findings made available in the Interim Report (June 2014) that highlighted the challenges associated with developing innovative methods of data sharing in addition to the protection of confidential material. For example:

The biggest hurdle for (deleted) was actually just getting that shared record. I think the other thing that's changed palpably over the last 18 months is people's willingness to share, especially at a clinical level there's now very little boundary *unless it is governance or IMT (information management and technology) issues*

(R026)

Disparity in information governance protocols

One of the major challenges faced by organisations involved in the various demonstrators relates specifically to the differences in IG requirements across the relevant organisations (at inter- and intra-agency levels). This is perhaps evident in the extract above, in which the IG requirements suitable for clinical systems within primary care settings do not appear satisfactory for those within secondary care settings. This discrepancy is further noted in each of the following:

The hospital have seen the tracker; what we're trying to do is to get it to synchronise with the hospital systems so that there isn't a lot of data entry that needs to go on to that. So if there's another programme to use and more data to enter then the more difficult that is the less likely it is going to get utilised; and so we're trying to make it as user friendly within the hospital system as possible. And then there's a question of that the information governance at the hospital is much tighter than it is in general practice and so what we think is reasonable data to see, the hospitals are not altogether happy. So they tend to insert much more stringent criteria than we do.

(R055)

I think what I've learnt from it is that, we're a big organisation, we have very stringent governance structures. We use PRINCE2 methodology. We evaluate things. There's a whole lot of systems around that manage projects. These individual GPs either don't know or haven't had access to or don't seem to have the same governance. They're getting this money and telling you, I want to do this, I want to do that.

(R056)

In addition to the cited mismatch concerning expectations and governance, further challenges can be created when engaging with organisations outside the NHS:

One of the issues on the governance side of it is I produced from our governance a code of practice, for example, and BARDOC would make sure that all their staff adhered to and signed this code of practice and that copy would go with the practice managers in theory. That's what should have happened, and

that's what should happen with new people coming on, because one of the governance things that the practices were worried about is BARDOC isn't an NHS, it's a private organisation.

(R036)

Problems relating to access

In addition to the challenges posed by the governance of clinical/technological systems were those relating to human resources who may be required to access such systems. For example, concerns were expressed regarding the potential *inadvertent* access of material held on systems by individuals such as administrative staff.

And then there was an issue which caused kind of data sharing issues, because there was an issue about it pulling up the whole patient record. So a receptionist of a strange practice could see the whole patient record, which wasn't needed. So it went against data governance.

(R047)

Similarly, others emphasised that healthcare staff not fully trained in working with particular clinical systems created challenges to patient safety – and further complicated the procedures of IG. For example:

I: ...what have been the major obstacles that you've hit along the way and ... about getting the agreement in place?

R: It's the same old ones, it's the IG, it's IG. It's reading and writing to clinical systems. If you're going to have nurses, it's skilling them up all to a certain level. Because if a diabetic patient comes and the nurse can't do a diabetic check, it's a waste of time.

(R043)

The challenge of honorary contracts

Difficulties surrounding access to clinical systems may be addressed with the provision of 'honorary contracts' to those individuals (clinicians and support staff) in order to avoid the various restrictions associated with data sharing across and within organisations. However, various demonstrators encountered difficulties associated with the provision of such contracts that subsequently affected the start-up of the relevant project. For example:

That one was gonna be the simplest one, that was gonna be dead easy, that was gonna start within a week. But with the delays with the data, and delays with trying to get honorary contracts for the GPs; for the hospital and medical staff, it took three months.

(R043)

... (with) information governance there were lots of things which we had to consider which we weren't aware of which were things like the privacy impact assessment, data sharing agreements, honorary contracts between the case manager who works for the hospital with the GP practice. There was also patient consent to allow another healthcare professional to see the record. So there were all these IG issues, which has been fantastic learning towards the integration agenda.

(R001)

... she jumped through so many hoops to be able to access the systems, because we had to do a privacy impact assessment, we had to do a data information sharing agreement, she had to sign a honorary contract with the practice, then we had the hardware to order, and then we had the fact that there were three different GP clinical systems. So she needed to learn how to use all of them, and the different read codes that they all use in the three different systems.

(R011)

Trust

The *human* issue of *trust* (between individuals and organisations) was also regarded (explicitly and implicitly) as a matter with implications for IG. This is made evident in the following illustration that concerns various procedures and protocols attached to accessing data and patient records:

R: We've got to earn the trust of the GP practices. First of all, to allow read only access. So that's been a big barrier to break down, because the practice managers were not keen to allow, even, read only access, and to allow people to actually enter data onto it, that's a step too far at the moment.

R3: And I think that's key to that trust and building a relationship, isn't it? That you're working there, having access to the records, they're happy with that. So the next stage is even going out and having that remote access.

(R012)

This reluctance to allow access to enter data in systems does not simply represent lack of flexibility or awkwardness. GP practices depend upon their computer systems not only to provide accurate information to enable patient care, but also to collect data which triggers payment. Incorrectly entered data (for example coding a patient as having a new episode of stroke rather than a review of a previous stroke) can trigger a cascade of requirements which would result in a practice losing payments due to them. Even users familiar with a system in general will not be aware of the particular local protocols developed by each practice; practice managers resisting others inputting to their systems are thus acting rationally. Developing trust, as highlighted above, requires adequate provision for training.

Similarly, the issue of trust is raised in the following – although perhaps less forthrightly than above:

One more IG thing that springs to mind was the reception staff. That was a big thing for the reception staff, because reception could be anybody and initially there was talk of a GP doing a consultation, then coming back and just handing a piece of paper to the reception and asking reception to go to the records and update the records. And then it came out that that's not allowed, so then, okay, well, the reception staff won't do that, so then the question was, 'well, why do the reception staff need to get into the system then?'

(R036)

There were a few things in the beginning, like smart cards. This was before they actually pulled the plug on the whole IT idea completely because to access EMIS and, like I said, to have most of the functions that a GP should have or a nurse should have are all called on the smart card. So they needed to have

the smart card and there were issues around who authorised the users for these smart cards because they're not our employees but we were allowing them to use our system.

(R037)

Likewise:

We needed details of their smart card and we needed confirmation that BARDOC had done the checks that we're asked to do for our employees, forms of ID and something with their address on and things like that that we have to do if we employ somebody. We needed reassurance from BARDOC that they'd done the same checks for data purpose information governance.

(R037)

The issue here is not with the Smartcards, which were a pragmatic means to achieve the desired integration of systems within the time-limited demonstrators. Rather the issue here, which is taken up in more detail in the Discussion below (section 6), is the extent to which the guarantee of trust represented by Smartcards still holds in the context of collaboration with external or unfamiliar organisations.

5.2.3.2. Potential Solutions to Challenges Underlying Information Governance

Solutions to the various difficulties posed by IG protocols across all demonstrator projects were put forward (implicitly and explicitly) by numerous respondents during their respective interviews. These solutions were premised upon practice and experience within the given organisations and perhaps provide an empirical template for enabling integration (with specific regard to IG). These tentative solutions may be summarised as involving:

- Willingness to adapt to new systems via learning and engagement
- Supportive roles and collective solutions to IG/integration barriers
- The provision of honorary contracts
- Trusting working relationships

Willingness to adapt to new systems via learning and engagement

Technological innovation influences change in human performance and can impact upon established working patterns/procedures. This was a statement that was clearly recognised by respondents across all demonstrators' attempts to provide more integrated systems of joint working. In addition, there was widespread recognition that project development had involved a challenging learning experience. However, there was equal recognition that this learning process was necessary in order to achieve more integrated systems of healthcare, patient safety and data security. In short, despite the challenges, respondents expressed a willingness to participate in the challenges associated with IG. This approach is reflected in the following comments:

... this was a major learning thing, and again it really helped inform the wider integration work, because it alerted us very early on to the fact that without this access to GP clinical systems, a lot of our integrated care stuff just couldn't work.

(R011)

... but I think there's just a few more sort of organisational hoops to go there, aren't there, to try and make (integration) happen. And I think everybody's willing, and I think that's been a good thing about (deleted), I think everybody's very patient focused internally. This is what we need to do for the people of (deleted), it's just then how we work through the practicalities of that to make that easier.

(R025)

Supportive roles and collective solutions to IG/integration barriers

The supportive role provided by individuals and organisations appears to have facilitated collective solutions to IG related barriers and difficulties. This is perhaps reflected in the following statements that emphasise the role of individuals in an advisory role that in turn influences constructive behaviour by a *network* of others.

... there are a lot of things on the inside as well, like the governance. We have a governance team so it's getting that governance, it's getting them to advise and help.

(R036)

The information governance people, at the Commissioning Support Unit, were involved in an advisory capacity really, to talk them through what they needed to do from that perspective. So they were doing the sharing agreements, the training for the staff, the staff were all signing up with the privacy impact assessments. And that sort of thing was all done. But led very much by the practice managers.

(R023)

... once (deleted) had come on as the Project Manager, we had the meeting and then he had workstreams and he gave the practice managers the work streams. They started owning responsibility and you could see that they were all for this, and they were coming in with problems and they were also suggesting solutions as well, and they were agreeing round the table how we should do things. It was the practice managers from Heywood that actually all agreed to stop messing with EMIS and Vision.

(R023)

One of the issues on the governance side of it is I produced from our governance a code of practice, for example, and BARDOC would make sure that all their staff adhered to and signed this code of practice and that copy would go with the practice managers in theory. That's what should have happened, and that's what should happen with new people coming on, because one of the governance things that the practices were worried about is BARDOC isn't an NHS, it's a private organisation.

(R036)

The provision of privacy impact assessments and honorary contracts

The provision of a privacy impact assessment by a third party appears to have benefitted IG issues in the following demonstrator.

We sorted the IG issues with privacy impact assessments and we had support from the CSU doing that. Although we're not operating the IT solution, there is an IT solution which has come out of both this demonstrator and the one in (deleted) and the IT solution around EMIS Web is about to be massively improved from December, I've seen the software working as part of a meeting with EMIS.

(R043)

However, a further drawback in this regard is the apparent excessive requirements for such assessments across a large number of settings. This is reflected in the following criticism of such procedures.

This privacy impact assessment, when we were doing this, like the Radcliffe, because there's a sharing of the data, a privacy impact assessment was needed to be completed, according to the clinician support unit who run our IT. But they needed one done by every practice. Now to me, we're all on the same bloody system, you know, so why not do it once rather than 33 times. They're just creating an industry.

(R021)

The provision of honorary contracts for clinicians and associated staff appears to offer some solution to IG obstacles (albeit time-limited). Whilst such contracts may involve lengthy procedures, they may also have the potential to minimise difficulties relating to temporary workforces and the limitations of integrating health and social care (i.e. multidisciplinary workforces). These particular issues are the topics discussed respectively below:

Then the question was what happens when somebody leaves? How do we know they've left and how do we take them off that system as well? So there was a process there for someone coming on the system and someone coming off the system.

(R032)

(joint working) across the integrated model... I think that's probably one of the stumbling blocks, it's almost... it's put in (the) 'too difficult box' because it's something that needs to happen and it's how are both sides going to be happy with the level of access and who has access and the governance of it really. So it's some piece of work that needs to happen.

(R063)

Similarly, as made explicit below, such responses may help overcome professional-based 'myths' surrounding data sharing across health and social care settings.

Because there's some slight oddities at (deleted) at the moment, where, certainly when I started at (deleted), the social workers thought that they couldn't look in the medical notes of the patients. Now I do think that's a bit of an urban myth. I think it probably has come from something concrete in the past around, sort of information protection for patients. But I think we've got to sort of manage that ..., that if that social worker doesn't know enough about that patient to manage them correctly in terms of their social care needs, then we need to share that information. So I think an information sharing agreement would really help that, in terms of, you know, at the end of the day we're all professionals, we're all bound by our confidentiality codes. And you know, so I think a sense of an information sharing agreement would be helpful.

(R025)

Trusting working relationships

In addition to the previous remark, the following comment perhaps consolidates the aforementioned conclusion that a perceived lack of trust in other organisations serves to restrict integrated practice. However, in this instance, established working relationships with a number of practitioners provide a foundation for effective collaboration (as well as a system for preventing access to third parties).

So therefore I say the data sharing agreement is unique because A, another private organisation would not get the response from the practices in order to share the data. So likewise, if you went to Chester, all of the GPs within Chester know each other, work together, work very well. They would quite happily share their data together. But if Acme, Virgin or whatever came along and said 'we want to open up a practice, can we have access to your data?', it'll be a blank wall, as in 'no, you can't have it'. That's the uniqueness I see within the localities.

(R048)

5.2.3.3 Statement of Sustainability

The sustainability of IG issues within the demonstrators is affected by:

1. Problematic governance procedures attached to the integration of clinical systems across/within organisations
2. A disparity in IG protocols across different organisations (involving different levels of requirements)
3. Problems (inadvertent or otherwise) relating to who may access clinical systems and those associated skill-sets required for using such systems
4. The lengthy procedures associated with providing honorary contracts to facilitate access to systems by relevant individuals (clinicians or otherwise)
5. Issues of mutual trust that prevent/delay integration across organisations as individuals seek to protect established and recognised confidentiality protocols and the integrity of their clinical systems against possible incorrect data entry

As also indicated in the Interim Report (June 2014) each of the above issues point to the need for detailed engagement with a range of parties regarding IG as well as clinical and organisational matters prior to (and throughout) the project inception.

To *enable* IG development within demonstrators there is a need to:

- Counter problematic governance procedures attached to the integration of clinical systems across/within organisations with pragmatically informed processes involving multiple organisations and/or individuals with specific IG roles
 - including planned timescales for installation
 - key individuals act as 'drivers' of IG within organisation and act as coordinator/conduit of related issues from other organisations

- Interoperability of clinical systems needs to address issues in order to determine the ‘best fit’ for integration in projects requiring data sharing. This includes identifying those people (clinicians and non-clinicians) who require access to systems and safeguarding this access. The provision of multi-site honorary contracts for specific individuals/organisations – issued in a less time consuming manner – would address this current problematic area of access.
- The issue of trust is important in two ways. Firstly, trust is required with regards IG and the correct use of patient data. This may be addressed by simplifying protocols and providing honorary contracts as discussed. However, trust is also required that those accessing systems will do so in a way that is technically correct and which will not result in adverse consequences for practices caused by incorrectly entered data. This can only be addressed by adequate training and the experience over time of successful system use.

5.2.4 Workforce and Organisational Development

The Interim Report (June 2014) highlighted capacity as an issue when extending access or developing integrated care in the community, and indicated the potential of organisational development as an enabler. Given the interest in potential for released capacity, this Report concentrates on the human resource (HR) implications of this issue, with particular reference to the need for, and implications of, any skill-mix changes.

The following account consists of 3 sub-sections. The first section (5.2.4.1) provides a rationale and framework for addressing any skill-mix changes required to support activity in the demonstrators. This framework indicates the importance of distinguishing between different activities and examines expectations that skill-mix changes will lead to workforce savings.

The second section (5.2.4.2) examines the different workforce configurations for increasing primary care access and responsiveness and highlights any skill-mix changes. It identifies the HR issues raised by participants (particularly around capacity, remuneration and sustainability) and considers the workforce implications of extending nurse access and the number of practices/ practitioners involved.

The third section (5.2.4.3) identifies the different workforce configurations for supporting:

- multi-disciplinary care
- increased community-based services.

5.2.4.1 Framework for understanding skill-mix changes

Skill-mix is used to refer to the mix of skills or competencies possessed by an individual; the ratio of senior to junior grade staff within a single discipline or the variation of professional staff within a multidisciplinary team. It is introduced here for two reasons. First, if established demarcations between community, hospital and social care are changed and redesigned around the needs of patients, then it is likely to require changes in skill-mix that, in turn, may have implications for

workforce planning and HR. Second, it is necessary to examine the expectations that skill-mix changes may release capacity through increased effectiveness/efficiencies.

Typology of Skill-mix Changes

Analysis throughout this section refers to the following framework of skill-mix changes^{xxxiii}:

TABLE 17: SKILL MIX CHANGE FRAMEWORK

Enhancement:	increasing the depth of a job by extending the role or skills of a particular group of workers
Substitution:	expanding the breadth of a job, in particular by working across professional divides or exchanging one type of worker for another
Delegation:	moving a task up or down a traditional uni-disciplinary ladder
Innovation:	creating new jobs by introducing a new type of worker
Of particular relevance to this study is that changes in skill-mix may also be brought about by changing the interface between services. These changes include:	
Transfer:	moving the provision of a service from one health care sector to another
Relocation:	shifting the venue from which a service is provided from one health care sector to another, without changing the people who deliver the service
Liaison:	using specialists in one health care sector to educate and support staff working in another sector

Initial analysis of demonstrator activity indicates few skill-mix changes in the extension of access and responsiveness. The workforce implications of this set of activities are therefore considered separately. When viewed separately, it is possible to see that the latter categories of demonstrator activity led to far more skill-mix changes. Most of these involved extending the role of workers, with some substitution and delegation. Most skill-mix changes appeared to emerge through increased liaison between primary, community and secondary care.

Workforce Benefits of Skill-mix Changes

Whilst there may be benefits to the patient experience from skill-mix changes, it is not automatic that these changes will lead to released capacity or cost savings. As such, it is perhaps necessary to consider what happens in practice, as the relevant literature indicates a constrained set of conditions in which workforce changes, (such as labour substitution), can bring benefits^{xxxiv}. For example, it may appear

more efficient to transfer or delegate tasks to a less expensive worker but if that more senior person is retained within the system, this may lead to duplication and escalation in costs^{xxxv}. Similarly, whilst staff may initially appreciate the opportunity to extend their skill-set, unless they are able to change their original role, they will absorb any extra activity through labour intensification which may not be sustainable in the long term.

Thus, workforce cost savings require substantial changes such that some roles cease altogether or services are completely transferred to a different setting. However, it is perhaps not fully possible to determine in a *pilot* study what capacity can be created or what savings could be made in this regard. This caution is necessary, as such in-depth analysis would require major workforce reconfigurations to be made during the course of the demonstrator/project. Indeed, a number of respondents recognised this point during various interviews. Notwithstanding, there is value in capturing the potential of different skill-mix changes and examining the implications for increasing or reducing costs.

5.2.4.2 Increasing primary care access and responsiveness

Skill-mix issues

Initial analysis of demonstrators' activity indicates few skill-mix changes in the extension of access. This is because GPs are primarily extending their working time, rather than changing what they do. Skill-mix was an issue, however, for the extension of nursing provision. The demonstrators took different approaches to the extension of nursing provision. Bury did not have an extended nursing service as the cost of Nurse Practitioners was seen as "virtually the same as a GP" (R024).

As indicated above, skill-mix can refer to the mix of skills or competencies possessed by an individual. Whilst it is assumed that all GPs can provide the same service, one of the demonstrator provides a contrary illustration of this in relation to nurses. Several respondents from this demonstrator indicated that different skill-mixes meant that nurses were not 'interchangeable':

[early complaints were] to do with the nurse skill-mix, so somebody turned up for a diabetic check-up and the nurse who was on couldn't do it, so there's been complaints but hopefully they've gone down as everybody has learned the system.

(R032)

All [the different nurses] had different skill-mixes. Some did things, some didn't do things, and you never knew who you were on with.

(R038)

Any extension of nursing hours therefore requires knowledge of which nurses can provide which services, or requires the increased training of nurses.

One of the reasons that we've got a problem in primary care at the moment, I think, is that... the needs of practice nurses have just been completely ignored.

(R078)

A broader issue relating to substitutability was highlighted by some interviewees who described some involved in the demonstrator as being exceptional in particular ways; more experienced, or more committed, than the average person in that role. The consequence here was that the role could not be replicated, as others in this position could not be expected to deliver the same service as the role-holder in the demonstrator. Many demonstrators appear to flourish due to the contribution of such rare individuals who are difficult to replace or replicate:

Simply adding six more nurses might not facilitate six times more to be achieved than what [postholder] has done, because she had an established relationship with practices, as well as being a good communicator, so was trusted and accepted by the practices, so they were happy for her to have access to their systems. But this engagement will not happen automatically: 'GPs have to feel that they trust people that are doing the work for them. That it's not just somebody....

(R010)

There appeared to be few skill-mix issues associated with the development or extension of specific services that improved the responsiveness of the service to specific client groups (those experiencing homelessness and/or mental health issues). Workers within services addressing vulnerable populations, require additional training and this is noted in HR issues below. Whilst the objective of the case management work of the ANP in care homes was to increase responsiveness of primary care, the unique role of this position is considered as a separate issue below (Section 5.2.4.3).

Human Resources issues

Capacity: Having sufficient GPs to cover extended access was a key issue that in the short term led to work-life balance issues for GPs and the necessity to employ locums. This in turn led to remuneration issues. Several respondents in each of the four sites extending GP hours indicated the challenge of GP capacity. One located it within existing skill shortages, citing the "incredible difficulties in recruiting and retaining good quality GPs" (R041).

The following quotes emphasise the sustainability of additional availability within the current workforce configurations, indicating specific concerns about the work-life balance of GPs:

... so you twist arms a little bit to get cover, but that has been one of the main problems I think is getting the clinical cover ... they may be able to do it for so long but it's not sustainable on a long term basis

(R014)

... it's about their work life balance because it's creeping in to the point where ... certain individuals are doing more shifts not because of choice because they committed ...

(R024)

... we find some of our doctors .. were working extra long hours ... so that's why we've taken it back down to five days a week ...

(R039)

A difference of opinion was noted within one demonstrator between two different respondents. Here, one respondent noted that, "it's not worked out as well, which is why we've had to ask for locums"

(R049). This view was countered with the opinion that GPs “are quite happy to do the extra sessions in the evenings and weekends where for them non-normal working hours suits them” (R048).

It is perhaps relevant useful to consider possible links between this latter observation and the following variables. First, the demonstrator concerned involved a total of 33 practices as opposed to the 6-9 practices involved in the other demonstrators. This immediately provides a larger pool of people to call upon. Second, the same demonstrator opened from 9-12 noon on Saturdays and Sundays as opposed all day in other settings. Third, these arrangements were brokered through the relevant GP Federation which may have made it more attractive to work additional availability at a different location.

Individual practices also developed their own ways of increasing access without relying upon locums or hampering the work-life balance of their GPs. One respondent noted the following:

... went out and recruited a salaried GP before we'd even decided on the model or anything. But they knew full well that they were at the limit, and they knew full well that you couldn't open extra hours and still shut on a Wednesday. So they were really forward thinking and got on with it.

(R078)

Another practice spread their core contractual hours across ‘a wider time zone’, so that,

... we might still use the same workforce, which there is an argument to say, well you're only offering the same appointments then. But my argument, my counter argument would be, 'but I'm spreading them across a wider time zone which allows people who can't get to us during the day to come in the evenings and weekends'.

(R043)

In contrast, the following respondent was concerned about the long term implications of increasing access:

I think the workforce is an issue and I don't have an answer to that one. Ultimately, if this is extended across the country, there's probably not going to be enough docs. So there's a portion of the last locality meeting was spent on recruitment in our area and practices are finding it hard to recruit and fill posts.

(R043)

Remuneration implications: Extending hours had implications for remuneration. Two particular issues arose during the demonstrators which one respondent indicated was leading to “a spiral at the moment of inflating costs” (R078). One tension related to payments for the additional hours. For example:

What actually happened was people actually wanted more money, and because it was just them they decided what pay rate they'd give themselves. So they'd give themselves time and a half, time is £80 per hour plus pension. So they paid themselves agency rates or over agency rates for stuff that they could do all the time. So that's been a slight bone of contention - ridiculous salary rates.

(R078)

The need to take on additional capacity through locums, and the different levels of remuneration for agency staff, in relation to salaried staff created a tension for those undertaking the work. As indicated

in the second extract below, this apparently led to some salaried staff taking the on workloads as locums.

It's beginning to annoy some of the GPs, that the people doing regular shifts at somewhere like (deleted) and Out of Hours are being paid X amount per hour but they're giving it out to an agency at 20 per cent, 25 per cent more, and they seem to think that's okay. So, they're losing doctors...

(R038)

What's happening across the board is that the salaried (GPs) are going, 'to hell with you lot, we'll go locum', because they are then beginning to demand higher salaries as locums, and the GPs are paying it...

(R078)

Training Implications: Additional availability did not tend to raise training requirements for GPs beyond the need to operate a different IT system and any induction if working in a different hub/ host site. As noted above, if nursing clinics are to be extended, then training for specific competencies would be necessary to enhance the substitutability of nursing staff. Training was required for those involved in the provision of services for those affected by homelessness.

Implications for capacity

Extending GP access during the course of the demonstrators has increased the use of GPs in primary care. Whilst it would be hoped that earlier access might lead to released capacity through earlier diagnosis and ultimately less service provision in either primary and/or secondary care, this would be challenging to measure. One practice indicated how they were extending hours without adding capacity through changing their core contractual hours. However, whilst this might be cost neutral in this demonstrator, references to remuneration expectations more generally infer that this is unlikely to be a popular permanent solution.

In addition, it is useful to acknowledge some of the unanticipated costs of extended access arising, illustrated by the two extracts below:

We made a conscious decision that the evening GPs would not refer patients on for further care ... and the patient's GP will make the final decision whether they want to make that referral ... because ... they might have an in-house GPSI (General Practitioner with a Special Interest) who could actually deal with that particular area

(R048)

We've got two reception staff. They don't need two, but just because we feel for security reasons

(R049)

These examples of duplication are a reminder of the constrained set of conditions in which workforce changes can bring cost benefits. Respondents were conscious of the possibility that extending hours might lead to increased costs. They were concerned to identify who used the extra appointments as they did not want to create 'unnecessary patient demand' or avenues for 'second opinions'.

5.2.4.3 Providing multi-disciplinary care and increasing community-based services

This Final Report primarily focuses on the workforce implications of additional availability and it is the Final Report that will expand the findings on providing multi-disciplinary care and increasing community-based services.

However, it has been possible to isolate some implications relevant to these issues. Table 18 identifies the skill-mix and interface changes that relate to specific activities in the demonstrators. This indicates that the majority of skill-mix changes in the demonstrators can be categorised (see section 5.2.4.1) as 'enhancement'. That is, they increase the depth of a job or extend the skills of a particular worker but do not lead to any movement of tasks or substitution of workers. In addition, most of these changes were brought about through the education and support of staff in different sectors, rather than the transfer or relocation of services.

TABLE 18: SKILL-MIX CHANGES AND WORKFORCE IMPLICATIONS

Activity	Skill-mix change, Interface change	Implications for Workforce
Hospital Navigator	Enhancement, brought about through Liaison – inreach service.	Addition to workforce
GP in-reach	Enhancement, brought about through Liaison – inreach service.	Addition to workforce
Extension of specialist advice lines	Enhancement, brought about through Liaison – outreach service.	Potential for partial substitution
Complex proactive care plans	Enhancement, brought about through Liaison.	Potential for partial substitution
Community pharmacy consultations	Enhancement, brought about through Liaison.	Potential for partial substitution
Proactive case management for care home residents	Mix of Enhancement brought about through Liaison between case manager, GPs and pharmacist, and Substitution brought about through Transfer of care from GP to case manager/ care home staff.	Potential for partial substitution
Enhanced end of life service	(Partial) Substitution, brought about through Transfer of care in many cases from secondary to community services.	Potential for partial substitution

The implications of these changes (tending to be the enhancement of roles, developed through liaison), are indicated in Table 19.

TABLE 19: IMPLICATIONS FOR SERVICE DELIVERY AND SUSTAINABILITY

Activity	Implications for Service Delivery	Implications for sustainability
Hospital Navigator	Increased potential to facilitate earlier discharge	Desire to extend service to include assistant and physiotherapist. How many staff (and what type of staff) are required to provide consistent service across the year?
GP in-reach	Increased potential to facilitate earlier discharge	What are the implications for workload? What is cost of providing this additional service?
Extension of specialist advice lines	Increased potential for more localised care through Transfer of work from Acute to Primary Care	What are the implications for workload? What is cost of providing this partially duplicated service?
Complex proactive care plans	Increased potential for more localised care through Transfer of non-emergency work from Acute to Ambulance Service and Community Care	Reference made to stretched DN services and lack of understanding of what community services offer. Reference also made to DNs being too busy to attend MDGs in Stockport. What are the implications for workload in Community Care and Ambulance Service beyond demonstrator? What is cost of providing this partially duplicated service?
Community pharmacy consultations	Increased potential for more localised care through Transfer of work from Primary Care to Pharmacy.	What are the implications for workload in Pharmacy beyond demonstrator?
Proactive case management for care home residents	Increased potential for localised care through Transfer of work from Primary Care to case manager/care homes.	How many case managers are required to provide service across all care homes? What is cost of providing this partially duplicated service (between GP/case manager)?
Enhanced end of life service	Increased potential for localised care through Transfer of service from Acute to team of DNs, APs and third sector in Community.	This appears to be part of service, rather than demonstrator <i>per se</i>

In the relevant column, Table 19 indicates the increased potential of these skill-mix changes to facilitate changes in service delivery, (such as enabling earlier discharge, or more localised care). The workforce implications of creating this potential through skill-mix changes are displayed in the adjoining column. This provides, at a basic level, insights into the implications that each of these skill-mix changes has for capacity and sustainability. For example, interviews indicate that having a case manager in care homes may increase the potential for localised care that deflects work from the GPs *and* from secondary care. But, for this potential to be realised and sustainable, this service needs to be consistently provided across care homes by more than the one case manager. Whilst deflecting some work, the role may not be a complete substitute for GPs or hospital doctors. Hence, the continuation of partially duplicated services when the total costs are increased because the 'saved' work does not completely cover the cost of the case managers.

5.2.4.4 Statement of Sustainability

Two key issues of sustainability are raised in this analysis.

- The first relates to whether there are sufficient GPs to cover additional availability beyond the demonstrator.
- The second relates to the tendency for multi-disciplinary working and increased community-based services to involve additional workforce costs with only partial savings to be made through the deflection of work.

-

As indicated in 5.2.4.1 above, this reflects the constrained set of conditions in which workforce changes (such as labour substitution) may bring benefit.

5.2.5 Communications and Engagement

The Interim Report of June 2014 highlighted:

- varying levels of engagement by different general practices
- the potential for demonstrators to encourage collaboration
- the importance of joint working between primary and secondary care

This section further develops understandings of the above issues following further depth analysis of communications and engagement with managerial and administrative staff (of the demonstrator and associated organisations) and of the various relationships noted between different healthcare sectors.

Section 5.2.5.1 summarises analysis of engagement with the organisations and individuals who provided services, in which findings have been grouped as 'enablers' and 'challenges'. Section 5.2.5.2 however provides a summary of data that focuses upon communication between the demonstrator sites and the population(s) to whom services were provided.

5.2.5.1 Engagement with provider organisations

Establishing and maintaining engagement, within and between lead and provider organisations, was considered as a complex and time-intensive task noted at all demonstrator sites. As an illustration of these complex networks, the *smallest* and most focused demonstrator was involved in extended dialogue between the CCG demonstrator leads, general practices, care homes, the local authority, community pharmacies, ambulance service and mental health trusts.

A range of approaches and techniques to engagement was employed by the various demonstrator. For example, some demonstrators had formalised, structured mechanisms in place, (including stakeholder steering groups), whereas others extended dialogue through meetings and/or developing engagement materials. As an illustration of the latter, Bolton demonstrator developed information leaflets for care homes, as well as creating a project work stream that focussed precisely upon communications and engagement. Other demonstrators engaged with other partners via less formal measures, as perhaps noted in the following explanation provided by a training facilitator:

I just phoned them, I just phoned a lot and I said 'we're doing this, I'm going to lay on an introductory session for managers'... I had to email them several times and phone them.

(R061)

Some demonstrators built took advantage of pre-existing relationships in order to further collaborative working between individuals and/or organisations. Other demonstrators did not necessarily have these previous connections and were required to forge new relationships. At some demonstrators, entire components of the project failed to become operational due to challenges concerning engagement. For example, at one location, an individual attempted to establish connections with a local hospital, but was unable to sufficiently engage with the appropriate clinical staff to make this viable. As such, the proposed service was discontinued.

Throughout the demonstrator locations, variable levels of engagement resulted in service inequity. For example, many GP practices at one location did not refer patients to the designated mental health clinic attached to a specific demonstrator. Similarly, at a second demonstrator not all GPs were willing to include their patients in the demonstrator. For example:

We've gone from full engagement from obviously the GP practices like our clinical lead and his practice (...) from that higher end engagement to others where you say this is what's happening in a care home, you've got some patients in that care home. So we think we should just let you know what's going on. And then that practice has said 'I don't want you to touch any of my patients'.

(R005)

Enablers and successes

Pre-existing joint-working between general practices was viewed positively by respondents and seen as conducive to engagement. Two demonstrators provided services through established GP federations, the latter of which were considered key to local joint-working within primary care. The value of these pre-existing relationships may be noted in the following comment:

I think the other key thing is we don't have (the demonstrator) as a stand-alone, it needs to link in with the other pieces of work, the other programmes ... We already strategically wanted to develop primary care. As a CCG, we already have a vision for primary care ... Luckily, we already had shared it with our practices, we'd had good engagement...

(R045)

At two of the sites providing additional availability, local practices had typically worked independently prior to the demonstrator. However, the introduction of the demonstrator provided opportunities to initiate and formalise joint-working, planning and the collective provision of services. Similarly, whilst the various demonstrators benefited from established formal alliances between GPs (or informal relationships), there was also the shared perception that the demonstrators helped to overcome historic barriers and encourage collaboration. This belief related to the view that joint-working was necessary for some services to operate, but also because such relationships concerned shared goals or purposes. Although there had been some previous collaborative working, the demonstrators appear to have been drivers of collaborative working *and* examples of actual activity that mobilises a shared willingness to work together (especially with regard to general practice). For example:

One of the good things to come of (the demonstrator) is that (deleted) as a locality has drawn together at the general practice level.

(R032)

Similarly, the demonstrator in one location was regarded a vehicle for resolving previous disputes and/or strained relationships. Success in achieving collaborative decision making and working within this particular location was regarded as meaningful achievement. For example:

Well, actually getting six practices in a room with 28 GPs and getting them to agree. That's not to be underestimated. And when I say agree, I mean agree in the room and agree outside the room. Because what you tend to find is that they'll agree in the room and then go out there and speak with forked tongues. So it isn't to be underestimated.

(R031)

Challenges

The short time-frames allocated to launching the various demonstrators created various 'engagement-related' challenges, particularly with regard to the relevant stakeholders, as this limited opportunities to build relationships and/or recruit the required workforce. In addition, the demonstrators typically introduced innovative ways of working with new partner organisations (maybe for the first time) and/or involved joint-working with organisations that were newly formed themselves.

As an illustration of this challenge, at two sites, a local OOH service handled the additional availability calls and involved joint-working with a range of services, organisations and individuals for the first time. One respondent directly involved in this partnership described a process of how effective communication between organisations evolved during the process of demonstrator development:

A simple thing like sitting people around a table from different organisations who all believe in what they want to achieve, and they all did everything they could to help. They really did. But that wasn't there right at the beginning...

(R036)

The same respondent also described how specific individuals contributed to engagement difficulties as a direct result of ineffective communication strategies. This is perhaps evident in the following extract:

My first question to him was 'are all (the) practice managers aware of what's going on'? And no disrespect to (the person, but their) answer to me was, well, 'all practices have received the business case', and that was it.

(R036)

A lack of time to communicate the aims and goals of the demonstrators to individuals connected to the demonstrators was also cited as a problem, even at locations where established working relationships previously existed. For example, one Practice Manager did not feel fully prepared for implementing the demonstrator and reported that there was an expectation to accommodate the required changes at short notice. The inconvenience and irritation this caused is perhaps noted in the following account:

The first time I was aware of that (people arrived to set up a nurse practitioner on the practice system) And ... 'oh right' ... and that happened on at least three occasions. So three afternoons were completely trashed off ... the first time, I was completely unaware of it ... we were messing and mauling about trying to set things up, which irked me a bit, because ... I'd not been privy to what this would mean, other than, 'oh she's going to be able to access (the practice system)'.

(R010)

The importance of effective communication from demonstrator leads with and between Practice Managers and administrators was recognised throughout and examples of successful engagement with each were provided. For example, the sharing of work streams was considered as a successful collaboration between practice managers at one location which subsequently enabled closer working relationships between practices on a day to day basis.

Lessons learned: - have a meeting with the practice managers...and (make sure) they all know before. Not your lead GP, your practice managers -make sure that they're engaged.

(R036)

Behavioural attributes of some clinical leads were considered as either constraining communication, or providing inconsistent and unconvincing messages about the demonstrator from the onset to conclusion of the relevant project. One individual described problems associated with specific individuals who it was felt were unable to take a more strategic overview of the demonstrator and communicate about it effectively to people outside the demonstrator itself:

They didn't have the time or capacity to actually (lead the demonstrator) and feedback and give leadership. They did it by 'doing the doing' really. And it's only been since the pilot's run after four months that then I think they could take the step back and actually then start to sell (the demonstrator).
(R031)

Engagement between sectors

Effective collaboration between primary and secondary care was considered pivotal for a number of aspects of the demonstrators, and several respondents cited successful engagement with acute and community service providers. For example, one respondent highlighted effective engagement with Central Manchester NHS Foundation Trust regarding the homeless service and care homes elements of the relevant demonstrator:

Our local hospital runs our local community service and, from being very sceptical at the beginning of what's called the TCS programme, Transforming Community Services, we're very pleased about that. We're working with them very closely. What has become very interesting is they are interested in primary care. They want primary care to work, they want urgent care to work so that they can discharge patients, so they know they get a consistent response and so on. So they've been working with us in a very collaborative way.

(R047)

At other sites, some relationships between primary and secondary care were reported as strained; in which some difficulties seemed to arise from divergent expectations between the two sectors. As an illustration, some secondary care respondents described discomfort when faced with comparatively unstructured/informal methods of working that lacked governance protocols within a primary-care led demonstrator:

(Some) GPs either don't know, or haven't had access to, or don't seem to have the same governance. They're getting this money and telling you, 'I want to do this, I want to do that' ... It was like we were the recipients of all that was going to happen rather than part of the solution to fix the problem (...) many of the demonstrator sites set themselves up but failed to include us.

(R056)

However, the above experience may be contrasted with more formalised approaches within other demonstrators, in which Acute Trusts were involved in plans and development from the onset (for example, as a member of the relevant steering group and/or providing guiding on governance protocols).

Some primary care staff reported frustration regarding barriers they encountered in engaging with hospital staff, especially in terms of governance requirements that they may not have been familiar with (IG/systems). However, when these requirements had been fulfilled, the same individuals continued to report that operational staff within the hospital still did not engage with the demonstrator. Inability to engage the administrators was a key reason for the failure of at least one demonstrator to engage the hospital sector:

One of the senior nurses or ward staff that was there, her issue was (...) our ward clerks are too busy to be putting more information on.

(R053)

Interviewees involved with two innovative services running as part of the demonstrators, where practitioners had taken on new roles, described the challenges faced in terms of communicating across professional and organisational boundaries. Firstly, an occupational therapist was working in a 'navigator' role in A&E, to avoid admissions, by assessing patients and arranging support to allow them to leave hospital without being admitted. This role, which was new, only starting as part of the demonstrator, involved complex communication, between the therapist, nurses, doctors, patients and carers within the hospital and various outside agencies involved in the 'pathways' that patients go down once leaving the hospital, such as crisis response teams and social services. The hospital serves three of the demonstrator areas; perceptions about the way that the navigator worked were positive, being described as 'good' and 'proactive'. The navigator herself felt that she had made progress during the time that she had been in post, in terms of achieving effective communication with different types of staff and being able to influence courses of action. She thought that her profession was particularly suited to the role:

I think the whole thing about being an OT (occupational therapist) is about being holistic...looking out of the box. And, sometimes I think that other professions...like nursing, and physio are much more black and white... it has taken some time, but (the hospital staff) know that I know what I'm talking about, and they respect my opinion, and if I've got someone who needs to come into hospital, either because I feel that really they need more investigation...then I will admit them. Although they might moan at me a bit if the beds are blocked, they're very happy for me to do that, and I link with the RMO (Resident Medical Officer), who takes referrals onto the medical ward, I do that myself now. Instead of going back to the doctor and saying, 'I think they need admitting', what I will do is take responsibility and refer them myself, and the RMO will general take them off me most of the time.

(R033)

The navigator also suggested ways in which communication between secondary and primary care could be further improved:

One of the things was better communication with GPs, so what I've thought about doing, I have a box at the bottom of my assessment that says 'notes for primary care,' and what my initial plan to do was to take the patients that are in the Demonstrator sites, and fax those assessments to the GP. So, they can see what information I'm taking, and what I'm doing when their patients are coming into A&E, and that's just something that's gone by the way side really.

(R033)

In addition, assistant practitioners worked in domiciliary care to provide an enhanced end-of-life service, which brought them into contact with district nurses. A service manager described the challenges they had initially faced, relating to the different ways of working and differences in the terminology used:

There was also a communication barrier as well, so terminologies, you know, the medical terms that (district nurses) use and the terminology we would use. So that was something we needed to get over

relatively quickly which in some areas we managed quite well, didn't we? More to do with when we're writing ... in the evaluation sheets what we've done, et cetera; reading back what's been done, there'll be (various acronyms) ... Which made it difficult for us at times because we didn't know if... whether that will effect what we're trying to do with that patient. But I mean... we've sort of got over that now, we're starting to understand better and vice-versa. We printed of a list (of terms and gave it to the nurses)

(R063)

5.2.5.2 Communication with patients and carers

The Interim Report (June 2014) noted a range of approaches in communicating with patients and the public across all demonstrators. This section provides further information about these approaches, as well as the challenges associated with communication directed specifically at patients and members of the public.

A variety of approaches and techniques for communicating information about the demonstrators to patients and the public were adopted across the sites. The demonstrator with the most formal, structured approach to public communication had a Patient Reference Group and also branded their initiative with specific marketing strategies. Similarly, recruitment to this demonstrator included that of an Operations Manager, who was tasked with marketing the demonstrator through a series of community-based public events.

Other demonstrators adopted a more media-oriented campaign (involving press, radio and television); as well as public advertising on specific buildings, the coordination of community mail-drops (reaching all local households in the vicinity), and distributing posters in surgeries, pharmacies and other public buildings.

In another location, the production of engagement literature for specific, targeted settings was deemed sufficient by the demonstrator leads.

Nevertheless, despite this variation, several respondents commented upon the difficulty of publicising a service that exists as a time-limited demonstrator. Similarly, there appeared to be limited evidence of consultation with patients, in terms of designing or influencing the services provided throughout the demonstrators. Indeed, much of the information provided by respondents in this regard was limited to anecdotal evidence.

Some respondents described the lack of uptake regarding additional availability appointments. Whilst the reasons for this were not provided/known, it would appear plausible to suggest that patients were either unaware of the opportunity to attend these appointments, or preferred not to attend appointments at the time(s) they were offered. This is perhaps an issue that needs further exploration with patients, in order to understand what appointment times are considered acceptable/convenient to the target population. Similarly, other appointments remained unfilled due to problems with referral/triage, or due to difficulties associated with inappropriately skilled staff (see also 5.2.4.2).

The confusion surrounding patient uptake of appointments may be noted in the following account concerning the alleged provision of ‘mixed messages’ (that infers inadequate staff training) within one demonstrator:

some of the feedback from certain individuals of their recent experience in accessing... or wanting to access ... (the demonstrator) because they have received mixed messages (about) when they can.... and can't access (the demonstrator) which is interesting because clearly that goes back to staff training.
(R024)

Several respondents referred to the various types of healthcare available to patients, such as the overlap that existed between general practice, Walk in Centres and A&E departments. Discussions of these varied settings included opening times, service availability and respondents acknowledged the problems these variations created (which the various demonstrators were designed to address). In short, there was consensus that the current situation of multiple providers was complex and that communicating with patients about how to make best use of services is challenging and needs further attention. For example:

I mean, we've created a plethora of doors for patients. The Walk in Centres, (general practice Out of Hours services). We've done that, and you can't sustain that neither. No wonder patients are confused.
(R031)

Finally, the respondent cited below describes the challenge and benefits of involving patients/public in the consultation process surrounding the various demonstrators:

With the members I guess there's a different level of understanding and I don't mean that disrespectfully. There's people that have joined the group from their own experience of retired but worked at a very senior level maybe in the NHS. They understand the dialogue, the language, the process. Then you've got people who are carers who may not have worked in that kind of setting and they find the language slightly difficult to grasp or understand. But we try and have a discussion where everybody feels that they're involved and their views are taken on board and not disadvantaged. So, I think it's good. It'll take time.

(R024)

5.2.5.3 Statement of Sustainability

- The time limited nature of the demonstrators creates tensions between financial resources, engaging people in the demonstrator and managing expectations. These attributes greatly impact upon the longevity of the demonstrator
- This also brings the tension that exists between publicising the service to raise awareness whilst managing expectations and ensuring that patients' needs can still be met once the demonstrator period ends
- Areas where engagement could be developed further should be given consideration, (for example, increasing the provision of information from the navigator to GPs) as it may help as yet untapped potential of the demonstrator services to be realised.

- Effective communication with patients, particularly for additional availability appointments, is critical to sustainability (in terms of ensuring that the best possible uptake of appointments is achieved and to avoid wasting resources)
- A variety of often overlapping services needs further co-ordination and to include the communication of information regarding how and when the public may access care

5.2.6 Supporting Infrastructure

The Interim Report (June 2014) focussed on accommodation as key infrastructure necessary for demonstrators to operate successfully. The report also referred to the importance of support services running alongside demonstrators to enable effective intervention as well as noting the challenge of calculating the required workforce for providing Out of Hours services.

Further interview responses (post-June 2014) included continued discussions of the infrastructure available to the various demonstrators. All demonstrators made use of current infrastructure, using existing premises that were already equipped (for example, the additional availability and mental health appointments and the multi-disciplinary team meetings were held at general practices). None of the demonstrators involved the acquisition of entirely new premises, although the initiation of the Stockport demonstrator coincided with the establishment of a 'hub' location. The latter involved the creation of a new management structure for district nurses and social workers as part of plans to set up multi-disciplinary hubs, where they would be co-located and housed in the same building as third sector staff. In reality however, although the district nursing and social work teams had moved closer together, they operated from separate buildings.

All demonstrators operated within the wider health and social care infrastructure, although some involved greater interaction or overlap with external organisations than others. A 'homelessness service' attached to one demonstrator, for example, operated from a site where multiple services were provided for the same target population (wound dressing and a substance misuse service). Such physical integration facilitated patient referral to the multiple services contained within the same location. Similarly, two of the 'additional availability' demonstrators utilised the telephony services of a local 'Out of Hours' provider organisation for managing telephone calls and booking appointments. In addition, respondents across all demonstrators referenced local A&E departments, the North West Ambulance Service and community pharmacies as particularly important infrastructural services. Pathology collections during the evening were particularly important for the 'additional availability' demonstrators. This may be noted in the following comment regarding positive experiences with the relevant Foundation Trust to provide this service:

They couldn't have helped enough. They haven't charged me for analysing the samples. They've charged me for the pick-ups, but it's peanuts.

(R032)

The wider issues concerning what kinds of 'wrap around', support services and how much of them, are necessary at what times was a key one for general practice appointments provided during

evenings and weekends. There was recognition of the inadequacy of general practice services operating alone:

The vision is to try and get ordinary practice seven days a week and at the moment it's purely the GPs, isn't it? We need to begin to get community services...pathology...x-ray, we need to begin to wrap round...

(R013)

For financial and clinical reasons, there was recognition that this 'wrap-around' would only entail 'sufficient' services, of the right kinds, with some additional availability, and that it would be unfeasible to provide an entire health and social care system around the clock:

You don't need a full complement of staff in the evenings and weekends like you do during the day. What you do need is access to enough services to deliver a competent service...path lab stuff, transport and all that sorted out...We're looking at community nurses so that you've got a district nurse service in the evenings and weekends. All these bits are going to be different pieces of the same jigsaw eventually.

(R053)

To maximise efficiencies in both front-line care and supporting services, it was suggested that federations could provide opportunities for shared infrastructure between member practices, particularly in terms of combined 'back office', administrative functions:

The other thing that is an obvious benefit of federation would be back office function, so all your referrals are done from site A, all your repeat prescriptions from site B, all your coding and scanning from site C, et cetera, because the biggest cost in general practice, to the practice, is staff. So there's essential savings if practices federate, but all of that and we discussed it recently at a locality meeting, it needs some kind of push, it needs some kind of incentive to do it, it needs another spark. My leadership alone and saying, let's do this, isn't doing it, it does need a push.

(R043)

By contrast, in areas where most practices are now part of a developing federation, it was suggested that those practices that are not part of the federation which continue to operate all their functions independently, could begin to struggle to meet the costs of doing so:

I think it would be more of an issue for the practices, because hopefully as we take up more of the back office functions and provide a more wrap-around service for the practice so they can get on and do the things that they actually like doing, and a lot of them do actually enjoy the clinical work, it's a small minority who like the management work, and they'll find that their costs, if they're not careful, the three practices will find their costs will start to grow, and they get to the point where it threatens their viability.

(R023)

5.2.6.1 Statement of Sustainability

- The time-limited nature of the demonstrator proved an obstacle to the acquisition or creation of new shared infrastructure in the shape of buildings or equipment. Were demonstrator activities

to become permanent services, investment in infrastructure would become more feasible which may enhance the quality of service delivered.

- The solution to this obstacle was typically the sharing of existing infrastructure for mutual benefit, often across organisational and sectoral boundaries.
- Many demonstrators faced the challenge of persuading larger organisations to change their operations to accommodate different working hours and patterns. The size of the demonstrators themselves made this a difficult negotiation, but some did so successfully.
- The consequence of this is a broader system change; with support services (such as pathology labs in an acute trust) changing procedures to accommodate one demonstrator, there is the potential for other demonstrators to benefit from this facility in the future.

6 Discussion

This Final Report presents findings based on a quantitative outcome evaluation and a qualitative process evaluation of the six Greater Manchester primary care demonstrators. The outcome evaluation is intended to answer (as far as possible) the question ‘what works?’ (or ‘what doesn’t work?’), which relates to both the operational goals of each demonstrator (what they attempted to do) and the impact (what effect this was intended to have for patients). The process evaluation supplements the outcome evaluation by providing an understanding of ‘how’ and ‘why’ the demonstrator interventions work or don’t work.

While there is, of course, a clear need to consider the immediate impact of each demonstrator in relation to their stated aims and objectives, these are not the only contributions of the demonstrators. As pioneers and experiments, they are also generators of valuable learning about how to bring about change in primary care and across other parts of health and social care.

So, while it is important to see how successful demonstrators achieved their successes, it is equally important to learn lessons from demonstrators which fail to meet their goals, or whose success was impeded by obstacles which other new initiatives in primary care might expect to face. In some cases, lessons which enable other interventions to overcome such challenges may be the most lasting contribution of a pioneer or demonstrator.

6.1 What was achieved by the demonstrators?

As noted above, there are two elements to assess in order to establish ‘what works’. The first is whether the demonstrators managed to deliver the activity that they intended to deliver. The second is to establish whether this activity led to the intended outcomes in terms of A&E activity, patient satisfaction or other healthcare goals.

The first step in assessing ‘what works’ therefore is to ascertain how far each demonstrator achieved their operational goals; to what extent the additional availability demonstrators managed to provide appointments of this kind during the period evaluated, for example, or how many patients were enrolled on the enhanced end of life scheme. The second step is then to examine how far this activity has had the intended effect; of improving patient satisfaction, for example, or reducing activity in secondary care, in particular A&E.

Addressing first the provision of additional availability appointments, it is clear that Bury, Central Manchester, Heywood and Middleton all had the additional availability appointments in place in some form from December 2013, all fully operational by March 2014 and all in operation until the end of the evaluation period (December 2014).

The level of additional availability provision in each demonstrator, measured in terms of the total number of additional appointments provided and the uptake of these appointments by patients, varied considerably between demonstrators. Central Manchester, Bury and Heywood each provided substantially more appointments in total than did Middleton, with Central Manchester providing the most (17,033), more than three times as many as Middleton (5,236). When compared with the patient population that each demonstrator served, however, Heywood provided the largest number of appointments (on average 40 appointments offered per month per 1000 population, although this varied substantially between a peak of 48 to a low of 20 in the final months of the demonstrator). Bury achieved similar levels of provision, offering an average of 30 appointments per month per 1000 population, and did so more consistently throughout the demonstrator period. Bury and Heywood, however, serve the smallest patient populations (between 30,000 and 33,000) and so benefit from the concentration on a smaller population. Middleton and Central Manchester provided the fewest appointments per head of population, with both CCGs providing around 10 appointments per 1000. However, in the case of Central Manchester, it should be noted that their patient population covered (203,982) was four times larger than the second largest demonstrators (Middleton, with 51,680 patients), and represented full coverage of the CCG area, which no other demonstrator attempted.

Beyond provision, it is important to consider which of the demonstrators generated the greatest amount of activity, as this is a more effective examination of the success of each demonstrator. Activity levels reflect the extent to which additional availability provision was matched by demand in each area. To determine activity, one might examine the total number of appointments booked, the number of appointments booked related to patient population, and appointments booked as a proportion of appointments available.

Taking each of these measures in turn;

- Middleton had considerably fewer total bookings per month (on average around 250) than the other three demonstrators (on average between 700-850 each).
- Per head of population, Bury and Heywood achieved significantly more appointments booked per month per 1000 population than the other demonstrators, averaging 20-40 appointments compared to between 5-10 in Central Manchester and Middleton.
- The proportion of additional availability appointments booked in Central Manchester and Middleton was similar at just over 60%. Heywood had the lowest proportion of appointments booked at 55%. Bury had a higher percentage of booking to appointments (over 80%) and also fewer DNAs as a proportion of all appointments than the other additional availability demonstrators. However, DNA data was only collected in Bury between April and September 2014 – approximately half the time period of the evaluation (although this was taken into consideration in the percentage estimates).

The activity data also indicates that there was a general trend of increasing bookings over the analysis period, probably indicating increased awareness and subsequent use of the service by patients. This trend is clear in Bury, less pronounced in Heywood and Middleton, and discernible in Central Manchester although complicated here by a drop in activity between April and July.

The activity data also sheds light on the effectiveness of different models of provision, in particular the utilisation of appointments on Saturday and Sunday, as well as the variation in utilisation through the week. These data would seem to suggest that there was little demand for Sunday appointments in Central Manchester, Heywood and Middleton, although stronger and substantial levels of demand are apparent in Bury. Further discussion of the different models of additional availability and their effectiveness can be found in Section 6.6, below.

Returning to the broader question, the additional availability service was up and running in all four demonstrator areas approximately two months from the demonstrator initiation date (September 2013), hitting peak levels of operation by March 2014. It therefore could, in principle, be contributing towards any effects seen from the beginning of 2014 onwards in the outcome analysis, addressed in the next two sections.

6.2 What was the impact of the demonstrators?

Overall, there is some evidence of a reduction in A&E attendance for patients registered in demonstrator practices. Across the four additional availability demonstrators, a statistically-significant 3% decrease in total A&E attendances per 1000 population could be observed following the initiation of the demonstrators, when compared to non-demonstrator practices across Greater Manchester. This decrease in A&E activity among demonstrator practices is comprised of statistically-significant reductions in Bury (4%) and Middleton (3%) and non-significant reductions in Central Manchester and Heywood.

The analysis also looked at A&E activity broken down by intensity. As it is highly unlikely that the additional availability services could have any impact on 'intermediate' or 'major' intensity attendances, the analysis focussed solely on 'minor'. The analysis shows a statistically-significant reduction of 8% in minor A&E activity across all demonstrators when compared to non-demonstrators across Greater Manchester. This is comprised of a statistically-significant reduction in Central Manchester of 14% and a non-significant reduction in Bury. Using within CCG non-demonstrators as a comparison for each CCG, the reduction in minor attendances in Central Manchester is statistically-significant at around 8%. Given the overall reductions in A&E in Bury and Middleton, it is surprising that no reductions were found in minor attendances in these CCGs, as the additional availability intervention could only reasonably be expected to affect this type of A&E attendances. This questions whether the reduction in A&E attendances in Bury and Middleton were due to the additional availability or changes unrelated to the demonstrators.

Examining the route by which patients are referred to A&E, a statistically-significant increase of 18% in GP referrals was observed in Heywood, with non-significant increases in Bury and Middleton when compared across Greater Manchester. However, the analysis also showed statistically-significant reductions in self-referrals in all four additional availability demonstrators, when compared to non-demonstrator practices across Greater Manchester. This complicates the question of whether the additional availability provided a substitute for, or a complement to, A&E attendance. Further discussion of this can be found in Section 6.6, below.

A&E attendance at weekends was also examined separately, to consider whether any effect could be identified outside of normal GP working hours. However, the results for weekends were not significantly different to those calculated over a full seven days.

It should be noted that using non-demonstrator practices within CCG areas as a comparator for each demonstrator site, removed almost all of the statistically-significant findings noted above. This is partly due to the smaller numbers derived from breaking the analysis down to individual CCG. However, it also suggests that using non-demonstrator practices across Greater Manchester as a comparator might have provided generous estimates of impact. Therefore, all estimates need to be interpreted with caution.

The GPPS was used to test for any significant differences in patient perceptions of their GP and GP surgery following the introduction of the demonstrators in 2014. The only demonstrator to experience significant changes in items related to access was Bury. Here, improvements can be seen in satisfaction with opening hours and whether using a local or a regional comparison, the effect remains. Improvements with the convenience of appointment in Bury were found when using a regional comparison, as were improvements with the experience of the surgery using a local comparison.

As noted, compared to the additional availability services, the aims of the non-additional availability services were generally more heterogeneous; the services themselves, also, were diverse terms of what was actually provided and the range of people doing this. Many of these services required a substantial amount of planning, coordination and collaboration beyond immediate demonstrator teams, and often across sectors. They often also involved workforce reconfiguration, placing individuals in different organisations and roles. Three services in particular, the care home service, the navigator service and the enhanced end of life service have been singled out as being particularly innovative. Although relatively small numbers of patients were involved, the recurrent and strong expression of positive views and experiences of these services and their potential, in terms of their perceived value for patients and staff alike, discerned through our process evaluation, suggest that these services in particular merit further exploration and rigorous, structured evaluation, including from the patient perspective.

6.3 Were the demonstrators cost-effective?

This evaluation has not included a full analysis of cost-effectiveness. The reasons for this are numerous and complex and involve various issues that extend beyond the scope of the current study, as set out in section 1.5 on the Strengths and Limitations of the Evaluation. A brief summary of some of the issues is provided below.

Cost-effectiveness analysis requires both detailed information on the costs of an intervention and the outcomes of the intervention. For costs of intervention, a detailed breakdown of the allocation of resources is required, which provides a clear distinction between pre- and post- demonstrator periods. This is a complex and resource intensive exercise, for which there was no provision made prior to the launch of the demonstrators. The overall cost of the intervention is measured in terms of the funding provided by NHS England, but given the number of different components, the differences between the demonstrators, and the overlap of responsibilities among demonstrator team members, it is not possible to accurately break down the overall demonstrator cost to attach costings to particular components. On the other hand, an assessment of effectiveness would require the application of an outcome measure; doing so was not part of the current study design.

What this evaluation does provide is an estimation of the impact of the demonstrators in terms of total A&E costs and minor A&E costs, where statistically-significant outcomes were shown. These estimates come with very broad confidence intervals, and the 'true' cost is equally likely to be anywhere within these intervals. The central estimates provided are the midpoint of these confidence intervals, and these should be taken as broad estimations only. The following is a summary of the significant findings expressed as yearly reductions in costs for the population registered in the demonstrator practices in each area:

- Bury: Decrease of £43,000 (range: £19,000-£73,000) in total A&E costs.
- Middleton: Increase of £97,000 (range: £57,000-£137,000) in total A&E costs.
- Central Manchester: Decrease of £325,000 (range: £85,000-£565,000) in minor A&E costs (note: this decrease was not associated with any significant change in total A&E costs).

6.4 How was this achieved?

This section presents those factors that our analysis identified which account for the success of each demonstrator in terms of their ability to deliver what they aimed to deliver. Within the bounds of this Final Report, this would relate to explaining and understanding the factors which enabled the demonstrators to provide additional availability in general practice for their patient populations and the ways in which they have done so. The related question, 'how far did this lead to the intended outcomes?' in terms of patient behaviour, particularly in their use of secondary care, and in terms of patient satisfaction will then be dealt with in section 6.6 (Explaining the Impact of the Demonstrators).

Federations

Comparing all six demonstrators, those with GP federations in place enjoyed specific advantages over those demonstrators which did not. The benefits felt in Bury and Central Manchester were more evident in the demonstrator than was the case for Stockport. This largely reflects the extent to which Bury and Central Manchester relied upon services provided by general practice, while the focus on integration in the Stockport demonstrator meant that demonstrator participants were located across community services and the local authority, as well as general practice.

The immediate benefits of the presence of a GP federation related to the ability of the federation to facilitate the sharing of patient records between member practices. The direct benefit here resulted from the existence of a framework within which a data sharing agreement could be established (information governance). In terms of the additional availability services, both Central Manchester and Bury were able to find more effective and sustainable solutions to IT/IG challenges than were Middleton and Heywood, which is a possible consequence of the improvement of joint-working facilitated by the federation.

More broadly, federations played a key role in providing a forum and framework through which collective strategic decisions could be made. Federations were described as a place where a consensus could be built around healthcare priorities and strategies could be developed on the basis of this to improve standards of primary care across a broader area than any single practice could achieve, benefitting from various economies of scale.

Underpinning this, however, were the relational benefits of the federation. For a set of practices to arrive at the point at which they are able to form a federation, a series of discussions need to have taken place through which a common purpose and vision is developed. It is likely that the successful formation of a federation relies upon or is facilitated by the pre-existence of positive relationship between practices, which would suggest that the presence of a federation is not a pre-requisite for co-operation in general practice but rather an outcome of co-operative relationships – that is, efforts to strengthen relationships should precede the formation of a federation or other less formal alliance. In all cases, this was an ongoing process, and all federations associated with the demonstrators provided evidence of ongoing differences of opinion between members, or between the federation management and the members. Typically these were associated with the relative youth of the federation.

There are, however, more challenging issues related to federations which emerged during the process evaluation. One was the divisions resulting from federation, where practices in an area did not join the federation, resulting potentially in healthcare inequities in an area and undermining efforts to present clear and coherent messages about the availability of new services to all patients within a given geographical area. A second issue relates to the financial sustainability of federations. While many within federations perceived this as an inescapable (and positive) part of the future for general

practice, many were still seen as inherently financially precarious and in need of stable sources of funding. The demonstrators themselves played an important role in all three federations as a focus for collective action.

IT

IT was pivotal for all demonstrators. In several cases, intractable problems with IT prevented component of the demonstrator from ever being initiated. In other cases, technical challenges either delayed the initiation of services, or hindered the efficiency and/or effectiveness of services when they were initiated. A long list of practical challenges were cited, relating to problems accessing records, allocating passwords, technical compatibility of software and hardware and other physical challenges of IT. The precise problems faced varied substantially, but a common perception was of over-optimism regarding the ability to overcome IT problems, and the ability of IT to deliver on its potential.

The key challenge here related to integration, or failing this the interoperability, of IT systems, particularly patient records. The discussion above (Section 2) highlighted the historical development of GP IT systems, which explains both the diversity of systems and the lack of incentives for suppliers to prioritise interoperability as a goal. In certain cases, practices benefited from already using the same IT system, especially where this system already had the functionality to store records off-site, facilitating their sharing with other GP practices. This technical integration was not in itself sufficient, however. GP practices frequently tailored their patient records system and diverged in their day-to-day practices of data entry, etc. As a consequence, even on the same IT system, work was necessary to standardise the use of this system, which required a commitment to agree common practices and to train staff to hold to these common practices. Frequently this commitment required both time and financial resources. Typically these costs were unanticipated and hard to cover given existing budgetary arrangements in general practice. Furthermore, practices depend upon their IT systems to collect the data necessary to trigger QOF payments amounting to 25% of their total income. The rules associated with this are complex and require meticulous attention to detail within practices. Simple errors, such as logging a 'new' episode of an existing condition can trigger a set of rules which may result in practices losing money. Practices have honed and tailored their systems over many years, and spend a great deal of time training their staff in the particular requirements of their own ways of doing things in order to safeguard the system. Allowing outsiders to enter data to the system is thus a significant risk for practices, and those who seem reluctant should not be seen as unthinking resistors. The training required to ensure that data entry is correctly done AND compatible with each practices' internal rules carries with it a significant cost.

In various cases, it was not viable to bring practices onto the same IT system, as this would be too expensive, too time-consuming, or because there was no consensus about which system should be chosen. The pragmatic decision was taken here to focus on improving inter-operability; the ability of

systems to speak to each other, and the ability of operators (including GPs, practice managers and reception staff) to switch between systems. This often resulted in a longwinded and complex process, using smartcards and multiple log-ins, leading to frustrations among practice staff regarding what they needed to do, and also constraints on what could be done (e.g. reading but not writing to patient records). The sustainability of these 'workarounds' in the long-term is doubtful.

Underlying the challenges here were issues related to the limited IT knowledge and experience within the demonstrators. This related to problems caused by knowledge failings in GPs and locums involved in the demonstrators in the use of IT, but more fundamentally to a lack of an IT knowledge base in the design and installation of new IT arrangements to support demonstrator activities. As a consequence, specialist IT support was needed for several demonstrators, and on occasion this resulted in greater complexity while managing interfaces with several different IT services. For most demonstrators, this led to the use of CSU, and for several, this was a source of significant frustration. While some identified failings in the demonstrators themselves and their ability to clarify their IT needs to CSU, several found the contractual and commercial dealings with CSU very difficult. Others ascribed the problems to lack of technical knowledge in CSU. Resolving IT issues frequently relied upon learning in situ, through intensive intra-organisational teamwork and by inter-agency joint working.

IG

As with IT, the ability of each demonstrator to deliver new services and to do so in the intended timescale was significantly affected by unanticipated problems and delays relating to information governance. It was observed that once a willingness to work across organisational boundaries had been achieved, which frequently required extensive relational work to overcome embedded work cultures, governance and information management issues frequently impeded this collaboration. Moreover, differences were apparent between attitudes to IG in private out of hour providers and NHS acute trusts, which were frequently seen as more stringent, and thus less flexible and cooperative, than was the case in primary care.

Underlying IG issues was the human and relational issue of trust, between individuals and between organisations, where IG was seen as a formal arrangement to address concerns over the protection of information where trust was absent or not perceived to be sufficient. In particular, the need for IG was seen to be more acute where information was shared across boundaries, or with non-clinical staff. An effective solution identified in several demonstrators was to put in place honorary contracts. An honorary contract serves to fix IG problems at an individual rather than an organisational level, in effect allowing staff to traverse organisational boundaries and thus access the necessary data. However, the longer-term solutions rely on a combination of learning and engagement by all parties, the clarification of how IG is to be applied in integrated and collaborative working, and in the longer term, the establishment of relations of trust between collaborator at the individual and organisational level.

Workforce and Organisational Development

Workforce challenges were common within the demonstrators, which placed greater or new demands on some staff and led to changes in deployment and skill-mix in many. The additional availability elements of the demonstrators had little impact on skill-mix. The sole exception here relates to an assumption in one demonstrator that nurses are substitutable in their skill sets; the realisation that this was not the case greatly complicated the staffing of additional availability practice nurse appointments. In terms of GPs, the main skill issue related to familiarity with different IT systems and with the different ways in which systems are used between different practices. The issue of substitutability took on particular significance in the selection of staff to participate in the demonstrators, who in certain demonstrators were perceived to be outstanding examples of their position. This then brought into question the feasibility of scaling up an activity, given the difficulty of locating a number of staff members with the distinctive knowledge/experience/commitment of the original demonstrator member. An associated issue related to the relative neglect of training in many demonstrators, where the time and cost necessary for training was not addressed in full in the demonstrator planning. Greater consideration in advance of skill-mix and training issues is therefore to be recommended, which may be aided by greater engagement with a range of practitioners at an early stage in project planning.

More generally, the challenge for the additional availability demonstrators was the intensification of demand for scarce professionals, particular GPs themselves. Several demonstrators pointed to work intensification upon those involved, and to difficulties resourcing the demonstrator. These problems appear less pressing in the demonstrators which are (a) larger in scope, as they benefit from a larger pool of GPs to draw upon, and (b) those which offer fewer additional availability appointments, hence reducing the demand for scarce labour here. Other solutions included recruiting new salaried GPs, or spreading core contractual hours over a longer time period for their GPs. GP federations may offer a route by which staff can be more easily redeployed across member practices; elsewhere, out of hour providers were relied upon to supply labour. There is no immediate indication of a substantial difference in patient response based on staffing model. There is a broader question to be answered, however, about the resourcing of additional availability across a much wider patch, such as the whole of Greater Manchester, which would require detailed workforce planning at a regional level. Factored into such discussions must be the affordability of different staffing models, and differential rates of remuneration for salaried and agency GPs.

There are more substantial implications for skill-mix associated with the non-additional availability components of the demonstrators. Across the demonstrators could be observed various skill-mix changes, the most common being role enhancement, often building on increased liaison of staff between sectors through inreach and outreach. In some cases, partial substitution of staff was evident, typically involving the substitution of the work of a GP by other healthcare professionals.

Many of these result in a more flexible and multi-skilled workforce, although savings and patient outcomes associated with such changes were harder to identify.

Communications and Engagement

In keeping with the theme of integration, each of the demonstrators, regardless of size and scope, was required to build relationships with a wide range of other health and social care organisations in order to deliver on their objectives. The demonstrators varied in the extent to which they engaged in a planned and structured process of communication; with patients, primary care providers and other organisations.

The ability of the demonstrators to achieve their objectives was facilitated by strong pre-existing collaborative relationships between GP practices. This was particularly the case where practices were part of a federation, as noted above. Where this was not the case, the demonstrator frequently triggered the kind of conversations that generated greater collaborative working. Early formal meetings with a number of individuals were cited as valuable in facilitating the necessary collaboration. Several emphasised the importance of involving various parties from GP practices, and a number underlined the problems where demonstrators were planned without deliberately engaging with practice managers in particular.

The challenge of engaging practitioners in other organisations beyond general practice posed great obstacles, linked to inter-professional tensions, divergent agendas and conflicting cultures. The division between primary and secondary care proved particularly problematic. There are clear examples of failed attempts to engage with, for instance, local hospitals, which led to particular demonstrator components being discontinued. There was also evidence that early engagement of professionals from other organisations, for instance as part of a steering committee, helped to overcome these boundaries.

Finally, the challenge of communicating the demonstrator aims and activities to patients themselves was undertaken in a range of ways across the demonstrators. Again, demonstrators ranged from formal and structured approaches, including Patient Reference Groups and marketing strategies through to less structured approaches. Activities ranged from the passive (mailshots and dissemination of information sheets) to the active (community events). The time-limited nature of the demonstrator, the scale/scope of the demonstrators and the overlap with other healthcare initiatives, however, posed a challenge when trying to present a clear and salient message to patients.

An underlying issue relating to Communications and Engagement was the organisational and leadership skills of the demonstrator leads. In some cases, interviewees cited a lack of active engagement on the part of demonstrator leads, failing to communicate a vision of the demonstrator or failing to engage with and listen to key parties, relying instead on indirect communication such as

letters to practices. As a result, addressing this particular challenge should be seen as not only a question of organisation and strategy but also of individual leadership.

Infrastructure

Finally, the provision of sufficient and appropriate infrastructure to support the new demonstrator activities was a widespread issue. Challenges here tended to revolve around physical infrastructure (buildings and equipment) and supportive services for primary care

The time-limited nature of the demonstrators meant that the acquisition of new physical infrastructure, such as buildings, was generally not viable here. The demonstrator activities therefore depended on the sharing or repurposing of existing health and social care infrastructure, with several examples of the sharing of premises including not only GP practices (where, for instance, additional availability appointments were rotated between participating practices) but other premises such as community pharmacies and A&E departments. Less tangible infrastructure was also shared, such as out of hour telephony services.

The demonstrators also differed in their use of a supportive infrastructure outside of primary care. While the demonstrators did not envisage full wrap-around support services, several identified particularly valuable services to maximise the effectiveness of evening and weekend appointments, such as pathology lab collections in evenings. Several identified the co-operative relationships supported by the demonstrator as potentially engendering greater sharing of primary care support functions in future. For some, federated general practice represented the logical route beyond this towards a more efficient sharing of back-office functions.

6.5 Explaining the Impact of the Demonstrators

Combining the qualitative process analysis and the activity and outcome analysis enables broader speculation on a number of factors which might help explain the impacts on secondary care identified here. In particular, this helps to both contextualise the demonstrators and to make some observations on the effectiveness of different models adopted for providing additional availability appointments in primary care.

Bury

Measured simply in terms of the number of additional availability appointments provided and the utilisation of these appointments, Bury was the most successful additional availability demonstrator. It is worth noting that Bury focussed solely on providing additional availability, with no activity recorded against any of its other demonstrator objectives. Bury was also one of the areas that started with something of an IT advantage, in that all demonstrator practices were already using the same IT system provider, and several of the practices involved in the demonstrator were already co-located in

the premises used for the additional availability service. Bury developed a workaround in terms of the integration of technology and governance that does not appear to be a sustainable solution; although it was expected that such a solution was to be delivered via the Vision 360 system, this system did not become operational within the time limit of the demonstrator. The operation of the additional availability also relied on a degree of un-funded work intensification among various clinical and managerial staff. This may have produced significant dividends within the lifetime of the demonstrator; for example, the service was largely staffed by local GPs, who had an interest in making it successful. As the service was staffed by two GPs at any one time, they could at times work flexibly with each other to maximise the number of patients seen. This also appears to have contributed to the markedly better uptake of appointments on Sundays in Bury. Again, though, this poses challenges to the sustainability of the demonstrator in the longer term. Making the service sustainable would therefore require the hiring of new workforce, with implications for cost and availability of such staff. Additionally, there is a good chance that this would result in the diluting of the 'originator commitment' that has been so important to the success of the demonstrator.

Outcome data in Bury shows around a statistically-significant 4% reduction in total A&E activity, a statistically-significant 4% reduction in total costs, and a 3% reduction in minor attendances, which was not significant, when compared across Greater Manchester in the post-demonstrator period. As minor attendances are the only area of A&E that could plausibly be impacted by the additional availability services, it appears that only part of the reduction in attendances can be ascribed to the demonstrator; with the reduction in costs suggesting reductions in higher intensity activity. The pattern of impact on GP- and self- referrals in Bury is very similar to that of Heywood and Middleton, and the three are discussed together below. In terms of out-of-hospital activity, Bury shows a statistically-significant and substantial impact on both Out of Hours GP usage (-37%) and Walk in Centre activity (-14%). Although based on relatively small numbers, these findings offer a clear indication of the additional availability service substituting for existing services. The high provision and uptake of weekend appointments in Bury might go some way to explaining this impact. Lastly, Bury were the only site of the four additional availability services to record a positive and statistically-significant impact on patient satisfaction scores relating to access, that was sustained throughout the demonstrator period. It is possible that the higher demand for the Bury service, coupled with the fact that it was staffed largely by local GPs has produced a higher level of awareness and engagement among service users, which might have impacted the satisfaction scores. It is also possible that Bury's communication strategy was the most effective in this regard, although this was not assessed in the evaluation.

Central Manchester

Central Manchester were the most ambitious in their initial objectives for the demonstrator. In addition to providing the additional availability to by far the biggest population of any of the four

piloted services, they also recorded activity against several other services, such as a GP-led homelessness service, and responsive appointments during routine GP hours. One key success for Central Manchester is the whole population coverage provided within a very short time period. This provides clear evidence of a well led and managed demonstrator, despite indications of contractual challenges faced during the demonstrator operation, and perhaps also makes the greatest contribution to extending access of any of the additional availability services. Like Bury, Central Manchester began with all practices using the same clinical systems provider. However, they have also developed the most sustainable approach to information governance, through the data sharing agreement produced by the GP federation. The further advantage of having the federation provide the additional availability services was that in spite of having the largest population to serve, Central Manchester also developed possibly the most robust workforce solution; more sustainable than services operated by local GPs (as in Bury), and encountering fewer IG and workforce challenges than those services partnering with external organisations (as in Heywood and Middleton).

Outcome data for Central Manchester shows small reductions in total A&E activity and cost, which are not statistically-significant, but a 14% statistically-significant reduction in minor attendances, when compared across Greater Manchester (8% when compared to North and South Manchester) in the post-intervention period. The impact on minor attendances indicates the successful substitution of A&E activity by the Central Manchester demonstrator services. However, it is not possible to clearly evaluate the impact of the additional availability service separate from the responsiveness service, as either or both could have plausibly have effected this reduction. Additionally, the fact that Central Manchester record only a statistically insignificant 2% reduction in A&E costs, in spite of the substantial reduction in minor attendances, indicates that challenges remain in terms of shifting resources away from secondary care. Lastly, the lack of a statistically-significant impact on either Out of Hours GP usage or Walk in Centre activity is surprising in Central Manchester, given the population coverage achieved by the demonstrator service, and its apparently successful substitution of minor A&E attendances. This is a possible consequence of the relatively few weekends hours offered as part of the demonstrator services.

Heywood and Middleton

Both Heywood and Middleton also had other demonstrator components outside the additional availability with activity recorded against them; the navigator and community support worker services in Heywood, and mental health clinics in Middleton. Both these areas encountered significant challenges in terms of IT, with both facing the challenge of demonstrator practices using a range of IT providers. A significant proportion of time and funding was taken within each of these areas in trying to solve this problem, and with only mixed success. As a result of IT challenges, both these demonstrators had the most interaction with CSU, some of the difficulties with which have been documented in this report. In addition to CSU, both Heywood and Middleton were dependent on

engagement with other organisations outside of routine primary care services, with their additional availability activities being outsourced to the local Out of Hours provider. This created unanticipated challenges in the disparities that existed between organisational expectations around governance, while also resulting in a workforce providing the additional availability who were less personally invested in the success or otherwise of the service. Indeed, it was suggested by some parties that the dual provision of services created a conflict of interest for the Out of Hours service, making them less likely to refer into the new service. Such an argument is supported by the lack of significant impact on the Out of Hours GP usage in both areas. However, Central Manchester recorded a similar lack of impact, without the same conflict, so this data is far from conclusive.

Heywood did not record significant impacts on total A&E activity, cost or minor attendances when compared either across Greater Manchester or within their CCG, in the post-intervention period. Nor did they achieve a significant impact on Out of Hours GP usage or Walk in Centre activity.

Middleton have recorded a statistically-significant 3% reduction in total A&E activity. However, this is coupled with a statistically-significant 5% increase in A&E costs, and no significant impact on minor attendances. It is therefore questionable whether the 3% reduction in activity is attributable to the demonstrator.

Significant impacts were found in Heywood in relation to referrals, with statistically-significant and substantial increases in GP referrals, reductions in self-referrals and increases in other referrals. This pattern was also seen in both Bury and Middleton, though with smaller and fewer significant impacts. It is not possible to explain the consistent impacts on 'other' referrals, as these come from such a variety of different organisations and sectors. However, the fact that there were significant reductions in self-referrals in all four demonstrators offering additional availability indicates that the new services have provided some kind of an alternative to attending A&E as the first port of call. However, in Heywood, Middleton and Bury this reduction was coupled with an increase in GP referrals. The only statistically-significant increase was observed in Heywood, and it is possible that the fact that the Heywood service only had access to summary care records meant practitioners were likely to be more risk averse, and refer more patients on to A&E from this service. Heywood also began their additional availability service at 4pm on weekdays, earlier than the other services and this may also have influenced referral decisions. No significant impact on minor attendances at A&E were observed across these three areas. Therefore, while it is plausible to suggest that a proportion of those who might have gone straight to A&E instead chose to attend the new additional availability service, this does not appear to have effected an overall reduction in A&E attendance, which suggests a duplication of services in these areas.

Bolton and Stockport

The Bolton demonstrator was established to improve provision in care homes and, despite initial unrealistic aspirations around the use of technology, appears to have achieved this. Bolton had the narrowest scope of all the demonstrators, in terms of being focussed on the smallest population and having the smallest funding budget. However, whilst the number of ‘cases’ of service provision was lowest at this site (114 patients were taken onto the caseload), this caseload was managed by a single practitioner, and the service provided was one of the most complex and long-term, in terms of multiple organisations being involved with the care of each patient and patients staying on the caseload permanently, once they had entered it and receiving multiple visits from the case manager and others. The ability to liaise and build trust effectively across sectors and organisations is critical to the successful working of this service. In terms of sustainability and extension of this service, simply increasing the number of case managers may not be sufficient and more support may be needed to engage general practices and care homes. Given the scale of the demonstrator, it was not possible to evaluate its impact using independent data.

Stockport designed the most varied and complex demonstrator, providing five different types of service, extending some existing services and also developing new ones. Several of these are noteworthy for bringing together a wide range of health, social care, domiciliary and third sector service, working together under new management arrangements. Two services provided long-term support to people with complex needs, using a risk stratification tool and a ‘multi-disciplinary team’ developed care plans; a ‘multi-disciplinary group’ worked with other, broader, criteria to identify patients and put support in place. The enhanced end of life service appears to be an example of service innovation, in that domiciliary workers, from an often overlooked service felt they could make better use of their skills and also started to work more collaboratively with district nurses. According to the data supplied by Stockport, of the patients referred into the enhanced service who died, 90% died at home; however, examining the overall figures for deaths in the region, it is not possible to identify a discernible impact of the service (a likely consequence of the small scale of this component).

Deeper Explanatory Factors

Understanding in more detail the achievements of the demonstrators would require a more in depth understanding of the ‘programme theories’^{xxxvi} underpinning the demonstrators. Also sometimes referred to as ‘theories of change’ these represent the understanding by those setting up a programme of the mechanisms by which it is expected to have an effect. Thus, for example, if a new service is set up which is intended to reduce patients attendance at A&E, this will be underpinned by an implicit or explicit theory of how the service in question will act to change people’s behaviour. Understanding the service’s impact will require not only evidence about outcomes but also evidence as to whether or not the presumed mechanism acted as intended. The demonstrators had a number of aims and goals, and all of them set in place quite a complex array of new and extended services to

achieve those aims. They were also set up at considerable speed and at scale. It is therefore very difficult to produce for each one a clear statement of the initial programme theories underpinning their design

There are a number of plausible arguments relating to patient behaviour vis-à-vis primary care and A&E: patients attending A&E may be doing so for other reasons, not because they can't get seen in primary care; providing additional GP appointments may be uncovering significant unmet need, and this is limiting potential impact on help-seeking at A&E; the appointments provided may be at the wrong time or wrong place; the patients attending A&E may be an entirely different population from those who wish to be seen during additional availability in practices; the additional availability may just be displacing activity from earlier in the day, effectively spreading out activity over a longer period; or this may be a case of 'supplier induced demand', in which the provision of additional services tends to lower the threshold for seeking help. Adjudicating between these possibilities would require a much more in-depth study which collected data from patients and explored the reasons that people attended specific locations for care.

Trust was an important enabler which operated across all of the identified categories. If individuals trusted one another then good will could mitigate problems; if there was trust between organisations, then 'workarounds' could be introduced and problems solved. Trust was itself enabled by experience of working together, either in a formal federation or informally. Whilst formal federations too may institutionalise trust, this is not guaranteed, and informal experience of working successfully together towards some common goal has a powerful effect. Trust was of most immediate importance in issues relating to IT and IG, Two forms of trust were required here: trust that individuals are 'fit and proper persons' to access patient records; and trust that they are capable of using the records in a way that would not compromise the practice. The former can be addressed via formal mechanisms such as honorary contracts; the latter requires extensive training and experience of successful co-operation.

Lastly, and perhaps most obviously, the time-limited nature of the demonstrators acted as a limit to the things that could be achieved through them. As noted elsewhere, engagement with organisations and patients, installation of expensive IT equipment, employment and training of workforce, and the development of organisations towards new ways of working, have all contained challenges for which long term, strategic investment is required in order to develop sustainable solutions. A considerable amount of time and resource has been used in each demonstrator developing 'workarounds' to these various problems; short term solutions that go as far as possible to solve the problem for as little of the demonstrator resource as possible. Often these workarounds have offered a set of points for how one might go about developing the sustainable solution in the future, however, they have frustrated progress within this lifetime of the demonstrators, and created limits on the realisation of objectives.

6.7 What impacts are not measured in the evaluation?

This evaluation does not directly assess, and cannot comment on, two potential impacts of the demonstrators. The evaluation did not systematically poll staff on job satisfaction following the implementation of the demonstrators. Staff perceptions of the impact of the demonstrators were instead collected through the interviews. This qualitative methodology produced a richer understanding of the views of staff, but not one which could be summarised and measured in this report.

Also, in line with the evaluation brief, the impact of the demonstrators on the communities in question, in terms of the acceptability of the services to patients and carers, their experiences and perceptions has not been measured qualitatively, nor have health or non-health outcomes.

It may be that some outcomes identified, such as increases in GP referrals to A&E, represent an uncovering of previous unmet need. However, in the absence of data to indicate whether or not this is the case, it is not possible to take a position here. Further understanding the issue of unmet need would require data about the content of A&E attendances, and an estimation of the extent to which those attendances were warranted. This is beyond the scope of this evaluation.

6.8 What were the wider consequences of the demonstrators?

Finally, it is vital to recognise the broader impact of the demonstrators, both intended and unintended, across primary care and more broadly achieved through the demonstrators due to their role as 'pioneers'. Further, it may be the case that, in attempting something new, a demonstrator project may instigate change elsewhere in the wider health economy, making it more likely that later interventions achieve their objectives or even stimulating unanticipated benefits elsewhere. Finally, much can be learned collectively from the experience of these demonstrators on the advantages, and also the limitations, of this kind of innovative, change-generating investment programme. All of this relates to the broader system change within and beyond the NHS which this programme might drive.

Firstly, the simultaneous operation of several projects enabled each to learn from the successes and failures of the others, accelerating the learning process. As other organisations such as NW CSU adapted to the specific needs of one project, this generated a capability to do the same more quickly for other projects when required.

Secondly, more directly, numerous participants cited ideas, initiatives and possibilities which emerged, unconnected to the demonstrators themselves but generated by the new connections formed in the process of each demonstrator. The process evaluation provides some evidence of this broader system change. Interviewees highlight a range of new developments which describe as generating the potential for more integrated and collaborative working in health care as a consequence of the demonstrators; examples include cooperation between GP practices who had

previously had no relations, an emergent understanding of commonalities and differences between staff in acute trusts and those in general practice, and capacity building within support functions (such as CSUs) to better facilitate information sharing in primary care in the future.

Finally, and most importantly, the wider consequence of these developments may be the development of a level of systemic trust, which might be referred to as social capital. Those common understandings, bond and commitments, both formal and informal, which emerged from certain demonstrators have the potential to connect different parts of the healthcare economy in a way which makes future cooperation and integration a more realistic prospect.

7 Conclusion

This report contains outcome and process evaluations of the Greater Manchester primary care demonstrators, focusing in particular on the additional availability components of these. The demonstrators varied significantly in scale and scope, but collectively involved attempts to enhance **access** to care, building on greater **integration** of health (and social) care, and taking advantage of new **technology**. The outcome evaluation sought to offer an indication of 'what seems to work', drawing on data to measure the impact of the demonstrators on secondary care activity (using SUS data) and patient satisfaction (using GPPS data), plus impacts on Out of Hours and Walk in Centre usage. The process evaluation sought to explain how the demonstrators worked, to identify the challenges faced by the demonstrators and the enablers supporting their success. Together, the evaluations sought to identify lessons for similar, future primary care initiatives.

The report first assesses the extent to which the demonstrators effectively delivered the services intended. For four demonstrators, (Bury, Central Manchester, Heywood and Middleton) this was focused on delivering additional availability GP appointments in the evening and on weekends, although the precise model of additional availability varied in terms of staffing and the hours and services offered. All four had the additional availability appointments in place in some form from December 2013, all fully operational by March 2014 and all in operation until the end of the evaluation period (December 2014). Central Manchester offered the most appointments and the broadest population coverage; Bury achieved the greatest utilisation rate of appointments offered, but all four overcame complex challenges to establish a substantial and broadly effective service. Overall, then, the demonstrators were successful in offering additional availability in primary care. In addition, Central Manchester, Heywood and Middleton established ancillary services as part of the demonstrator. Stockport and Bolton did not offer additional availability GP appointments, but delivered, respectively, a broad range of associated components connecting primary, community and social care, and a targeted and well-received enhancement of end of life care. Four of these components appear to merit further exploration and evaluation; the Bolton care home service, the Bolton medicines management service, the Heywood navigator service and the enhanced end of life service run in Stockport.

The evaluation identified a reduction of 3% in total A&E activity associated with the four additional availability demonstrators when compared with the rest of Greater Manchester, and all four achieved statistically significant reductions in self-referrals to A&E of between 8% and 24%. However, a more reliable measure of impact would be changes to minor A&E activity as this represents the only aspect of A&E which extended primary care might plausibly influence. Focusing on minor A&E activity, an overall reduction of 8% can be associated with the activity of the demonstrators, driven by a substantial and statistically-significant 14% reduction in minor A&E activity from the Central Manchester demonstrator compared to the rest of Greater Manchester. Applying 2013/14 tariffs for

minor A&E, this equates to an overall annual reduction of approximately £425,000 (range £285,000 and £565,000) for the 215,000 registered patients in the Central Manchester demonstrator. While estimates suggest Bury produced a small cost reduction and Middleton a small increase, there were no cost impacts on A&E attendance at all found for three of the six demonstrators.

Surprisingly, only one demonstrator (Bury) resulted in a reduction in Out of Hours and/or Walk in Centre activity, equating to a hypothetical cost reduction of around £164,000 (range: £104,000-£212,000). The lack of impact on OOH/WIC elsewhere suggests that there was some duplication of services in all other demonstrators. Duplication is an expected part of any demonstrator scheme, where existing services are not de-commissioned; however, if there is no evidence that the demonstrator services can divert demand from existing services, this suggests that the demonstrator service has created new demand. While it is possible that the demonstrator service could be meeting a previously unmet need, the increased cost implications of this should be considered.

Bury was the only demonstrator to have an effect on patient satisfaction with surgery opening hours, convenience and overall quality of care, as measured by the GPPS.

In addition, the demonstrators generated important learning about the kind of challenges which such undertakings will face, and offered the chance to compare different models of additional availability services in primary care. It is notable that the most successful demonstrators, in terms of capacity generated, patient utilisation of service, and impact (Central Manchester and Bury) both benefitted from the existence of a GP federation and certain advantages in their information technology and information governance arrangements. Both of these advantages cannot be assumed if this service is to be adopted more widely, and careful consideration should be paid to these fundamental elements of innovation in primary care, at both a local and a system level. Both demonstrators also benefitted from effective and dedicated management of the demonstrator, supported by organisational and contractual arrangements. While Bury was substantially more successful in publicising and generating demand for the service, especially at weekends, it appears that the workforce solution implemented by Central Manchester was more robust, sustainable and generated whole-population coverage that the other demonstrators could not achieve using existing models.

The process evaluation identifies six relevant factors which need to be addressed in order for a primary care demonstrator to be delivered successfully. These 'enablers' relate to;

1. The establishment and operation of a GP **federation**
2. Commitment to planning, resourcing and expertise in **information technology**
3. Effective planning and relational work regarding **information governance**
4. Consideration of a range of **workforce and organisational development** issues, including skill-mix, substitutability of staff and workforce planning

5. Strategic planning and timely involvement of key participants in **communications and engagement**
6. Establishment of a strong, shared network to provide necessary **infrastructure**

Finally, it is vital to recognise the broader impact of the demonstrators in terms of building capacity for further development. New relationships and shared practices have been forged through this intense engagement between general practices and other elements of the local health economy. The practical accomplishment of GP record sharing and the successful integration of clinical systems not only offers examples of new foundations being laid upon which future development can be built but also represents a level of systemic trust which makes future cooperation and integration a more realistic prospect..

Appendix 1: Activity Data Proforma

Demonstrator Evaluation – Activity Data Proforma

<i>Name of service (please complete separate proforma for each individual component of demonstrator - e.g. extended hours in one location)</i>
<i>During what time period was this service operational? (please be as precise as possible)</i>
<i>Description of service</i>
<i>Additional staff required (.FTE)</i>
<i>Total service user cohort</i>
<i>Total service user caseload/activity</i>
<i>Sector location (Primary, Community, Acute)</i>
<i>Main outcome measures</i>
<i>Experience data collected (survey instrument used, sampling strategy, response rates)</i>
Please submit proforma with experience data and any case studies by DATE

Appendix 2: Key Learning Points (Interim Report)

Federations and alliances
<ul style="list-style-type: none"> • There are significant benefits associated with establishing a GP federation as a legally accountable provider entity. • The demonstrators can assist in supporting federation development by providing an initial focus for activities. • A key advantage of a federation is a collective data sharing agreement; however, these can be developed without establishing a federation. • Demonstrators can also support development of non-federation alliance between GP practices. • The pursuit of federations, or alliances short of full GP federations, should be a key strategic priority at CCG level.
Information technology
<ul style="list-style-type: none"> • All allied GP practices should share an externally-hosted clinical information system. Front end resource needs will be high, requiring a sustainable financial model • Check the basics - do all locations have adequate computer hardware and necessary internet/phone line access, with sufficient bandwidth capacity? • Audit competencies and put in place necessary training for all relevant staff in the use of clinical systems, including different local configurations of the same software.
Information governance
<ul style="list-style-type: none"> • Sufficient time must be provided for completing necessary governance approvals, in particular, Privacy Impact Assessments, data sharing agreements, and remote authentication. These require a significant amount of manual data entry. • If all practices in a data sharing agreement share an externally hosted system then Privacy Impact Assessments and remote authentication may not be required. • CSU are a valuable resource for IT/IG issues, but are not a substitute for demonstrator-specific project management
Workforce and organisational development
<ul style="list-style-type: none"> • Be aware of variations in skill-mix between allied practices - ensure a minimum person specification for all shared roles is in place.

- Recognise the information governance challenges associated with contracting out services.
- All demonstrator plans should be jointly developed from the start by managerial as well as clinical staff.
- Consider the possible work intensification issues for all staff – this will impact the sustainability of demonstrator services.

Communications and engagement

- Complete a comprehensive stakeholder analysis and engagement process. Need to build in sufficient time for meaningful engagement to ensure issues are addressed and partners buy into the change initiative.
- Engage early with organisations beyond primary care.
- Establish and make meaningful use of formal PPI structures for decision making.
- Take advantage of existing local communication channels and create active strategies to inform patients. Draw on established evidence regarding the impact of different communication strategies.

Supporting infrastructure

- Establish precisely which services are necessary to support extended opening times, e.g. pathology collection, pharmacy, transport, translation services and also security issues.
- Don't trade-off between physical and timely access - strive for both.

Appendix 3: List of Demonstrator Practices

<u>CCG</u>	<u>Practice code</u>	<u>Practice</u>
<u>Central Manchester</u>	P84005	DRS NGAN AND CHAN
	P84009	AILSA CRAIG MEDICAL CENTRE
	P84016	LEVENSHULME MEDICAL PRACTICE
	P84023	SURREY LODGE GROUP PRACTICE
	P84026	DICKENSON ROAD MEDICAL CENTRE
	P84027	WEST POINT MEDICAL CENTRE
	P84028	GORTON MEDICAL CENTRE
	P84037	DR CUNNINGHAM & PARTNERS
	P84038	ASHVILLE SURGERY
	P84039	THE RANGE MEDICAL CENTRE
	P84050	MOUNT ROAD SURGERY
	P84052	WEST GORTON MEDICAL PRACTICE
	P84053	ASHCROFT SURGERY
	P84056	PRINCESS ROAD SURGERY
	P84057	KAYA PRACTICE
	P84063	DR CHEN & DAVIS
	P84068	THE RATCLIFFE PRACTICE
	P84071	WILBRAHAM SURGERY
	P84072	ROBERT DARBISHIRE PRACTICE
	P84611	DR CHIU
	P84616	MOSS SIDE FAMILY MEDICAL PRACTICE
	P84626	WILMSLOW ROAD SURGERY
<u>Heywood</u>	P86011	LONGFORD STREET MEDICAL CENTRE
	P86016	ARGYLE STREET MEDICAL CTR
	P86023	HOPWOOD MEDICAL CENTRE
	P86602	HEADY HILL SURGERY
	P86605	YORK STREET SURGERY
	Y02718	GTD TWO
<u>Middleton</u>	P86004	PETERLOO
	P86010	JUNCTION SURGERY
	P86012	WOODSIDE
	P86015	DR KHAN
	P86019	DURNFORD MEDICAL CENTRE
	P86606	DR ANGLIN
	P86620	DR AHMAD
	Y00726	DRS STOCKTON AND THOMPSON
	Y02795	MIDDLETON HEALTH CENTRE
<u>Bury</u>	P83007	DR M I QURESHI & PARTNERS
	P83010	MONARCH MEDICAL CENTRE
	P83029	DR A K KOTEGAONKAR & PARTNERS
	P83603	REDBANK GROUP PRACTICE

	P83612	DR P W V THOMAS & PARTNERS
	Y02660	THE RLC SURGERY
<u>Stockport</u>	P88002	MARPLE BRIDGE SURGERY
	P88006	MARPLE COTTAGE SURGERY
	P88009	WOODLEY HEALTH CENTRE 2
	P88014	ADSHALL ROAD MEDICAL PRAC
	P88017	CHADSFIELD MEDICAL PRACTICE
	P88019	ALVANLEY FAMILY PRACTICE
	P88021	MARPLE MEDICAL PRACTICE
	P88044	BREDBURY MEDICAL CENTRE
	P88607	THE GUYWOOD PRACTICE
	P88623	HIGH LANE MEDICAL CENTRE
	P88624	WOODLEY HEALTH CENTRE
	P88625	ARCHWOOD MEDICAL PRACTICE
<u>Bolton</u>	P82001	DR T LYNCH & PARTNERS
	P82007	DR D A WALL & PARTNERS
	Y03079	BCP

Appendix 4: Non-additional availability activity data

Bolton

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Case management for care homes (n=4) (19/01/2014)	Number of beds	296
	Number of patients entered caseload	114
	Proactive visits	368
	Crisis visits	253

Bury

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Extended hours (01/12/2013)	Number of appointment slots	10,434
	Number of appointments booked	8424
	Available appointments booked %	80.7%
	Number of telephone consultations	630
	Number of home visits	177
	Number of DNAs (April-Sept)	275
Navigator service – Fairfield hospital (01/04/2014)	Patients seen (from Bury practices)	26

Central Manchester

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Extended hours appointments (02/12/2014)	Number of appointment slots	12,803
	Number of appointments booked	7168
	Available appointments booked %	56%
	Number of DNAs	1020
Responsiveness appointments (01/12/2013)	Total contacts recorded	57,916
	Responsiveness appointments provided	35,729
	Routine appointments given	3858
	Advice and guidance given	18,160
	Patient needed, but not given responsiveness appointment	141
	Uncoded	28
Homelessness service (01/12/2013)	Patients registered	203

Heywood

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Extended hours and capacity (01/12/2014)	Number of appointment slots	12,791
	Number of appointments booked	6658
	Available appointments booked %	52.1%
	Number of DNAs	695
	Number of cancellations	191
Care planning (01/12/2014)	Care plans in place	202
Multi-skilled care workers (22/07/2014)	Care plans in place	45
Navigator service – Fairfield hospital (01/04/2014)	Patients seen (from Heywood practices)	26

Middleton

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Extended hours (01/12/2014)	Number of appointment slots	3962
	Number of appointments booked	2301
	Available appointments booked %	58.1%
	Number of DNAs	320
	Number of cancellations	81
Mental health crisis clinics (03/12/2014)	Total appointments booked	370
Navigator service – Fairfield hospital (01/04/2014)	Patients seen (from Middleton practices)	2

Stockport

Service (start date)	Activity recorded (1 st Dec 2013 - 30 th Sept 2014)	
Rapid response step-up	Patients referred	168
Complex care (20/1/2014)	Patients identified as high risk	1369
	MDT caseload	152
	MDG caseload	31
Enhanced end of life (03/12/2013)	Referred into service	105
	Died at home	49 (46.6%)
Carer health assessment (01/01/2014)	Number of patients entered service	22
Mental health liaison in-reach (01/02/2014)	Care home staff trained	All staff in 3 homes
End of life care training	Care home staff trained - general	All staff in 5 homes
	Care home staff trained - dementia	All staff in 5 homes
	Locality staff	85

Appendix 5: Outcome Analysis Tables

Technical summary

Demonstrator Practices are evaluated using the Difference-in-Differences (DiD) methodology. The DiD approach estimates the difference over and above the expected difference in the outcome measure had the intervention not occurred, which in the present analysis will be modelled for hospital emergency activity and GP practice patient satisfaction. The DiD approach enables the identification of changes in the dependent variable (y_{it}) between the intervention ($Post_{it}$) and non-intervention periods for a specified target group (DP_{it}) compared to a control group (i.e. where $DP_{it}=0$). The approach is attractive since it permits estimation of this effect over and above a general time trend ($time_{it}$). The choice of control group is critical. A key requirement for valid inference from this estimation method is that the control group represents, as best as possible, what would have happened to y_{it} should the intervention not have occurred.

$$y_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 Post_{it} + \beta_3 DP * Post_{it} + \beta_4 time_{it} + \alpha_i + e_{it} \quad (1)$$

Estimation of Equation (1) can be made linearly via fixed-effects regression models. Fixed-effects models remove any time-invariant potential unobserved practice level heterogeneity (α_i) that may be associated with whether the practice is a DP or not – for example, should DPs be relatively more focussed on reducing A&E attendance or improving patient experience than non-DPs. Fixed-effects models treat the dependent variable as linear. This has its drawbacks where the dependent variable is binary, or on a Likert scale (an ordinal variable where the distances between each option may not be uniform or has a skewed distribution). However, treating the dependent variable as linear has an advantage when interpreting the estimated effects. The key estimate of interest is $\hat{\beta}_3$ since this gives us the change in y_i compared to the control (non-DP) practices – which under certain assumptions can be interpreted as the effect of the intervention.

All pilot practices within each of the CCGs providing additional availability appointments were grouped as the treatment group DP_{it} . The full list of practices classified as DP are provided in the appendix table A1.

Time trend adjusted y_{it} , y^*_{it} were calculated to account for potential differences in trends of y_{it} over time for the DP and non-DPs. The dependent variable y_{it} were adjusted by estimating Ordinary Least Squares (OLS) regressions of the dependent variable against a linear time and DP-specific linear time trend in the pre-intervention period. The expected value of y_{it} were calculated using the estimated coefficients from the OLS regression and this expectation was subtracted from the observed value of y_{it} . This approach ‘nets’ out the possibility of the effects of the DP to be partly reflecting a general increasing or decreasing time trend under the assumption that practices would have continued along their pre-intervention trends.

Data sources

A&E activity data

The data used to assess A&E activity are the Payment by Results (PbR) data from the Secondary Uses Service (SUS), managed by the Health and Social Care Information Centre (HSCIC). The data were obtained from the North West Commissioning Support Unit. The PbR data contain patient level information about hospital activity. Compared to the other source of hospital activity, Hospital Episodes Statistics (HES), PbR data do not contain unfinished inpatient episodes, are subject to less data cleaning than HES, and are not updated over time.^{xxxvii} However, due to significant delays in the provision of HES data by HSCIC, SUS PbR data were used for this report.

GPPS

The GPPS began in 2007 and annually send surveys to approximately 2.6 million patients randomly selected from each GP list. The GPPS is a postal survey though completion can be made online or over the telephone. Sample selection is based on practice registration records, an individual must have a valid NHS number, be 18 years or older, and have been registered with a GP practice for at least six months^{xxxviii}. Patients may be surveyed more than once over survey years but only once within a 12 month period. The sample size is constructed so that 95% confidence intervals can be obtained for each practice for each question in the survey. The annual response rate is approximately 35% (1 million patients). Half are surveyed Jan-March and half July-Sept.

A Difference-in-Differences analysis was conducted for five questions in the GPPS (Table A1). Each of these have different responses. These were modelled as binary scores. The binary cut-offs were chosen on face validity – good and poor outcomes. Linear probability models are estimated, this has the advantage over non-linear models in a Difference-in-Difference setting since non-linear models require the calculation of marginal effects (the average effect of a change in a variable on the probability of the dependent variable) which are problematic where interaction terms are needed (as is the case here).

TABLE A 1 GPPS QUESTIONS USED FOR ANALYSIS

Question	Answers	Binary Specification
Q15: How convenient was the appointment you were able to get?	Very convenient (4) Fairly convenient (3) Not very convenient (2) Not at all convenient (1)	Very convenient (1) Fairly convenient (1) Not very convenient (0) Not at all convenient (0)
Q18: Overall, how would you describe your experience of making an appointment?	Very good (5) Fairly good (4) Neither good nor poor (3) Fairly poor (2) Very poor (1)	Very good (1) Fairly good (1) Neither good nor poor (0) Fairly poor (0) Very poor (0)
Q25: How satisfied are you with the hours that your GP surgery is open?	Very satisfied (5) Fairly satisfied (4) Neither satisfied nor dissatisfied (3) Fairly dissatisfied (2) Very dissatisfied (1) I'm not sure when my GP surgery is open (.)	Very satisfied (1) Fairly satisfied (1) Neither satisfied nor dissatisfied (0) Fairly dissatisfied (0) Very dissatisfied (0) I'm not sure when my GP surgery is open (.)
Q26: Is your GP currently open at times that are convenient to you?	Yes (1) No (0) Don't know (.)	Yes (1) No (0) Don't know (.)
Q28: Overall, how would you describe your experience of your GP surgery?	Very good (5) Fairly good (4) Neither good nor poor (3) Fairly poor (2) Very poor (1)	Very good (1) Fairly good (1) Neither good nor poor (0) Fairly poor (0) Very poor (0)

When comparing DPs to non-DPs it is important to ensure as far as possible that similar practices are compared. If practices are not similar then any observed differences in the outcome variables may be due to changes and differences in the patient characteristics of practices. To mitigate such (biased) effects, selection can be controlled for observable characteristics. Essentially this means observed characteristics of patients can be included in Equation (1) to remove any bias in our estimates that are due to measurable characteristics of the practices patient populations (note this differs from the approach taken for the SUS analysis). Equation (2) is an extension of Equation (1), with observed patient characteristics included in the model (x_{it}):

$$y_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 Post_{it} + \beta_3 DP * Post_{it} + \beta_4 time_{it} + \beta_5 x_{it} + \alpha_i + e_{it} \quad (2)$$

The GPPS models include the following patient characteristics:

- Gender (GPPS – patient reported)
- Age (GPPS – patient reported)
- Whether the patient has a limiting long-standing health condition (GPPS – patient reported)
- Index of Multiple Deprivation (IMD) score (Census 2011 – patient postcode or practice if null)

For each question the responses are cleaned by removing observations where the patient replied 'Don't know'; 'Can't say'; 'I'm not sure...'. Only those respondents who have valid responses in each

question are included in the samples enabling the differences in the question responses to be comparable within each model specification.

IMD score is available either as a score or grouped by deprivation status – ‘most deprived’, ‘moderately deprived’ and ‘least deprived’. These three categories are included in the analysis.

Since 2011 new weights to account for age, gender, and deprivation are available. The new weights of the survey mean recent waves of the GPPS are only comparable from June 2011. Weighting is essential to ensure responses are broadly in line with GP populations. The weights in the GPPS account for unequal probability of selection, non-response (factors in age, gender, location and (using the individual’s postcode) IMD, ethnicity, marital status, overcrowding, household tenure, and employment status), and calibration for practice representativeness^{xxxix}. The weights provided are used in each model specification.

The post-intervention period is defined from 1st January 2014, this period is captured in the Y8W2 (January-March 2014) and Y9W1 (July-September 2014) waves of the GPPS. Sample sizes of the GPPS from July-September 2011 are provided in Table A2. The analysis is restricted to include only those patients who have seen a GP in the past 3 months (Q1: When did you last see or speak to a GP from your GP surgery? ‘In the past 3 months’). This is helpful in limiting the possibility that the post-intervention period may reflect activity in the pre-intervention period in the January-March 2014 wave. Note that responses in the January-March 2014 wave may be in relation to experiences of surgery attendance prior to Jan 2014.

TABLE A 2 GPPS SAMPLE SIZES

Date	GPPS Sample	Sample Size	DP Period/ <i>Post_{it}</i>
July-Sept 2014	Y9W1	424,959	Yes
Jan-March 2014	Y8W2	456,224	Yes
July-Sept 2013	Y8W1	447,133	No
Jan-March 2013	Y7W2	496,005	No
July-Sept 2012	Y7W1	475,227	No
Jan-March 2012	Y6W2	507,772	No
July-Sept 2011	Y6W1	530,174	No
Total		3,337,494	

From the initial sample size of 3,337,494 patient responses in the GPPS, the sample drops to 2,801,945 with responses by patients for having experience of making an appointment (Q15); 2,761,541 with Q18 responses; 2,643,780 with Q25 responses; 2,519,783 with Q26 responses; 2,508,499 with Q28 responses; 2,366,773 with valid long-standing health condition responses; 2,342,667 with valid gender responses; 2,332,102 with valid age responses, and 2,330,322 with valid IMD deprivation scores. Dropping patients from practices not within Greater Manchester reduces the sample to 138,822.

Restricting the sample to contain only those patients who have seen a GP within their surgery over the past three months reduces the sample to 81,073.

Estimates

Estimates are provided with additional analyses that separates the post-period into two separate effects where possible.

Outcome summary statistics

Average number of A&E attendances per 1,000 registered patients per practice per quarter over time

	ALL		Central Manchester		Bury		Heywood	Middleton	HMR
	DP	Non DP	DP	Non DP	DP	Non DP	DP	DP	Non DP
2011	94	94	94	107	81	109	99	103	123
2012	97	94	97	108	84	83	98	105	131
2013	95	92	95	109	84	81	96	99	128
2014	95	94	95	110	81	81	96	100	133

Average number of minor attendances per 1,000 registered patients per practice per quarter over time

	ALL		Central Manchester		Bury		Heywood	Middleton	HMR
	DP	Non DP	DP	Non DP	DP	Non DP	DP	DP	Non DP
2011	44	45	41	56	39	53	50	54	79
2012	51	48	51	61	42	42	52	57	88
2013	49	47	49	62	40	39	48	53	86
2014	47	47	48	57	37	38	47	52	88

Average number of A&E attendances per 1,000 registered patients per practice per quarter by referral source over time

		ALL		Central Manchester		Bury		Heywood	Middleton	HMR
		DP	Non DP	DP	Non DP	DP	Non DP	DP	DP	Non DP
Referral from GP	2011	2	3	1	4	4	5	4	4	3
	2012	2	4	1	4	4	3	4	4	3
	2013	2	4	1	5	4	4	5	4	3
	2014	2	4	1	5	5	5	6	5	4
Self referral	2011	60	55	60	63	52	77	64	64	76
	2012	61	55	60	62	57	53	63	66	81
	2013	55	56	53	59	57	51	60	60	79
	2014	54	63	52	62	51	49	57	61	82
Other referral source	2011	28	34	26	37	24	27	31	34	44
	2012	33	35	34	41	23	27	32	34	47
	2013	37	32	41	45	23	26	31	34	45
	2014	38	27	42	43	24	28	33	34	47
Code missing	2011	4.8	1.0	7.4	3.1	0.5	0.6	0.3	0.8	0.2
	2012	1.5	0.4	2.2	1.0	0.2	0.2	0.1	0.3	0.1
	2013	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.1
	2014	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1

Average number of OOH attendances per 1,000 registered patients per practice per quarter over time

	Bury		HMR	
	DP	Non DP	DP	Non DP
2011	28	26	17	15
2012	45	39	27	24
2013	40	37	27	25
2014	30	39	30	27

Average number of WIC attendances per 1,000 registered patients per practice per quarter over time

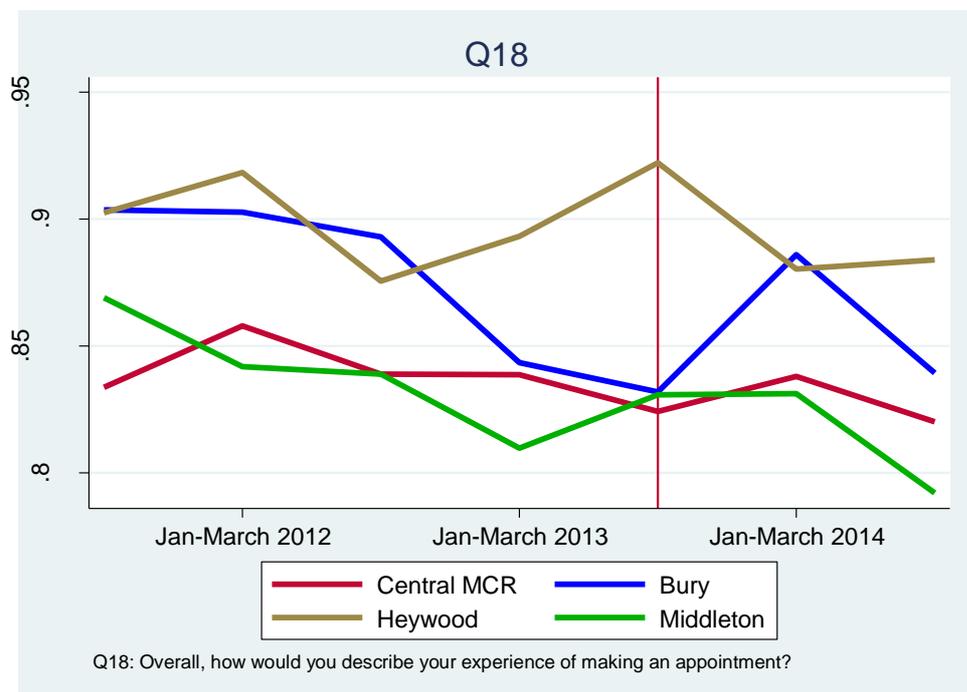
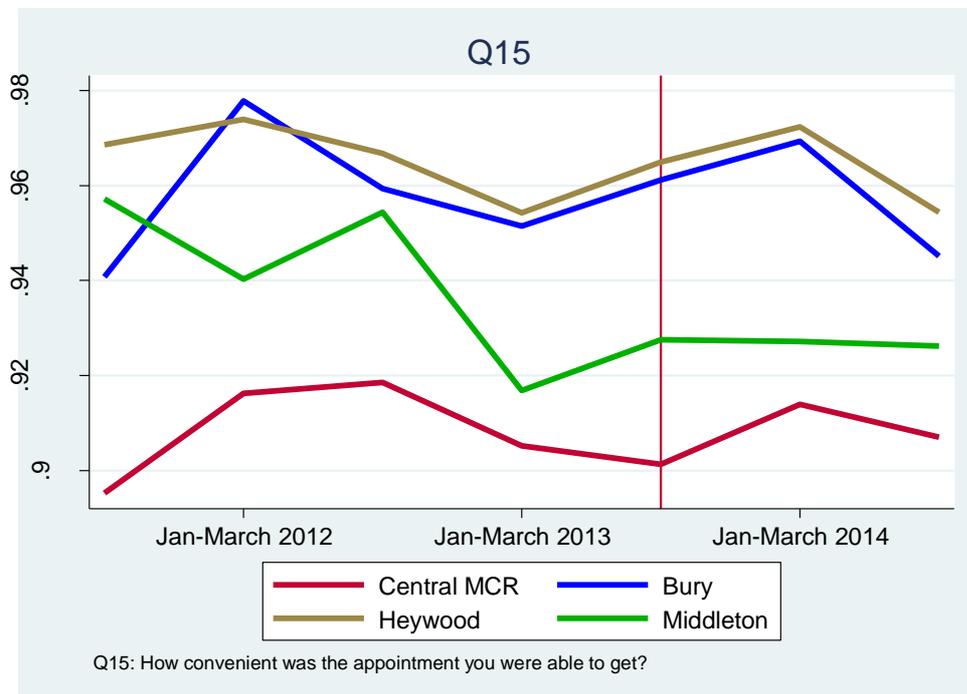
	Bury		Central Manchester	
	DP	Non DP	DP	Non DP
2011	30	55	26	27
2012	49	87	26	27
2013	43	81	23	27
2014	40	83	23	27

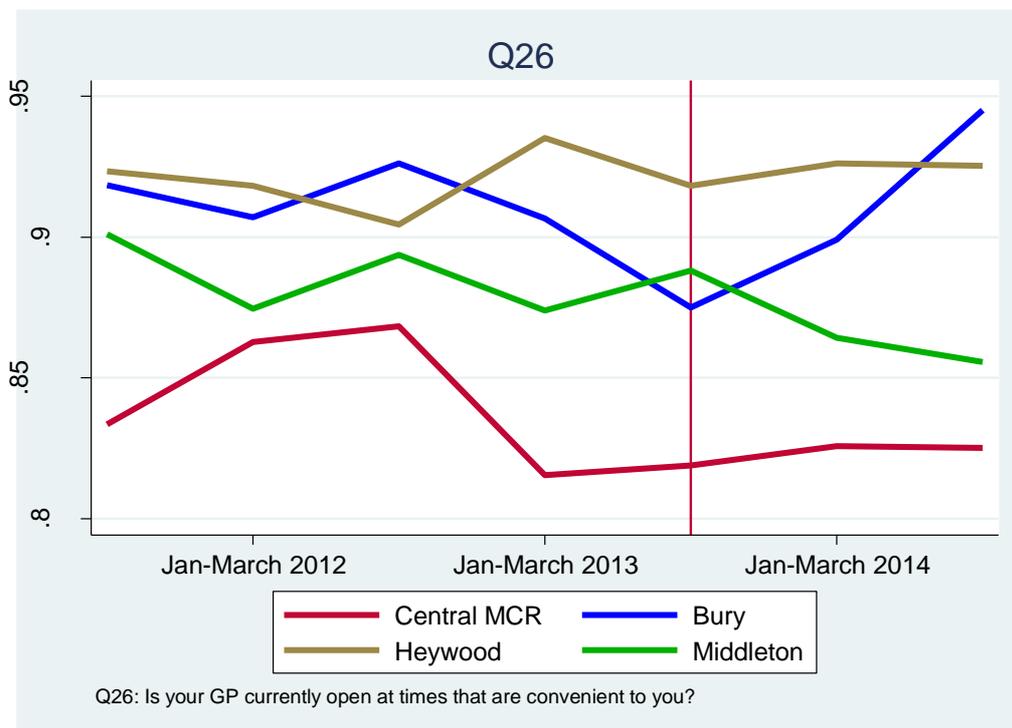
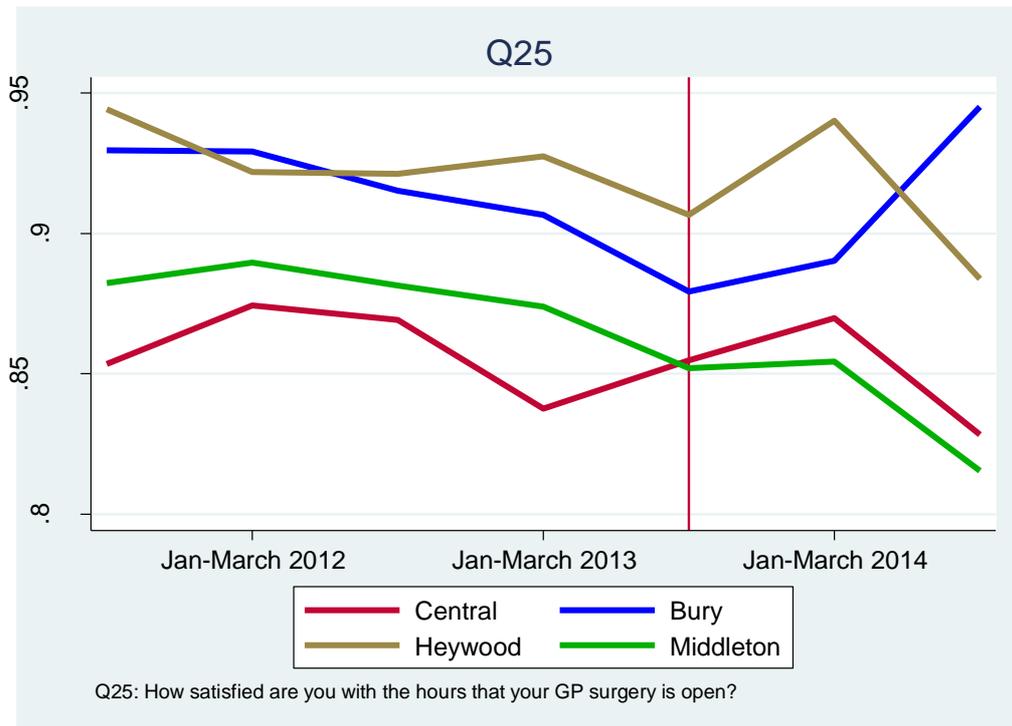
Total cost of A&E attendances from demonstrator practices					
		Bury	Heywood	Middleton	Central
2011	Total A&E	717,963	779,050	1,318,698	5,018,337
	Minor A&E	269,214	302,564	528,875	1,703,710
2012	Total A&E	1,036,343	1,052,194	1,830,311	7,291,382
	Minor A&E	383,993	426,817	748,704	2,837,683
2013	Total A&E	1,087,909	1,076,222	1,751,793	7,732,751
	Minor A&E	375,880	398,075	708,384	2,948,439
2014	Total A&E	1,059,238	1,074,430	1,808,773	8,047,683
	Minor A&E	351,610	390,433	699,744	3,034,632

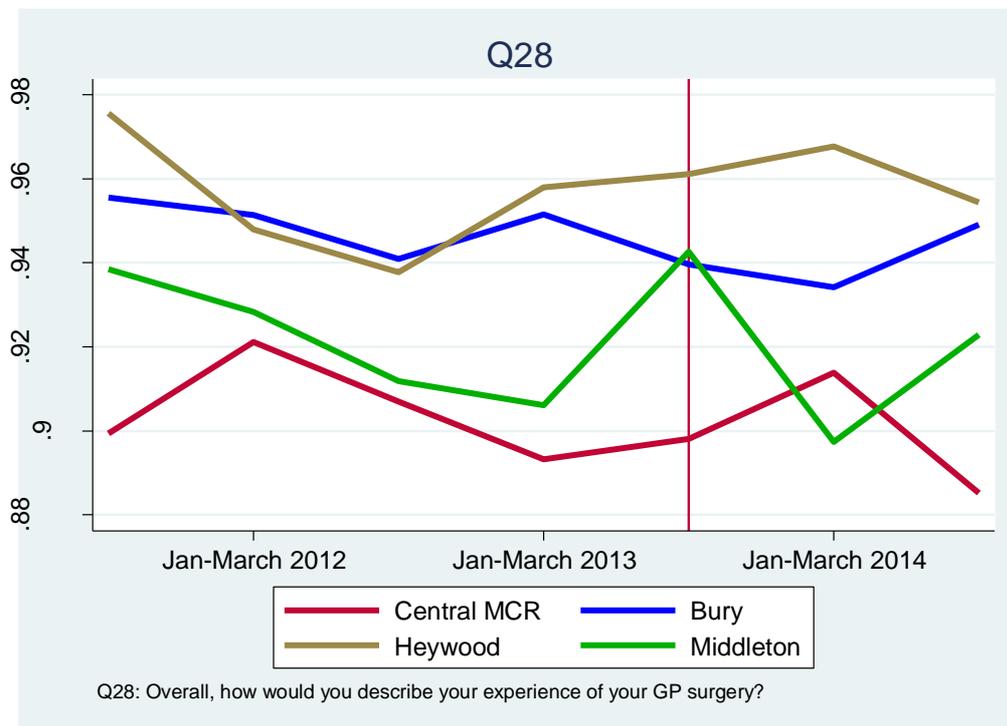
Average cost (£) of A&E attendances per 1,000 population from demonstrator practices per quarter

		Bury	Heywood	Middleton	Central
2011	Total A&E	7,383	8,918	9,137	8,558
	Minor A&E	2,763	3,485	3,717	2,933
2012	Total A&E	7,856	8,877	9,316	8,982
	Minor A&E	2,975	3,617	3,903	3,499
2013	Total A&E	7,997	8,793	8,809	9,027
	Minor A&E	2,808	3,325	3,667	3,442
2014	Total A&E	7,716	8,815	9,018	9,169
	Minor A&E	2,598	3,255	3,582	3,466

GPPS Graphs







All DP results

TABLE A 3 ALL DP DiD ESTIMATES (CONTROL ALL GRMCR NON-DP)

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	0.0004 (0.975)	0.0117 (0.358)	-0.0117 (0.567)	0.0412 (0.073)	0.0477 (0.063)	0.0340 (0.308)
Q18: Overall, how would you describe your experience of making an appointment?	0.0080 (0.578)	0.0252 (0.115)	-0.0101 (0.592)	0.0117 (0.800)	0.0514 (0.188)	-0.0305 (0.414)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0134 (0.301)	0.0300 (0.043)	-0.0042 (0.834)	-0.0439 (0.132)	-0.0614 (0.069)	-0.0259 (0.610)
Q26: Is your GP currently open at times that are convenient to you?	0.0172 (0.285)	0.0197 (0.328)	0.0146 (0.520)	-0.0243 (0.453)	-0.0368 (0.163)	-0.0111 (0.864)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0076 (0.423)	0.0167 (0.148)	-0.0020 (0.880)	0.0204 (0.418)	0.0276 (0.444)	0.0125 (0.613)
N	81,073					

Comparison of demonstrators in Central Manchester to non-demonstrators in Central Manchester, North Manchester, and South Manchester practices

p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)

Bold have no adjusted time trend

All DPs vs non DP				
Activity per 1,000 registered patients		Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014
A&E attendances	Total Volume	-0.0266 (0.050)	-0.00998 (0.329)	-0.0433 (0.086)
	Total Cost	-0.0259 (0.065)	-0.0175 (0.116)	-0.0343 (0.173)
	Minor intensity only (Volume)	-0.0835 (0.000)	-0.0555 (0.000)	-0.112 (0.000)
	By referral source			
Referral from GP	0.0437 (0.218)	0.0534 (0.162)	0.0339 (0.435)	
Self-referral	-0.109 (0.001)	-0.124 (0.000)	-0.0929 (0.020)	
Other referral source	0.0426 (0.256)	0.111 (0.004)	-0.0256 (0.547)	
Code missing	0.679 (0.000)	0.501 (0.000)	0.857 (0.000)	
Number of Observations		7433		

Notes:

All activities transformed

Bold have no adjusted time trend

p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)

Bury
TABLE A 4 BURY DiD ESTIMATES (CONTROL BURY NON-DP)

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	0.0131 (0.424)	0.0152 (0.348)	0.0133 (0.607)	0.0133 (0.700)	0.0539 (0.217)	-0.0299 (0.556)
Q18: Overall, how would you describe your experience of making an appointment?	0.0334 (0.328)	0.0581 (0.211)	0.0115 (0.722)	-0.0985 (0.038)	-0.0896 (0.238)	-0.1105 (0.204)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0901 (0.009)	0.0483 (0.194)	0.1309 (0.001)	-0.0305 (0.631)	-0.0600 (0.312)	0.0030 (0.969)
Q26: Is your GP currently open at times that are convenient to you?	0.0705 (0.299)	-0.0031 (0.973)	0.1412 (0.010)	-0.1070 (0.023)	-0.1073 (0.147)	-0.1013 (0.137)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0317 (0.040)	0.0471 (0.104)	0.0179 (0.479)	0.0145 (0.772)	0.0011 (0.973)	0.0191 (0.807)
N	5,699					

Comparison of demonstrators in Bury to non-demonstrators in Bury

p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)

Bold have no adjusted time trend

TABLE A 5 BURY DiD ESTIMATES (CONTROL NON-DP)

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	0.0221 (0.035)	0.0318 (0.006)	0.0137 (0.357)	0.0283 (0.240)	0.0496 (0.096)	0.0056 (0.892)
Q18: Overall, how would you describe your experience of making an appointment?	0.0141 (0.620)	0.0422 (0.257)	-0.0109 (0.655)	-0.0632 (0.068)	-0.0444 (0.490)	-0.0874 (0.234)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0747 (0.014)	0.0401 (0.213)	0.1065 (0.001)	-0.0037 (0.949)	-0.0468 (0.356)	0.0428 (0.500)
Q26: Is your GP currently open at times that are convenient to you?	0.0549 (0.403)	0.0026 (0.977)	0.1014 (0.032)	-0.1121 (0.000)	-0.1495 (0.024)	-0.0667 (0.068)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0137 (0.204)	0.0246 (0.267)	0.0042 (0.794)	0.0299 (0.516)	-0.0166 (0.492)	0.0720 (0.281)
N	73,992					

Comparison of demonstrators in Bury to non-demonstrators in Greater Manchester
p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)
Bold have no adjusted time trend

Activity per 1,000 registered patients		Bury DPs vs all non DP			Bury DPs vs all non DP		
		Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014	Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014
A&E attendances	Total Volume	-	-	-0.0355	-0.0282	-0.0306	-0.0259
		0.0395	0.0435				
		(0.002)	(0.062)	(0.322)	(0.108)	(0.277)	(0.505)
	Total Cost	-	-	-0.0342	-0.0175	-0.0226	-0.0124
		0.0421	0.0501				
		(0.001)	(0.055)	(0.323)	(0.296)	(0.464)	(0.737)
Minor intensity only (Volume)	-	-	-0.0154	-0.0371	-0.0354	-0.0389	
	0.0277	0.0399					
		(0.155)	(0.079)	(0.691)	(0.122)	(0.192)	(0.380)
By referral source	Referral from GP	0.123	0.0712	0.174	-0.0657	-0.109	-0.0222
		(0.081)	(0.454)	(0.008)	(0.416)	(0.299)	(0.785)
	Self-referral	-0.244	-0.244	-0.245	-0.117	-0.0936	-0.141
		(0.000)	(0.000)	(0.000)	(0.000)	(0.009)	(0.000)
	Other referral source	0.263	0.243	0.283	-0.0102	-0.0389	0.0184
		(0.000)	(0.000)	(0.000)	(0.692)	(0.144)	(0.739)
	Code missing	0.126	0.108	0.145	0.0587	0.0595	0.0579
		(0.001)	(0.049)	(0.000)	(0.281)	(0.384)	(0.282)
Number of Observations	6683			501			
Other Activities							
Out of Hours				-0.373	-0.333	-0.412	
				(0.000)	(0.000)	(0.000)	
Number of Observations				358			
Walk-in-centres				-0.136	-0.0948	-0.177	
				(0.000)	(0.003)	(0.000)	
Number of Observations				462			

Notes:

All activities transformed

Bold have no adjusted time trend

p-values in parentheses. Shaded boxes present statistically-significant effect (p<0.05)

Heywood**TABLE A 6 HEYWOOD DiD ESTIMATES (CONTROL HEYWOOD, MIDDLETON AND ROCHDALE NON-DP)**

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	0.0479 (0.064)	0.0959 (0.017)	-0.0030 (0.896)	0.0148 (0.753)	0.0023 (0.966)	0.0186 (0.734)
Q18: Overall, how would you describe your experience of making an appointment?	0.0345 (0.296)	0.0391 (0.452)	0.0281 (0.434)	-0.0168 (0.796)	-0.0302 (0.645)	-0.0071 (0.929)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0163 (0.718)	0.0351 (0.359)	0.0016 (0.979)	-0.0753 (0.266)	-0.1592 (0.091)	0.0134 (0.875)
Q26: Is your GP currently open at times that are convenient to you?	0.0316 (0.172)	0.0315 (0.164)	0.0367 (0.370)	-0.0129 (0.793)	-0.0546 (0.333)	0.0382 (0.545)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0443 (0.064)	0.0514 (0.080)	0.0375 (0.268)	0.0017 (0.965)	-0.0118 (0.827)	0.0205 (0.645)
N	4,926					

Comparison of demonstrators in Heywood to non-demonstrators in Heywood, Middleton, and Rochdale p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)
 Bold have no adjusted time trend

Activity per 1,000 registered patients		Heywood DPs vs all non DP			Heywood DPs vs all non DP		
		Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014	Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014
A&E attendances	Total Volume	-0.0250	-	-0.0370	-0.0392	0.0028	-0.0147
		(0.326)	(0.580)	(0.358)	(0.168)	(0.909)	(0.733)
	Total Cost	0.0249	0.0265	0.0233	-0.0511	-	-0.0744
		(0.296)	(0.276)	(0.542)	(0.053)	(0.281)	(0.077)
	Minor intensity only (Volume)	0.0502	0.0519	0.0484	-0.0728	0.0056	0.0264
	(0.174)	(0.101)	(0.367)	(0.017)	(0.868)	(0.646)	
By referral source	Referral from GP	0.182	0.152	0.212	0.176	0.108	0.244
		(0.006)	(0.069)	(0.012)	(0.028)	(0.258)	(0.021)
	Self-referral	-0.151	-0.164	-0.139	-0.100	-	-0.0535
		(0.001)	(0.000)	(0.024)	(0.033)	(0.281)	(0.353)
	Other referral source	0.254	0.291	0.218	0.00729	0.0354	-0.0208
	(0.000)	(0.000)	(0.000)	(0.800)	(0.353)	(0.498)	
Code missing	-0.121	-0.136	-0.106	-0.0186	0.102	0.270	
	(0.000)	(0.000)	(0.058)	(0.568)	(0.011)	(0.000)	
Number of Observations		6683			442		
Other Activities (HMR DP - VS HMR NDP)							
Out of Hours					0.0321	0.0424	0.0217
					(0.533)	(0.456)	(0.726)
Number of Observations					483		
Walk-in-centres (HMR DP - VS HMR Non DP)					-0.0836	-0.0614	-0.125
					(0.383)	(0.578)	(0.415)
Number of Observations					547		

Notes:

All activities transformed

Bold have no adjusted time trend

p-values in parentheses. Shaded boxes present statistically-significant effect (p<0.05)

Middleton**TABLE A 7 MIDDLETON DiD ESTIMATES (CONTROL HEYWOOD, MIDDLETON AND ROCHDALE NON-DP)**

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	0.0271 (0.528)	0.0614 (0.163)	-0.0128 (0.801)	0.0068 (0.890)	0.0504 (0.291)	-0.0462 (0.631)
Q18: Overall, how would you describe your experience of making an appointment?	0.0318 (0.238)	0.0447 (0.253)	0.0167 (0.704)	-0.0378 (0.630)	0.0345 (0.731)	-0.1226 (0.271)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0090 (0.771)	-0.0084 (0.843)	0.0289 (0.575)	-0.0341 (0.581)	-0.0212 (0.820)	-0.0479 (0.492)
Q26: Is your GP currently open at times that are convenient to you?	0.0064 (0.851)	-0.0083 (0.875)	0.0244 (0.753)	-0.0386 (0.420)	-0.0328 (0.473)	-0.0403 (0.654)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0180 (0.526)	0.0026 (0.940)	0.0349 (0.314)	-0.0800 (0.106)	-0.0817 (0.335)	-0.0802 (0.212)
N	5,302					

Comparison of demonstrators in Middleton to non-demonstrators in Heywood, Middleton, and Rochdale p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)
 Bold have no adjusted time trend

TABLE A 8 MIDDLETON DiD ESTIMATES (CONTROL GREATER MANCHESTER NON-DP)

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	-0.0102 (0.773)	-0.0072 (0.802)	-0.0136 (0.772)	0.0299 (0.456)	0.0615 (0.080)	-0.0053 (0.950)
Q18: Overall, how would you describe your experience of making an appointment?	0.0217 (0.235)	0.0285 (0.228)	0.0144 (0.688)	-0.0219 (0.728)	0.0444 (0.596)	-0.0979 (0.301)
Q25: How satisfied are you with the hours that your GP surgery is open?	-0.0067 (0.791)	-0.0197 (0.576)	0.0072 (0.874)	-0.0379 (0.424)	0.0154 (0.846)	-0.1011 (0.043)
Q26: Is your GP currently open at times that are convenient to you?	-0.0026 (0.926)	0.0024 (0.958)	-0.0079 (0.913)	-0.0393 (0.236)	0.0106 (0.739)	-0.0959 (0.193)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0035 (0.888)	-0.0112 (0.678)	0.0196 (0.512)	-0.0303 (0.376)	-0.0136 (0.846)	-0.0532 (0.284)
N	74,362					

Comparison of demonstrators in Middleton to non-demonstrators in Greater Manchester
p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)
Bold have no adjusted time trend

Activity per 1,000 registered patients		Middleton DPs vs all non DP			Middleton DPs vs all non DP		
		Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014	Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014
A&E attendances	Total Volume	-0.0283	-0.0176	-0.0390	0.0087	0.0138	0.00367
		(0.013)	(0.286)	(0.002)	(0.532)	(0.443)	(0.827)
	Total Cost	0.0534	0.0444	0.0623	0.0182	0.0256	0.0108
		(0.000)	(0.006)	(0.000)	(0.177)	(0.141)	(0.527)
	Minor intensity only (Volume)	0.0207	0.0433	-0.0019	-	-	-0.0239
		(0.302)	(0.087)	(0.929)	0.0135	0.0030	(0.357)
By referral source	Referral from GP	0.0916	0.0910	0.0923	-	-	-0.0515
		(0.107)	(0.155)	(0.157)	0.0692	0.0869	(0.539)
	Self-referral	-0.0892	-0.0982	-0.0802	0.0161	0.0272	0.00491
		(0.010)	(0.010)	(0.020)	(0.428)	(0.299)	(0.822)
	Other referral source	0.215	0.224	0.205	-	-	-0.0335
		(0.000)	(0.000)	(0.000)	0.0323	0.0312	(0.122)
	Code missing	-0.0894	-0.108	-0.0712	0.237	0.147	0.326
		(0.047)	(0.020)	(0.151)	(0.000)	(0.008)	(0.000)
Number of Observations	6728			487			
Other Activities (HMR DP - VS HMR NDP)							
Out of Hours				0.0321	0.0424	0.0217	
				(0.533)	(0.456)	(0.726)	
Number of Observations				483			
Walk-in-centres (HMR DP - VS HMR NDP)				-0.0836	-0.0614	-0.125	
				(0.383)	(0.578)	(0.415)	
Number of Observations				547			

Notes:

All activities transformed

Bold have no adjusted time trend

p-values in parentheses. Shaded boxes present statistically-significant effect (p<0.05)

Central Manchester**TABLE A 9 CENTRAL MANCHESTER DiD ESTIMATES (CONTROL NORTH AND SOUTH MANCHESTER AND CENTRAL NON-DP)**

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	-0.0043 (0.806)	0.0047 (0.821)	-0.0148 (0.653)	0.0466 (0.276)	0.0223 (0.623)	0.0728 (0.249)
Q18: Overall, how would you describe your experience of making an appointment?	0.0257 (0.328)	0.0463 (0.126)	0.0030 (0.924)	0.0077 (0.909)	0.0289 (0.687)	-0.0176 (0.828)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0204 (0.307)	0.0458 (0.063)	-0.0086 (0.800)	-0.0444 (0.422)	-0.1044 (0.069)	0.0242 (0.793)
Q26: Is your GP currently open at times that are convenient to you?	0.0357 (0.114)	0.0552 (0.041)	0.0150 (0.623)	-0.0264 (0.640)	-0.0739 (0.191)	0.0288 (0.803)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0154 (0.332)	0.0210 (0.326)	0.0084 (0.691)	0.0139 (0.762)	-0.0073 (0.916)	0.0347 (0.364)
N	14,368					

Comparison of demonstrators in Central Manchester to non-demonstrators in Central Manchester, North Manchester, and South Manchester practices
p-values in parentheses. Shaded boxes present statistically-significant effect (p<0.05)
Bold have no adjusted time trend

TABLE A 10 CENTRAL MANCHESTER DiD ESTIMATES (CONTROL ALL GRMCR NON-DP)

	Average DiD effect	Jan-March DiD effect	July-Sept DiD effect	Average DiDiD (most deprived)	Jan-March DiDiD effect	July-Sept DiDiD effect
Q15: How convenient was the appointment you were able to get?	-0.0024 (0.871)	0.0111 (0.521)	-0.0174 (0.555)	0.0591 (0.112)	0.0557 (0.165)	0.0637 (0.261)
Q18: Overall, how would you describe your experience of making an appointment?	0.0016 (0.935)	0.0227 (0.292)	-0.0214 (0.417)	0.0462 (0.332)	0.0933 (0.103)	-0.0068 (0.905)
Q25: How satisfied are you with the hours that your GP surgery is open?	0.0096 (0.532)	0.0420 (0.022)	-0.0265 (0.255)	-0.0360 (0.428)	-0.0908 (0.048)	0.0275 (0.738)
Q26: Is your GP currently open at times that are convenient to you?	0.0148 (0.470)	0.0238 (0.310)	0.0050 (0.858)	0.0104 (0.823)	-0.0418 (0.298)	0.0705 (0.510)
Q28: Overall, how would you describe your experience of your GP surgery?	0.0051 (0.678)	0.0202 (0.171)	-0.0115 (0.519)	0.0315 (0.445)	0.0457 (0.446)	0.0149 (0.640)
N	77,574					

Comparison of demonstrators in Central Manchester to non-demonstrators in Central Manchester, North Manchester, and South Manchester practices

p-values in parentheses. Shaded boxes present statistically-significant effect ($p < 0.05$)

Bold have no adjusted time trend

		Central Manchester DPs vs all non DP			Central Manchester DPs vs North and South Manchester non DP		
Activity per 1,000 registered patients		Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014	Jan-Dec 2014	Jan-Jun 2014	July-Dec 2014
A&E attendances	Total Volume	-0.0243	-0.00177	-0.0468	-0.0180	0.0183	-0.0542
		(0.234)	(0.892)	(0.226)	(0.412)	(0.218)	(0.176)
	Total Cost	-0.0175	-0.00524	-0.0298	-0.0280	0.00538	-0.0614
		(0.398)	(0.708)	(0.437)	(0.213)	(0.740)	(0.123)
	Minor intensity only (Volume)	-0.143	-0.102	-0.184	-0.0832	-0.0433	-0.123
		(0.000)	(0.000)	(0.000)	(0.003)	(0.031)	(0.009)
By referral source	Referral from GP	-0.0325	0.000746	-0.0657	-0.0736	-0.0215	-0.126
		(0.444)	(0.988)	(0.208)	(0.138)	(0.701)	(0.039)
	Self-referral	-0.0829	-0.104	-0.0623	-0.0651	-0.0425	-0.0878
		(0.024)	(0.002)	(0.205)	(0.020)	(0.064)	(0.046)
	Other referral source	-0.0660	0.0366	-0.169	-0.118	-0.0340	-0.203
		(0.091)	(0.312)	(0.001)	(0.000)	(0.161)	(0.000)
	Code missing	1.129	0.852	1.407	0.625	0.463	0.787
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of Observations		7118			1474		
Other Activities							
Out of Hours					0.00145		
					(0.794)		
Number of Observations					36		
Walk-in-centres					-0.201	-0.172	-0.230
					(0.477)	(0.549)	(0.417)
Number of Observations					828		

Notes:

All activities transformed

Out of Hours Gotodoc data available until September 2014

Bold have no adjusted time trend

p-values in parentheses. Shaded boxes present statistically-significant effect (p<0.05)

Endnotes

- ⁱ While there was a decrease in total A&E activity in Middleton, there was an increase in total A&E costs, possibly due to increases in higher intensity (and higher cost) activity in the demonstrator period.
- ⁱⁱ NHS England GM Area Team (2014) *Staying Well, Living Well: Our 5 year strategy for improving primary care within Greater Manchester 2014 – 2018* p. 4
- ⁱⁱⁱ www.healthiertogethergm.nhs.uk Accessed 21 January 2015
- ^{iv} Boyle, S., Appleby, J. and Harrison, A. (2010) *A Rapid View of Access to Care* www.kingsfund.org.uk/sites/files/kf/field/field_document/rapid-view-access-care-gpinquiry-research-paper-mar11.pdf Accessed 21 January 2015
- ^v Gulliford, M., Figueroa-Munoz, J., Morgan, M., Hughes, D., Gibson, B., Beech, R., & Hudson, M. (2002). What does 'access to healthcare' mean? *Journal of Health Services Research and Policy*, 7(3), 186-188.
- ^{vi} Valentijn, P.P., Schepman, S.M., Opheij, W. & Bruijnzeels, M.A. (2013). Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. *International Journal of Integrated Care*, 13(1)
- ^{vii} Curry N and Ham C. (2010) *Clinical and service integration: the route to improved outcomes*. London: The King's Fund. Available from :http://www.kingsfund.org.uk/publications/clinical_and_service.html Accessed 21 January 2015
- ^{viii} Long, A. (2006) "Evaluation of Health Services: Reflections on Practice" in *The Sage Handbook of Evaluation* (eds. Shaw, I., Greene, J.C. and Mark, M.M.) London: Sage p. 462
- ^{ix} Gilbody S, Whitty P. Improving the delivery and organisation of mental health services: beyond the conventional randomised controlled trial. *British Journal of Psychiatry* 2002; 180: 13-8.
- ^x Cook T, Campbell D. *Quasi-experimentation - design and analysis issues for field settings*. Chicago: Rand McNally, 1979.
- ^{xi} Craig P, Cooper C, Gunnell D, Haw S, Lawson K, Macintyre S *et al*. Using natural experiments to evaluate population health interventions: new Medical Research Council guidance. *Journal of Epidemiology and Community Health* 2012; 66: 1182-6.
- ^{xii} Campbell J, Smith P, Nissen S, Bower P, Elliott M, Roland M. The GP Patient Survey for use in primary care in the National Health Service in the UK - development and psychometric characteristics. *BMC Family Practice* 2009;10.
- ^{xiii} Sutton M, Nikilova S, Boaden R, Lester H, McDonald R, Roland M. Reduced mortality with hospital pay for performance in England. *New England Journal of Medicine* 2012; **367**: 1821-8.
- ^{xiv} Gravelle H, Dusheiko M, Sheaff R, Sargent P, Boaden R, Pickard S *et al*. Impact of case management (Evercare) on frail elderly patients: controlled before and after analysis of quantitative outcome data. *British Medical Journal* 2007; 334: 31.
- ^{xv} Gilbody S, Whitty P. Improving the delivery and organisation of mental health services: beyond the conventional randomised controlled trial. *British Journal of Psychiatry* 2002; 180: 13-8.
- ^{xvi} Cook T, Campbell D. *Quasi-experimentation - design and analysis issues for field settings*. Chicago: Rand McNally, 1979.

- ^{xvii} Campbell J, Smith P, Nissen S, Bower P, Elliott M, Roland M. The GP Patient Survey for use in primary care in the National Health Service in the UK - development and psychometric characteristics. *BMC Family Practice* 2009;10.
- ^{xviii} Roland M, Elliott M, Lyratzopoulos G, Barbiere J, Parker R, Smith P *et al*. Reliability of patient responses in pay for performance schemes: analysis of national General Practitioner Patient Survey data in England. *British Medical Journal* 2009; 339: b3851.
- ^{xix} Parkin, S. and McKeganey, N. (2000). The rise and rise of peer education approaches. *Drugs: Education, Prevention and Policy*, 7,3 ,293-310
- ^{xx} Rubin H.R., Pronovost, P. and Diette, G.B. (2001). The advantages and disadvantages of process-based measures of health care quality. *International Journal for Quality in Health Care* 13, 6: p. 470
- ^{xxi} National General Practice Profiles. <http://fingertips.phe.org.uk/profile/general-practice>, Accessed 28 April 2015
- ^{xxii} Numbers of Patients Registered at a GP Practice - April 2014. Health and Social Care Information Centre, www.hscic.gov.uk/catalogue/PUB13932 Accessed 28 April 2015
- ^{xxiii} Kontopantelis, E., Buchan, I., Reeves, D., Checkland, K. and Doran, T. (2013) Relationship between quality of care and choice of clinical computing system: retrospective analysis of family practice performance under the UK's quality and outcomes framework, *British Medical Journal Open*, 3, 8.
- ^{xxiv} The reported cost of providing the services listed for Central Manchester exceeded the amount of funding provided by NHS England, this is because other funding was used to supplement the demonstrator funds here. See Table 13 for a summary.
- ^{xxv} <http://www.hscic.gov.uk/catalogue/PUB13365> Accessed 21 January 2015
- ^{xxvi} <http://www.hscic.gov.uk/catalogue/PUB13365> Accessed 21 January 2015
- ^{xxvii} A technical summary for the difference-in-differences approach is provided in the Appendix
- ^{xxviii} Inverse hyperbolic sine
- ^{xxix} A Difference-in-Difference analysis of A&E admissions was conducted for Bolton and Stockport but no significant effects were found.
- ^{xxx} Ling, T., Brereton, L., Conklin, A., Newbould, J., & Roland, M. (2012). Barriers and facilitators to integrating care: experiences from the English Integrated Care Pilots. *International Journal of Integrated Care* 12 (5)
- ^{xxxi} There are several ways in which federations may be legally underwritten. See <http://bma.org.uk/practical-support-at-work/gp-practices/gps-and-staff/collaborative-gp-alliances-and-federations>. Accessed 21 January 2015
- ^{xxxii} Addicott, R. and Ham, C. (2014) *Commissioning and funding general practice Making the case for family care networks* www.kingsfund.org.uk/publications/commissioning-and-funding-general-practice Accessed 21 January 2015
- ^{xxxiii} Sibbald *et al* 2004: 28-29 Sibbald B, Shen J, McBride A. Changing the skill-mix of the health care workforce. *Journal of Health Services Research and Policy* 2004 (9) Suppl 1: 28-38
- ^{xxxiv} Sibbald B, McBride A, Birch S. *Labour substitution and efficiency in healthcare: General principles and key messages*. 2011. Centre for Workforce Intelligence.
- ^{xxxv} Laurant M, Hermens R, Braspenning J, Grol R, Sibbald B. Impact of nurse practitioners on workload of general practitioners: randomised controlled trial. *British Medical Journal* 2004; 328: 927-30
- ^{xxxvi} Weiss, C.H. (1998) *Evaluation*, Upper Saddle River, NJ: Prentice-Hall.
- ^{xxxvii} http://www.hscic.gov.uk/media/1571/Information-on-Payment-by-Results-data/pdf/A_short_guide_to_using_the_PbR_data.pdf Accessed 21 January 2015
- ^{xxxviii} Ipsos MORI. (2014) *GP Patient Survey – Technical Annex 2013-2014 annual report*. Social Research Institute.
- ^{xxxix} *Ibid*, p.36