Cover page

Title: Reducing emergency bed-days for older people? Network governance lessons from the 'Improving the Future for Older People' Programme.

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Acknowledgements

This article presents independent research commissioned by the UK National Institute for Health Research (NIHR) Service Delivery Organisation (grant number [concealed]). The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR or the UK Department of Health. Ethics permission was received from the Eastern MREC (later Cambridgeshire 4MREC) in July 2006 [Number concealed]

Manuscript number: SSM-D-12-02568

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This article presents independent research commissioned by the UK National Institute for Health Research (NIHR) Service Delivery Organisation (grant number 08/1618/136). The views expressed in this publication are those of the authors and not necessarily those of the NHS, the NIHR or the UK Department of Health.

Keywords

Network, governance, older people, aged 75 and over, emergency bed-days, emergency admissions, England.

Abstract

In 2007, the UK government set performance targets and public service agreements to control the escalation of emergency bed-days. Some years earlier, nine English local authorities had each created local networks with their health and third sector partners to tackle this increase. These networks formed the 'Improving the Future for Older People' initiative (IFOP), one strand of the national 'Innovation Forum' programme, set up in 2003. The nine sites set themselves one headline target to be achieved jointly over three years; a 20 per cent reduction in the number of emergency bed-days used by people aged 75 and over. Three ancillary targets were also monitored: emergency admissions, delayed discharges and project sustainability. Collectively the sites exceeded their headline target.

Using a realistic evaluation approach, we explored which aspects of network governance appeared to have contributed to these emergency bed-day reductions. We found no simple link between network governance type and outcomes. The governance features associated with an effective IFOP network appeared to suggest that the selection and implementation of a small number of evidence-based services was central to networks' effectiveness. Each service needed to be coordinated by a network-based strategic group and hierarchically implemented at operational level by the responsible network member. Having a network-based implementation group with a 'joined-at-the-top' governance structure also appeared to promote network effectiveness. External factors, including NHS incentives, health reorganisations and financial targets similarly contributed to differences in performance.

Targets and financial incentives could focus action but undermine horizontal networking. Local networks should specify which interventions network structures are intended to deliver. Effective

projects are those likely to be evidence based, unique to the network and difficult to implement through vertical structures alone.

Introduction

Emergency hospital admissions are increasing in many health systems, especially for 'older-elderly' people (OECD, 2012). Such admissions can be less satisfactory to patients than care in or nearer their own homes and are often avoidable (Johri, Beland, & Berman, 2003). Unplanned hospital admissions and long stays may not be the most appropriate care arrangements for older people, causing loss of functional independence (Garåsen, Windspoll, & Johnsen, 2007), risk of hospital-acquired infections (Mahjeed, 2012), additional morbidity and expense (Huws et al., 2008). A number of health systems (e.g., in Germany, the Netherlands and the USA) introduced case management or disease pathways to reduce avoidable emergency admissions and emergency bed-days (EBDs). In England, central and local government have been shifting from directly providing care (through bureaucratic hierarchies) towards quasi-market contracts and/ or networks based on cross-sector collaborations (Graddy & Chen, 2006). These inter-organisational and inter-professional care networks supply preventive and responsive care through collaborations between primary care, rehabilitation, social care and other providers (Southon, Perkins, & Galler, 2005). Often, they also operate as 'project networks', redesigning care protocols and pathways (Addicott, McGiven, & Ferlie, 2007).

It remains unclear which governance characteristics make such networks effective coordinators of care (Proven & Kenis, 2008). Using data from nine networks in England, we analyse the impact of governance approaches adopted to achieve a target reduction of 20 per cent in EBDs used by people aged 75 and over. Our core question was: 'What activities and conditions appeared to make networks more (or less) effective in reducing emergency bed days?'

We first discuss characteristics associated in the literature with effective network governance. We then describe the 'Improving the Futures for Older People Programme' (IFOP), its policy context and methods used to address our research question. Next, we systematically compare the characteristics

of our networks against those previously identified with effective governance. After summarising our results, we consider their implications, concentrating on how horizontal networks accommodated external drivers of EBD use, particularly NHS incentives, health sector reorganisations and financial targets.

Characteristics underpinning effective networks

INSERT FIGURE 1: Characteristics expected to promote network effectiveness

Successful networks depend on the ability to identify and deploy actions critical to the achievement of network objectives (Kreuter, Lezin, & Young, 2000). Eleven such characteristics were identified from the literature (Figure 1) and are summarised here. *Network membership itself needs to be sufficient* in number, skills and resource-ownership (de Rijk, van Raak, & van der Made, 2007) to execute these activities or projects (Agranoff & McGuire, 2001; Balkundi & Harrison, 2006). If network projects are to meet users' needs, *patient and public representation structure(s)* must be enabled through practical supports (Alkema, Shannon, & Wilber, 2003).

The operation of networks depends heavily on trust (Provan, Harvey, & de Zapien, 2005). If members have approximately *equal power*, with no one organisation co-opting the network (O'Toole & Meier 2006), conflict should diminish and trust increase. Similarly, equal status and power among members rather than hierarchy and obedience, promotes joint learning and problem-solving (Ansell & Gash 2008, Brass et al., 2004). Network effectiveness is enhanced by a *steering group* (Provan & Kenis, 2008) acting as 'broker' to facilitate interaction between network members (Walker et al., 2007; Pope & Lewis, 2008). As trust takes time to form (Rodriguez et al., 2007) an existing organisation is likely to be more effective than a new one in coordinating other network members (Ansell & Gash, 2008).

Networks essentially work through *'relational' interactions* between members (Shortell & Bazzoli, 2000). The more frequent and multi-dimensional these interactions, the more likely is effective collaboration (Davies, Powell, & Rushmer, 2007). These interactions enable the exchange of resources through which network members collaborate to produce such artefacts as new referral routes, practices or projects (Balkundi & Harrison, 2006).

Network members must commit the resources necessary for network projects, while *delegating decisions and resources* to enable project implementation (Alkema et al., 2003). At the same time, *implementation group(s)* of network members either instigate the network's practical 'joint production' work (Goodwin et al., 2004) or undertake it themselves along with task coordination (Agranoff & McGuire, 2001; Bazzoli et al., 2003). Small initial gains can launch a self-reinforcing virtuous circle (Ansell & Gash, 2008) so long as the network has sufficient authority to implement its decisions (Cunningham et al., 2012).

Strategic planning is weakened when networks are duplicated. A single network with limited overlap of responsibilities with other networks is more likely to attract the resources and participation it needs (Ansell & Gash, 2008) and act as intermediary between other network members and government (Provan, Milward, & Isett, 2002). Competing and single-professional networks may act as rival sources of authority (Ferlie et al., 2005). In quasi-markets, managerial governance is exercised over providers through aligning network members' commissioning functions. A network of care providers is less likely to achieve its aims if their commissioners are pursuing incompatible goals. This risk is reduced when network members can make *inputs to align the commissioning plans* for its various service providers (McDonald et al., 2007).

The *adoption and re-badging of existing pre-network* projects is likely to be a more effective way of realising the network's goals than inventing projects from scratch (Provan, Isset, & Milward, 2004). In primary and community care, voluntary networks emerge from common interests and shared practical cooperation (de Rijk et al., 2007) which can provide an experiential basis for a shared practical ('programme') rationale (Agranoff & McGuire, 2001). However, few studies of networks examine the substantive projects by which networks achieve their goals. Empirical studies of the relationship between network structure and effectiveness of delivery are rare, mostly reporting participant rather than network outcomes. The focus is often on the structural characteristics which can be described by social network analysis, management processes or knowledge exchange rather than on the projects by which those outcomes are produced (e.g., Currie, Waring, & Finn, 2008).

The characteristics discussed above were used to construct a 'predictive' framework, to explore the impact each of our networks might have on their headline target of 20 per cent fewer EBDs.

The policy context

While average length of stay for all patients in England decreased by 10 per cent from 2004/5 (Poteliakhoff & Thompson, 2011), emergency bed-days for those aged 75 and over increased by 15 per cent over the last five years (Dr Foster, 2012). Factors associated with this rise include: *'system relationship factors'* – the structures and processes of health and social care organisations; '*hospital factors'* – management of admissions pathway; *community factors* – availability of substitute care; and *'patient factors'* – levels of deprivation, age and health needs (Imison, Poteliakoff, & Thompson, 2012). To attempt to control the rise in EBDs in the older population, Labour Governments from 1997 to 2010 promoted 'partnerships' between NHS, local government and third sector organisations (Marks & Hunter, 2005). They also applied more stringent standards and targets; an environment of 'targets and terror' (Bevan & Hood, 2006). Public service agreements (PSAs)

requiring a five per cent reduction in emergency bed-days and a one per cent increase in home care for older people, were adopted in 2007.

The 'Improving the Future for Older People' initiative.

Before the PSAs were formulated, a group of nine councils with their NHS and third sector partners created local inter-organisational networks to address local increases in EBDs for those aged 75 and over. Each network involved staff from secondary, primary and tertiary health care; adult social care, private domiciliary services, residential and nursing homes and third sector organisations. Regular local network meetings involved an average of 30 representatives; each of whom worked with their colleagues in commissioning or service provision outside of these meetings. Between 2003 and 2007, these networks collectively exceeded a self-determined target of reducing unplanned hospital bed-days for such patients by 20 per cent (Wistow & Henderson, 2010). They formed the core of the Improving the Future for Older People programme (IFOP), which sought to enhance older people's quality of life by reducing bed-usage and admissions without compromising continuity of care or positive experiences of discharge.

The nine pilot sites

The nine local authorities were generally atypical of the national picture, tending to have Index of Multiple Deprivation scores above the median (i.e., were not generally deprived areas); to be rural, and (mostly) to have relatively low proportions of non-white British residents. All nine were rated 'excellent' in 2004 under the (then) national Comprehensive Performance Assessment of English local authorities. However, this shared rating masked variations in the performance of their adult social care departments as assessed by the former Commission for Social Care Inspection (CSCI). Only two councils (sites 1 and 3) gained the highest three-star rating in 2006. Six were awarded two stars (sites 2, 4, 5, 6, 8 and 9), whilst site 7 was awarded only one. Most of the sites were not meeting their externally set targets for reducing delayed discharges from hospital, with five sites (3, 4, 5, 6 and 9) at or below the median for England. Among their partner Primary Care Trusts (PCTs),

only those in sites 3 and 6 were rated as high-performing by the Healthcare Commission's Health Check; the former was rated 'Good', the latter 'Excellent'. Of the remaining PCTs, six were rated as 'fair' and four as 'weak' **[INSERT LINK TO ONLINE FILES]** (see Supplementary Material, Table 1 and 2).

Headline and ancillary targets.

The 20 per cent 'headline' target was innovative and ambitious. Neither local authorities nor the NHS had previously set any kind of numerical targets for reducing EBD usage (Bevan & Hood, 2006a). Two aspects of this target should be noted. First, the 20 per cent reduction was to be compared with a projection of what the level of bed usage by this group of older people *would have been* without the IFOP programme, ensuring each site could act as their own 'control'. Second, the target was collective across the networks rather than individual to each site. The target's application to each site was therefore modelled to estimate what bed use would be in 2007 in each authority if historic trends were unchanged, using three age bands: 75-79, 80-84, and 85 and over (Wistow, King, & Huntingford, 2005). Projections were made up to and including 2006/07 for PCT demographic and activity levels; population projections were based on Government Actuary's Department (2002) data with anticipated change applied to age band-specific 2001 Census population data. Data for emergency admissions, bed days, and length of stay (LOS) were taken from Hospital Episode Statistics (HES). Admission rates and LOS projections were based on average rate of change over three years (2000 – 2003). Admission rates per 1000 population were projected to 2007 by multiplying the previous year's admissions rate by the average rate of change in admission from 2000/01 to 2002/03. Similarly, the average yearly change in LOS 2000/01 and 2002/03 was applied to the previous year's LOS. The product of the projected admissions and projected lengths of stay created the projected number of bed days for 2006/07 for each site. One site (network 2) was excluded from this aggregated calculation because its network involved only two general practices,

rather than the whole authority or whole PCT. We have omitted this site from all subsequent findings.

The target of a 20 per cent reduction was thus defined and calculated against two denominators:

1. The projected level of bed-days for 2006-07 without the IFOP intervention. This implied a reduction of 269,480 emergency bed-days over 2004-07.

2. The baseline financial year of 2003–04, i.e. immediately before the IFOP intervention. This implied a reduction of 97,571 bed days.

Three further outcomes were monitored:

1. Net fall in emergency admissions, measured using HES data.
2. Net fall in delayed discharges (PAF PI AO/D41).
3. Number of projects (through which the networks attained their targets) sustained after the IFOP programme finished (Henderson et al., 2010).

These are network-level outcomes (Turrini et al., 2010) although with practical implications at community, organisation and participant levels (Provan & Milward, 2001).

The IFOP programme logic expected pilot sites to meet their targets by constructing local inter-organisational networks to enhance coordination and facilitate change in service delivery. Led by local government, each network would involve hospitals, community health services, residential care providers and third sector representatives. Each would implement specific interventions - projects -

to reduce EBDs. Projects would differ site by site, but all would be supported by organisational collaborations, aimed at improving coordination between health and local authority functions.

Research aims, questions and methods.

Our aim was to analyse the impact of different governance approaches adopted by the local networks in England to reduce unplanned inpatient bed-days for people aged 75 and over. Here we explore one particular question: what activities and conditions appeared to make local networks more (or less) effective in reducing emergency bed-days? To answer this question we first needed to classify networks by their governance characteristics and assess how far these characteristics explained network outcomes compared with further external conditions, e.g., NHS incentives, sector reorganisations and financial targets. Ethics permission for research activities was granted by the Eastern MREC (06/MRE05/25; 07/H0305/60)

Network classification

To evaluate how effective each was likely to be in reducing EBDs, we examined characteristics identified in previous studies as central to network effectiveness (Figure 1). Using the realistic evaluation schema (Pawson & Tilley, 1997), we categorised these characteristics by *context* (network environments, including pre-network circumstances of member organisations); *mechanisms* (interventions adopted to manage service delivery and/or redesign local services believed to help avoid unnecessary hospital bed-days); and *outcome* (headline target and ancillary indicators). Two methods were used to populate this framework: content analysis of documents and structured questionnaires to key informants. Each network formed a 'case' or unit of analysis (Greenhalgh et al., 2009). Using this framework to compare the eight pilot networks systematically, we revealed cross-network patterns (Marchal et al., 2012).

We extracted data about governance and hospital activity (emergency bed-days, lengths of stay) from national strategy documents and databases (e.g., Hospital Episode Statistics). Local policy documents were collated to profile each site's demography, the organisation and structure of older people's services and local IFOP network structures, processes and interventions. Data from these documents were recorded on a proforma that identified core information, e.g., overarching partnership models, type and extent of shared budgets and user representation. Content analysis of each section of the proforma was undertaken and themes coded and compared (Scott, 1990).

The self-completion structured questionnaires began with an instrument for describing organisational culture (Shortell, Bennett, & Byck, 1998) and then covered a number of topic areas, including: the organisational priority for reducing acute bed-days and perceptions of partnership. The questionnaire was sent to 139 people working in the NHS, local authority social care and third sector. Owing to staff turnover in the health service at that time (due to reconfiguration of the PCTs) and despite reminders, 38 questionnaires were returned; a response rate of 27 per cent. Exploratory analyses and exact logistic regressions of responses were conducted (Mehta & Patel, 1995).

Drawing together findings from the content analysis and structured questionnaires, we analysed the: network memberships; decision-making structures; levels and types of user involvement; and those methods used by networks to identify and adopt projects. These were reviewed alongside the characteristics likely to promote network effectiveness (see Figure 1). Where there was disagreement as to the presence (or absence) of one of the governance characteristics, discussions were held across the research team.

To control for concurrent changes within the study sites, we applied the realistic evaluation method of explicitly checking our data for evidence of *context* factors, i.e., local non-network factors that may have confounded the effects of network activity. The main NHS reforms of the period were

applied uniformly but with differential impacts across England. Consequently, we compared the study sites with the rest of England to identify any major differences from the national pattern that might produce atypical network contexts or outcomes **[INSERT LINK TO ONLINE FILES]** (Supplementary Tables 1 and 2).

Findings

Governance structures and links

We summarise the main empirical differences between the IFOP sites in Tables 1 and 2. The row labels are formulated so that a tick indicates the presence of a governance characteristic predicted as likely to make the network function more effectively.

INSERT TABLE 1: Governance structures or managerial practice

Although most sites had a similar number (count) of favourable governance characteristics, the combination of characteristics present differed between sites. Every site differed from at least one other site in respect of two (or more) governance characteristics. On the basis of counts per column, a greater number of favourable characteristics were found (in descending order) in networks 6 and 9, then network 5, next networks 1 and 7 jointly, followed by networks 3 and 4. Site 8 had apparently the least favourable structure and managerial practices for building strong networks but the widest range of inter-organisational links (see Table 2 below).

Networks inherently consist of linkages between organisations and individuals. The literature suggested that the wider the range of these links the greater the likelihood of a network influencing other members and implementing projects to reduce EBDs. Network by network, we summarised the links between the IFOP network and (other) member organisations. Seven kinds of links were possible and relevant for coordinating local networks (Table 2).

INSERT TABLE 2: Governance links between network decision-makers and other network members.

The widest range of linkages existed in network 8 (five media) followed jointly by networks 1, 3, 6, and 7. Networks 4 and 5 had fewest. If range of links is a predictor of an effective network governance structure, we might expect (predict) network 8 to have a greater prospect of realising the IFOP headline target than other networks; and networks 4 and 5 to have the least prospect.

Taking tables 1 and 2 together, it might appear *a priori* that network 6 stood the best chance of achieving the IFOP target, closely followed by sites 7, 5 and 1. Network 8 had the least good prospect, scoring lowest on governance structures and managerial practices.

The networks' projects

The sites reported initiating 117 projects to achieve the headline target **[INSERT LINK TO ONLINE FILES]** (Supplementary Table 3). The voluntary nature of IFOP meant no specific national funding was available to underwrite new projects. Sites predominantly re-badged pre-existing or planned projects and incorporated them into IFOP. We categorised projects according to four foci: preventing an emergency attendance; diverting an emergency attendance; reducing average lengths of stay and increasing post-discharge destination capacity (Table 3).

INSERT TABLE 3: IFOP project foci and numbers of project by pilot site.

Hitting the headline target

HES outturns recorded a 22 per cent reduction overall (Table 4), demonstrating that the eight sites had collectively exceeded their headline target.

INSERT TABLE 4: IFOP Performance on headline target from baseline to 2006/7.

This percentage reduction is equivalent to 120,000 fewer bed-days compared with the 2003-04 baseline and 300,000 less than the projected figure for 2006–07. Comparative data between the IFOP sites and PCTs in England can be found in **[INSERT LINK TO ONLINE FILES]** Supplementary Table 4. These outcomes and ancillary targets are summarised in Table 5 below. Detailed percentage changes in the ancillary targets are provided in **[INSERT LINK TO ONLINE FILES]** Supplementary Table 5.

INSERT TABLE 5: IFOP study networks performance against four core outcomes.

Network 3 achieved three of the four target outcomes. Networks 4 and 7 achieved two, three (6, 8, 9) achieved one, while two (1 and 5) achieved none. However, if we focus only on the headline target, network 3 shares first place with networks 4 and 7, and surpasses them on at least one ancillary outcome.

Comparing these outcomes to 'effective' network characteristics (Tables 1 and 2), no simple association stands out. Networks 6 and 9 had the greatest number of structural and linkage characteristics that might predict they would reach the target outcomes, closely followed by 1, 5 and 7. Yet networks 1, 5, 6 and 9 did not achieve the headline target. Only network 7 achieved the headline target as well as a fall in admissions.

Characteristics of the 'successful' networks

To understand this pattern, we sought to establish which characteristics of the relatively successful networks might have contributed to their achievement. The three most successful networks, (3, 4 and 7), were structured around a network-based implementation group, able to directly control project implementation objectives, influencing operational practices in individual projects. In contrast, the structure of the other study sites required them to manage their projects through 'arms-length' linkages. The importance of a 'joined-at-the-top' structure, one that coordinates all existing local networks, may be illustrated by the experience of network 4, one of the few sites with no other competing networks. Network 8 was similar in this respect, although it had been predicted to be the least likely to achieve the outcomes (Tables 1 and 2). It achieved only one ancillary target (reduction in delayed discharges) and missed the headline target, but not by a wide margin, achieving a 16 per cent reduction in EBDs.

This complex picture suggests (somewhat tentatively) that the governance structures and practices most likely to reinforce the effectiveness of networks appear to be the *combination* of:

- network-based implementation group(s);
- a managerial support infrastructure;
- a 'joined-at-the-top' governance structure; and
- absence of networks with similar remits to those of the IFOP.

Singly, none of these factors appears decisive. It is more consistent with our data to infer that their combination is what helped make networks 3, 4 and 7 relatively successful. That only three networks were fully successful implies that additional conditions must also be required, stemming either from the wider health environment or from network activities omitted from previous accounts of network

governance. It is equally possible that the factors shared with less successful networks were necessary but insufficient parts of the complex factors making for successful outcome achievement.

Discussion

Drivers reported to be associated with EBD variations include: system relationship factors, hospital, community and patient factors (Imison et al., 2012). On exploring these, we found few patterns which explained the networks' different degrees of success. For example, Imison et al., (2012) found that PCTs with the lowest bed use were mostly rural, but our most effective network (site 3) was predominantly urban.

Nevertheless, the wider environment of NHS incentives, re-organisation and financial targets influenced the successes and failures of our networks. The IFOP coexisted with on-going demands from central and local government, limiting what the networks could achieve. Vertical policy and practice requirements, often instituted at short notice, cut across actions planned by our networks. In such an environment, the strength of any 'horizontal' links would be crucial to sustaining network focus and activity. Two-thirds of the questionnaire respondents agreed that, overall, central government policies and targets had affected changes in bed use by older people. In particular, 40 per cent of respondents emphasised the impact of cross-charging penalties for any delayed discharge. Adopting a Swedish policy (Styrborn & Thursland, 1993), English social services are fined whenever a hospital bed is 'blocked' due to lack of social care provision for the patient.

NHS structural re-organisations were highlighted as hugely disruptive. During the lifetime of the IFOP, the number of PCTs was reduced by half (DH, 2005), events which informants saw as more likely to fracture, than to strengthen relationships across organisational boundaries. PCTs initially

participated in all networks but there was little continuous representation during the reorganisation phase (Henderson et al., 2010).

Many local priorities and targets to which the study networks were required to respond stemmed from existing or forecast deficits in local NHS Trust and PCT budgets. We found tentative indications that the achievements of networks 3, 4 and 7 were reinforced by local NHS commissioning bodies determined to reduce spending within primary and secondary health care. The NHST in site 4 faced a deficit of £15 million, whilst its PCT had a £20 million overspend. In site 3, one of the most 'successful' networks, the PCT faced an overspend, whilst site 7 was facing similar problems. All three of these networks lacked substantial input into mainstream NHS commissioning bodies; raising the question of whether it was the actions of commissioning bodies operating outside the IFOP networks, rather than the networks' own actions, that achieved the headline and ancillary targets.

Care has to be taken in reaching that conclusion. The size of the NHS deficits may distinguish site 4 from the other sites, but many reported similar difficulties. PCTs in network 8 had an overspend of between £1 and £4 million and this locality met only one of the ancillary targets. Nevertheless, this site did reduce emergency bed-days by 16 per cent. These circumstances are consistent with the suggestion that local contextual factors outside the networks contributed to reducing EBDs, but given networks' project activity, they seem unlikely to have been the sole cause.

Realist methodology implies that within networks, the obvious additional activities to consider are the *mechanisms* (projects or interventions) used (Marchal et al., 2012). The type and extent of interventions have been identified as central to the reduction of EBDs (Beech et al., 2013; Imison et al., 2012; Johri et al., 2003). The number and range of projects selected begins to suggest explanations for networks 3, 4 and 7 achieving the headline target, despite having governance structures that studies suggested would not necessarily support effective outcomes. These networks

concentrated on a small number of projects through which to pursue the targets. Network 3 selected three projects and networks 4 and 7 four interventions, all focussed on preventing or diverting emergency hospital attendances. In contrast, network 1 incorporated 36 different projects and network 5 had 24 (Table 3). Neither networks 1 nor 5 achieved the headline reduction in EBDs, nor the three further ancillary targets, being the least 'successful' networks by these criteria (Table 5).

This suggested the small number of clearly focussed projects was a factor in securing successful outcomes, particularly interventions that could be brought together to form a coherent inter-organisational programme, tailored to support strengths (or fill gaps) in surrounding health and social care systems. A coherent programme is easier to manage than a 'scatter-gun' approach; largely unconnected projects spread across a wide range of user pathways by networks that face tight budgets, capacity and time constraints may result in network resources being spread too thinly.

To establish whether networks 3, 4 and 7 did indeed have a coherent programme, we examined the foci of their projects.

- Network 3 concentrated on managing complex health or social care needs through an enhanced intermediate care service and a case management project focusing on chronic disease, streamlining care pathways though a single point of access.

- Network 4 focused on complex needs, providing an intensive home-based intermediate care team coordinating home care and nursing staff and focused on hospital discharge. Its aim was 'seamless' service delivery through integrated health and social care teams.

- Network 7 combined a large-scale case management programme and short intense interventions to prevent crises developing into long-term acute problems.

All three networks focused on the top two tiers of the Chronic Care schema (Wagner et al., 2001). Elsewhere it has been shown that under favourable conditions, case coordination services similar to those adopted within the IFOP programme can reduce hospital bed use (Johri et al., 2003). However, networks 3, 4 and 7 were not alone in including secondary and tertiary preventative projects within their IFOP programme (see Table 3 and **[INSERT LINK TO ONLINE FILES]** Supplementary Table 3). What appeared to be important in the 'successful' networks was not just the presence of such projects, but concentration upon them within a 'joined-at-the-top' network structure.

Networks 3, 4 and 7 delivered their projects though established and trusted relationships amongst multi-disciplinary managers and operational staff (Ansell & Gash, 2008). Most importantly, their projects operated across the whole geographical area covered by each network. Individual users had a recognised pathway: they could be referred into, receive the needed intervention and be referred onto other statutory services for further support or treatment. Other pilot sites (1, 5, 6, 8 and 9), which adopted similar projects, only piloted them in smaller geographical areas, reliant on limited short-term funding. While such interventions may successfully divert a handful of users or patients from intensive services, they do not usually result in system-wide change.

Study limitations

It could be argued that our network classifications failed to take full account of the multidimensional nature of the network process; i.e., how governance characteristics mentioned above might also interact, some reinforcing and others negating each other. Networks depend heavily on local contexts and the complexity of health and social care systems may have resulted in our inability to identify other elusive factors that ensured network effectiveness. We did include a measure of organisational culture (Shortell & Bazzolli, 2000), but that does not identify, for example, the presence (or absence) of a 'charismatic' leader able to transform structures and processes (Taylor,

2007). We did not study expressive ties, which are also necessary for network effectiveness (Balkundi & Harrison, 2006), nor the strength of ties, only their type (Brass et al., 2004). A cross-sectional comparison ignores changes over time, although in this case unavoidably because the IFOP was short-lived. Attribution of effect is inherently difficult and has to be made cautiously, especially when (as in the present case), only imperfect controls are available. Had the IFOP had more cases available to study, such attributions could have been made more confidently.

It may be that our understanding would be strengthened by considering the possibility of multiple causal pathways to similar outcomes, rather than seeking a single optimal fit between outcomes and causal factors (Buijs, Echuis, & Byrne, 2009); different configurations of network characteristics may make networks effective under different local environmental conditions. The implications of adopting a perspective of this kind based on an understanding of complexity theory and associated methodologies might usefully be explored further (Teisman, Burren, & Gerrits, 2009).

Conclusion

Our findings suggest some success in addressing our central research objective of identifying those activities and conditions which appeared to make networks more (or less) effective in reducing emergency bed-days. Little network research focuses on the substantive practical projects by which networks (attempt to) achieve their goals. In contrast, our use of 'realistic evaluation' (Greenhalgh et al., 2009; Pawson & Tilley, 1997) enabled a robust assessment of the wider context and mechanisms. Based on the data explored and recognising the attenuated causal relationships between network governance and outcomes, a number of factors appeared central to network effectiveness: the number of projects, their focus (evidence-based) and method of implementation (joined-at-the-top model).

Certain recommendations follow from this finding. Pursuing network aims by concentrating attention and resources on a few projects appeared more effective than pursuing a broader range of interventions. Bazzoli et al., (2003) also found that the wider a network's activity and the more partners involved, the less likely the network was to implement its planned actions. On the other hand, as we noted above, membership needs to be sufficient in number, skills and resource ownership (de Rijk et al., 2007). Finding a balance between relevance and size of membership may be important. The combination of appropriate network membership, approximately equal power among the member organisations, network-based implementation groups and adopting pre-network projects was common to sites 3, 4 and 7 and some, but not all, of the less successful networks. This combination of characteristics appeared necessary but not sufficient for network effectiveness.

Our findings are also consistent with the possibility that financial difficulties among network members dictated the implementation of those projects which were thought capable of reducing unnecessary hospital admissions. It could also be that the same financial difficulties motivated NHS commissioners to work in parallel with the IFOP networks to incentivise providers to reduce EBDs. If so, success in achieving the headline target resulted from an alignment between the network projects and the local health care commissioners' demands. By intention or chance, networks helped to realise the inter-organisational elements of local NHS commissioning plans.

Our conclusion that network effectiveness appears to depend on focusing upon a few well-selected evidence-based practical projects has wider relevance to health systems and network theory generally. It suggests the importance of developing further research into 'joint production' activity as the practical foundation and *raison d'etre* of health and care networks. This implies extending the

research focus from the study of network structures and managerial processes toward the practical activities they undertake and the interventions they select to achieve their goals.

References

Addicott, R., McGiven, G., & Ferlie, E. (2007). The distortion of a managerial technique? The case of clinical networks in UK health care. *British Journal of Management*, 18(1), 93-105.

Agranoff, R., & McGuire, M. (2001) Big Questions in Public Network Management Research. *Journal of Public Administration Research and Theory,* 11 (3), 295–326.

Alkema, G., Shannon, G., & Wilber, K. (2003) Using Interagency Collaboration to Serve Older Adults with Chronic Care Need: The Care Advocate Program. *Family & Community Health,* 26 (3), 221–229.

Ansell, C., & Gash, A. (2008) Collaborative Governance in Theory and Practice. *J Public Adm Res Theory*, 18 (4) (October 1), 543–571.

Balkundi, P., & Harrison, D. A. (2006) Ties, Leaders, and Time in Teams: Strong Inference about Network Structure's Effects on Team Viability and Performance. *Academy of Management Journal,* 49**,** 49 - 68.

Bazzoli, G., Casey, D., Alexander, J., Conrad, D. A., Shortell, S. M., Sofaer, S., Hasnain-Wynia, R., & Zukoski, A. (2003) Collaborative Initiatives: Where the Rubber Meets the Road in Community Partnerships. *Medical Care Research & Review* 60 (Supp.), 63S–94S.

Beech, R., Henderson, C., Ashby, S., Dickinson, A., Sheaff, R., Windle, K., Wistow, G., & Knapp, M. (2013). Does integrated governance lead to integrated patient care? Findings from the innovation forum. *Health & Social Care in the Community*, doi: 10.111/hsc.12042.

Bevan, G., & Hood, C. (2006) Have targets improved performance in the English NHS? *British Medical Journal,* 332**,** 419 - 422.

Bevan, G., & Hood, C. (2006a). What's measured is what matters: targets and gaming in the English public health care system. *Public administration*, 84(3), 517-538.

Brass, D.J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004) Taking Stock of Networks and Organisations: a Multilevel Perspective. *Academy of Management Journal,* 47 (6), 795–817.

Buijs, J-M., Echuis, J., & Byrne, D. (2009) Approaches to Researching Complexity in Public Management. In Teisman, G., Buuren, A. V., & Gerrits, L. (Eds.) *Managing complex governance systems: Dynamics, self-organisation and coevolution in public investments.* Routledge: New York/ Oxford.

Cunningham, F., Ranmuthugala, G., Westbrook, J., & Braithwaite, J. (2012) Net Benefits: Assessing the Effectiveness of Clinical Networks in Australia Through Qualitative Methods. *Implementation Science,* 7, 108.

Currie, G., Waring, J., & Finn, R. (2008) The Limits of Knowledge Management for UK Public Services Modernization: The Case of Patient Safety and Service Quality. *Public Administration*, 86 (2), 363–385.

Davies, H., Powell, A., & Rushmer, R. (2007) *Healthcare professionals' views on clinician engagement in quality improvement. A literature review*. London: Health Foundation.

Department of Health. (2005) *Creating a Patient-led NHS - Delivering the NHS Improvement Plan*. London: Department of Health.

Dr Foster Intelligence. (2012) *Fit for the Future?* London: Dr Foster.

Ferlie, E., Fitzgerald, L., Wood, M., & Hawkins, C. (2005) The Nonspread of Innovations: The Mediating Role of Professionals. *Academy of Management Journal*, 48 (1), 117–134.

Garåsen, H., Windspoll, R., & Johnsen, R. (2007). Intermediate care at a community hospital as an alternative to prolonged general hospital care for elderly patients: a randomised controlled trial. *BMC Public Health,* 7, 68-69.

Goodwin, N., 6, P., Peck, E., Freeman, T., & Posaner, R. (2004) *Managing across diverse networks of care: Lessons from other sectors*. Report for the NHS Service Delivery and Organisation Programme.

Greenhalgh, T., Humphrey, C., Hughes, J., Macfarlane, F., Butler, C., & Pawson, R. (2009). How Do You Modernize a Health Service? A Realist Evaluation of Whole-Scale Transformation in London. *Milbank Quarterly*, 87(2): 391-416.

Graddy, E. A., & Chen, B. (2006). Influences on the Size and Scope of Networks for Social Service Delivery. *Journal of Public Administration Research and Theory*, 16: 533 – 522.

Henderson, C., Sheaff, R., Dickinson, A., Beech, R., Wistow, G., Windle, K., Ashby, S., & Knapp. M. (2010) *Unplanned admissions of older people: the impact of governance*. National Institute of Health Research Service Delivery and Organisation Programme.

Huws, D. W., Cashmore, D., Newcombe, R. G., Roberts, C., Vincent, J., & Elwyn, G. (2008). Impact of case management by advanced practice nurses in primary care on unplanned hospital admissions: a controlled intervention study. *BMC Health Services Research*, 8, 1-7.

Imison, C., Poteliakoff, E., & Thompson, J. (2012). *Older people and emergency bed use: exploring variation*, London, King's Fund.

Johri, M., Beland, F., & Berman, H. (2003) International Experiments in Integrated Care for the Elderly: a Synthesis of the Evidence. *International Journal of Geriatric Psychiatry*, 18, 225–235.

Kreuter, M., Lezin, N., & Young, L. (2000) Evaluating Community Based Collaborative Mechanisms: Implications for Practitioners. *Health Promotion Practice,* 1, 49–63.

Majeed, M., Williams, D., Pollock, R., Amir, F., Liam, M., Foong, K., & Whitaker, C. (2012). Delay in discharge and its impact on unnecessary hospital bed occupancy. *BMC Health Services Research*, 12(1), 410.

Marchal, B., van Belle, S., van Olmen, J., Hoeree, T., & Kegels, G. (2012). Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. *Evaluation*, 18(2), 192-212.

Marks, L., & Hunter, D. J. (2005) Moving upstream or muddying the waters? Incentives for managing for health. *Public Health,* 119**,** 974 - 980.

McDonald, J., Powell Davies, G., Cumming, J., & Fort Harris, M. (2007) What can the Experiences of Primary Care Organisations in England, Scotland and New Zealand Suggest about the Potential Role of Divisions of General Practice and Primary Care Networks/ Partnerships in Addressing Australian Challenges? *Australian Journal of Primary Health,* 13, 2, 46 – 55.

Mehta, C. R., & Patel, N. R. (1995) Exact logistic regression: theory and examples. *Statistics in Medicine,* 14**,** 2143 - 2160.

OECD. (2011) *Health at a Glance 2011: OECD Indicators.* OECD Publishing. *http://dx.doi.org/10.1787/health_glance-2011-en,* (accessed 17 January 2014).

O'Toole, J. R., & Meier, K. J. (2006) Networking in the Penumbra: Public Management, Cooptive Links and Distributive Consequences. *International Public Management Journal,* 9 (3), 227–247.

Pawson, R., & Tilley, N. (1997) *Realistic evaluation.* Thousand Oaks, California: Sage Publications.

Pope, J., & Lewis, J. M. (2008) Improving Partnership Governance: Using a Network Approach to Evaluate Partnerships in Victoria. *Australian Journal of Public Administration,* 67 (4), 443–456.

Poteliakhoff, E., & Thompson, J. (2011). *Emergency Bed Use: What the numbers tell us*. London, The King's Fund.

Provan, K., & Milward, B. H. (2001) Do Networks Really Work? A Framework for Evaluating Public-sector Organizational Networks. *Public Administration Review,* 61 (4), 414–23.

Provan, K. G., Milward, H. B., & Isett, K. R. (2002) Collaboration and integration of community-based health and human services in a nonprofit managed care system. *Health Care Management Review,* 27(1)**,** 21 - 32.

Provan, K. G., Isset, K. R., & Milward, H. B. (2004). Cooperation and compromise: A network response to conflicting institutional pressures in community mental health. *Nonprofit and Voluntary Sector Quarterly*, 33(3), 489-514.

Provan, K., Harvey, J., & de Zapien, J. (2005) Network Structure and Attitudes Toward Collaboration in a Community Partnership for Diabetes Control on the US-Mexican Border. *Journal of Health Organization and Management,* 19 (6), 504.

Provan, K., & Kenis, P. (2008) Modes of Network Governance: Structure, Management, and Effectiveness. *Journal of Public Administration Research and Theory* 18 (2): 229–252.

de Rijk, A., van Raak, A., & van der Made, J. (2007) A New Theoretical Model for Cooperation in Public Health Settings: The RDIC Model. *Qualitative Health Research*, 17 (8), 1103–1116.

Rodriguez, C., Langley, A., Beland, F., & Denis, J-L. (2007) Governance, Power, and Mandated Collaboration in an Interorganizational Network. *Administration Society,* 39**,** 150 - 193.

Scott, J. (1990) *A Matter of Record*. Cambridge: Polity Press and Basil Blackwell Ltd.

Shortell, S.M., Bennett, C. L., & Byck G. R. (1998) Assessing the Impact of Continuous Quality Improvement on Clinical Practice: What It Will Take to Accelerate Progress? *Milbank Quarterly*, 76 (4), 593–624.

Shortell, S. M., & Bazzolli, G., J. (2000) Classifying Health Networks and Systems: Managerial and Policy Implications. *Health Care Management Review,* 25**,** 9 - 17.

Southon, G., Perkins, R., & Galler, D. (2005) Networks: a key to the future of health services. *Aust Health Rev*, 29(3), 317-26.

Styrborn, K., & Thursland, M. (1993) Bed Blockers': Delayed discharge of hospital patients in a nationwide perspective in Sweden. *Health Policy*, 26 (2), 155 – 170.

Taylor, V. (2007) Leadership for service improvement: part 3. *Nursing Management,* 14**,** 28 - 32.

Teisman, G., Burren, A., & Gerrits, L. (2009) *Managing Complex Governance Networks.* London: Routledge.

Turrini, A., Cristofoli, D., Frosini, F., & Nasi, G. (2010) Networking Literature About Determinants of Network Effectiveness. *Public Administration,* 88 (2), 528–550.

Wagner, E.H., Austin, B.T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001) Improving chronic illness care: translating evidence into action. *Health Aff(Millwood)*, 20, 64-78

Walker, R., Pietsch, J., Delaney, L., Hahn, B., Wallace, C., & Billings, K. (2007) Partnership Management: Working Across Organisational Boundaries'. *Australian Journal of Primary Health,* 13 (3), 9–16.

Wistow, G., & Henderson, C. (2010) Anticipating the New Health Act: Messages from the Innovation Forum. *Journal of Integrated Care*, 18(5), 4-14.

Wistow, G., King, D., & Huntingford, P. (2005) *Reducing the use of emergency beds by 20%: Calculating the target*. Improving the Future for Older People, Report Number 1. Maidstone: Kent County Council 2005.

Figure 1: Characteristics expected to promote network effectiveness.

1. Network membership is sufficient for programme execution.
2. User representation structure(s) are in place.
3. Approximately equal power between member-organisations.
4. Pre-existing body becomes steering group.
5. Multi-dimensional links exist between (steering group and other) members.
6. Members delegate decisions and resources to network.
7. Members delegate project implementation to network.
8. Network-based implementation group(s).
9. Absence of alternative network with similar remit.
10. Networks are able to input into commissioning.
11. Networks adopt pre-network projects.

Table 1: Governance structures or managerial practice

Governance structures or managerial practices	**Site** [1]							
	1	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Network membership sufficient for programme execution.	X	√	√	√	√	√	√	X
User representation structure(s) are in place.	√	√	√	√	√	X	X	√
Approximately equal power between member-organisations.	√	√	√	√	√	√	X	√
Pre-existing body becomes steering group.	√	X	X	X	√	√	X	√
Multi-dimensional links exist between (steering group and other) members. At least five types of governance links exist between steering group and member organisations, (see Table 2).	X	X	X	X	X	X	√	X
Member-organisations delegate control of decisions and resources to IFOP network rather than retain them.	√	√	X	√	√	√	X	√
Member-organisations delegate control of project implementation to IFOP network rather than retain it.	X	X	X	X	√	X	X	√
Network-based implementation group(s).	√	√	√	√	√	√	X	√
Absence of alternative (non-IFOP) network with similar remit.	√	X	√	√	X	√	X	√
Networks are able to input to commissioning.	X	X	X	√	√	X	X	√
Networks adopt pre-network projects.	√	√	√	√	√	√	√	√
Count	**7**	**6**	**6**	**8**	**9**	**7**	**3**	**9**

[1. Site 2 was excluded from the calculation because its local project operated at the level of two general practice lists rather than the whole authority or whole PCT level].

Table 2: Governance links between network decision-makers and other network members

Links between network decision-makers and other network members	**Sites**							
	1	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Shared values or culture.	√	X	X	X	X	√	√	X
Technical guidance (Evidence based medicine/ evidence based practice).	X	X	X	X	√	X	√	X
Help in kind.	√	√	√	√	√	√	√	√
Management of referral routes.	X	X	X	X	X	X	X	X
Finance (projects funded by several member-organisations).	X	√	√	X	X	X	X	X
Information and monitoring systems.	√	√	√	√	√	√	√	√
External links with other networks.	√	√	X	√	√	√	√	√
Count	**4**	**4**	**3**	**3**	**4**	**4**	**5**	**3**

Table 3: IFOP project foci and numbers of projects by pilot site.

Category of project or interventions (n=)	Sites								N
	1	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Preventing an emergency attendance	8	0	2	7	3	2	5	5	32
Diverting an emergency attendance	16	3	2	12	1	2	15	7	58
Reducing average lengths of stay	7	0	0	2	1	0	6	1	17
Increasing post-discharge capacity	5	0	0	3	1	0	1	0	10
Total	**36**	**3**	**4**	**24**	**6**	**4**	**27**	**13**	**117**

Table 4: IFOP Performance on headline target from baseline to 2006/7.

IFOP site	Baseline at 2003/4: % change necessary to achieve 20% reduction of EBDs	Change still required (from 2006/7) to achieve 20% reduction of EBDs in 2006/7	Percentage change
1	-19%	-20%	-1%
3	-4%	16%	20%
4	0%	24%	24%
5	-7%	-10%	-3%
6	-15%	-6%	9%
7	13%	26%	14%
8	-20%	-4%	16%
9	-14%	-8%	6%
Total IFOP target	-8%	2%	10%

Table 5: IFOP study networks performance against four core outcomes.

Core objectives	**Site**							
	1	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Reduction in emergency bed days of 20 per cent	X	√	√	X	X	√	X	X
Fall in emergency admissions per 1000 population during the IFOP programme	X	X	X	X	X	√	√	X
Decreased delayed discharges during IFOP programme	X	√	√	X	X	X	X	√
All projects sustained after end of IFOP programme	X	√	X	X	√	X	X	X
Count	**0**	**3**	**2**	**0**	**1**	**2**	**1**	**1**

Supplementary material: Table 1: Characteristics of the nine IFOP pilot sites.

Local Authority	CSCI Star rating	Delayed transfers of care (all delays, medically fit to discharge) per 100,000 2006/07 – quartiles[2], England	Population size 2006[1] (Million)	Percentage of 65 and over in 2006	Percentage of 75 and over in 2006	Ethnicity: percentage non-white British (total population), 2006	Quartiles of IMD 2004[2]	Rural/Urban Local Authority Classification[3]	Geographical region (North/ South)
1	3	Upper quartile	>1	17%	8%	9%	Third Quartile	Significant Rural	South
3	3	Median	<0.5	11%	5%	51%	Lower Quartile	Predominantly Urban	South
4	2	Third Quartile	1 - 0.5	20%	11%	9%	Upper Quartile	Significant Rural	South
5	2	Third Quartile	1 - 0.5	17%	8%	6%	Upper Quartile	Significant Rural	North
6	2	Third Quartile	<0.5	15%	6%	4%	Second Quartile	Predominantly Urban	North
7	1	Upper Quartile	0.5	20%	10%	5%	Second Quartile	Predominantly Rural	South
8	2	Upper Quartile	>1	17%	8%	15%	Upper Quartile	Predominantly Urban	South
9	2	Median	<0.5	24%	12%	6%	Upper Quartile	Predominantly Rural	South

1 Rounded to nearest 10,000

2 Lower quartile = at or below lower quartile

Second quartile = between lower quartile and median

Third quartile = between median and upper quartile

Upper quartile = at or above upper quartile

3 Three category classification, based on 2001 census population

Supplementary material: Table 2: Performance of pilot sites' Primary Care Trusts.

Local Authority	PCT (New - >2005)	Primary Care Trust		Target achievement[1]: Delayed transfers of care 2006 - 7	LTC target[2]: 2006 - 7
		Healthcare Commission Annual Health Check			
		Use of resources score 2006	Quality of services score 2006		
1	PCT A	Weak	Fair	Underachieved	Failed
	PCT B	Fair	Weak	Underachieved	Failed
3	Single PCT	Fair	Fair	Underachieved	Failed
4	Single PCT	Weak	Fair	Underachieved	Failed
5	PCT A	Fair	Fair	Failed	Failed
	PCT B	Fair	Weak	Achieved	Failed
6	Single PCT	Excellent	Fair	Achieved	Achieved
7	Single PCT	Fair	Fair	Achieved	Underachieved
8	PCT A	Weak	Weak	Achieved	Failed
	PCT B	Weak	Weak	Achieved	Failed
9	Single PCT	Fair	Fair	Achieved	Failed

[1] Source: Healthcare Commission, New national targets 2006/ 2007

[2] LTC target consists of three longterm condition indicators: 4219, Emergency bed-days; 4220 Community matrons and additional case managers; and 4221, Very high intensity users.

Supplementary material: Table 3: Project types

Types*	Foci*	Sites								N
		1	3	4	5	6	7	8	9	
Introducing or expanding falls prevention services	A	2			3			4	1	10
Expanding access to voluntary sector support services	A	1		1		2			2	6
Using new technologies to monitor service user's health or safety at home (telehealth and telecare)	A	2			1					3
Integrating community based health and social care teams	A			1						1
Housing-based support	A				1				1	2
Improving physical well-being in the community, e.g. fitness/exercise groups	A				1	1				2
Expand existing community rehabilitation teams	A	1					1			2
Improving information for patients and service users	A	1							1	2
Home improvement service	A	1						1		2
Community screening of at-risk older people	A				1					1
Improving community equipment services (including rapid access)	A						1			1
Expanding community Intermediate Care services	B	8	1	1	5	1	1	6	4	27
Case management of those with chronic conditions at risk of hospitalisation	B	2	1		3		1	4	1	12
Providing rapid-access, short-stay rehabilitation beds outside of an acute hospital	B	2						1	2	5
Single point of access to community health services as alternative to hospital care	B		1		4					5
Providing alternative health care services at the point of contact with emergency services	B	2						1		3
Provision of minor injuries unit or walk-in centre located within a hospital	B	2								2
Acute care at home (IV antibiotic therapy)	B							2		2
Expanding or Improving palliative care	B							1		1
Expanding or improving community comprehensive geriatric assessment and treatment (medical day units)	B			1						1
Improving (diagnosis-specific) care pathways hospital to community	C	4			1			3		8
New hospital discharge planning arrangements and services	C	1			1	1		2	1	6
Providing rapid-access stepdown (non-rehab) beds outside of an acute hospital	C	2								2
Expanding acute hospital therapy staff	C							1		1
Supporting care homes with health staff	D	3			3	1		1		8
Redesign or refocusing of existing service	D	2								2
Total		**36**	**3**	**4**	**24**	**6**	**4**	**27**	**13**	**117**

* **A = Preventing an emergency attendance; B = Diverting an emergency attendance; C= Reducing average length of stay; D= Increasing post-discharge capacity.**

Supplementary material: **Table 4: Total emergency bed days per 1000 per year from baseline to final year of the IFOP (aged 75 and over).**

	Mean total emergency bed days per 1,000 (sd)		Percentage change in means per annum from previous year.	
	IFOP PCTs	**Other English PCTs**	**IFOP PCTs**	**Other English PCTs**
Year 2003/4	3967 (873.31)	4728 (1374.06)	-0.5%	3.4%
Year 2004/5	3780 (768.19)	4518 (1045.75)	-4.7%	-4.4%
Year 2005/6	3632 (674.97)	4290 (993.77)	-3.9%	-5.1%
Year 2006/7	3441 (648.88)	4030 (988.81)	-5.2%	-6.1%

Supplementary material: Table 5: IFOP percentage change in admissions and numbers of delayed transfers of care 2003 – 2007.

	Percentage change in admissions per 1000 population (aged 75 and over) between 2003 – 7.			Percentage change in number of delayed transfers of care per 100,000 population (aged 65 and over) between 2003 and 2007.		
IFOP Pilot Site	**2003/4 to 2004/5**	**2004/5 – 2005/6**	**2005/6 to 2006/7**	**2003/4 to 2004/5**	**2004/5 – 2005/6**	**2005/6 to 2006/7**
1	5.3%	36.2%	-1.2%	-37%	9%	42%
3	-0.1%	-5.7%	23.2%	-55%	-21%	-15%
4	-3.7%	8.6%	-9.3%	-7%	-22%	6%
5	-5.4%	6.1%	4.3%	-28%	-14%	57%
6	-1.3%	4.3%	5.9%	20%	19%	18%
7	1.6%	-3.3%	-6.1%	4%	29%	28%
8	-2.6%	-1.6%	-5.3%	-30%	13%	-5%
9	-6.2%	5.2%	-1.4%	-14%	-36%	-27%