SDO project (08/1519/95)

The relationship between workforce flexibility and the costs and outcomes of older peoples' services.

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Glossary

ADL	Activities of daily living
Allied Health Professional (AHP)	Allied health professional refers to professions aligned to medicine, excluding nurses. These professions include: Arts Therapists, Chiropodists, Dietitians, Occupational Therapists, Orthoptists, Paramedics, Physiotherapists, Prosthetists and Orthotists, Psychologists, Psychotherapists, Radiographers and Speech and Language Therapists.
Care provider	Any person employed in formal care delivery for a service user, either professionally trained staff or non professional staff.
CRT	Community Rehabilitation Team
CAICS	Community and Intermediate Care Services
DCE	Discrete Choice Experiment, also referred to as Conjont Analysis
Education	A formal process, normally undertaken by tertiary institutions, which leads to a qualification that is normally a prerequisite for entry to a health profession.
Extended scope practitioner	Practitioners with special interests are GPs, nurses, therapists and other health professionals who develop an additional expertise which enables them to expand their clinical practice in a defined area.
EQ-5D	A generic, patient-reported, standardised instrument to measure health status or health-related quality of life
GMC	General Medical Council
HPC	Health Professions Council
HSC	Health Service circular – Department of Health policy guidance document for health services
Intermediate care	Services that aim to prevent avoidable admission to and facilitate discharge from the hospital setting whilst preventing admission to long term residential and nursing care.

Interprofessional working	Team collaboration which involves coordination of expertise to optimise the care of the service user. An inter-professional team will have regular meetings, formalised systems for the exchange of information and work to a joint treatment plan with common goals for the service user.
IPE	Inter-professional education
LAC	Local Authority Circular– Department of Health policy guidance document for local authorities
MDT	Multidisciplinary Team
Multidisciplinary	A group of practitioners with different training who meet regularly to coordinate their work providing services to one or more service users in a defined area. Each team member brings expertise to address problems separately.
NHS	National Health Service
NMC	Nursing and Midwifery Council
NSF	National Service Framework
NLU	Nurse Led Unit
NVIVO	Software package for qualitative data analysis
NVQ	National Vocational Qualification
PCG	Primary Care Group
PCT	Primary Care Trust
Professional	An individual belonging to a group which has a clear definition of the elements of work over which the individual has autonomy or control; legislative recognition of the profession by the state, protecting the profession from encroachment by another profession and ownership over an exclusive body of knowledge and skills and a code of ethics that protects their legitimacy.
QALY	Quality Adjusted Life Years
RCT	Randomised Controlled Trial
Role	A function designed to achieve a defined output or outcome.
Role substitution	The ability of a worker from one discipline to adopt the roles of a worker from another discipline.
SAP	Single Assessment Process

Service user	A recipient of health or social care services. Depending on the context, the service user may include the family and / or carers of the person directly receiving the service.
Skill	A level of knowledge or competence that is required to successfully perform a work-related function or role.
Skill mix	Can refer to the mix of disciplines involved in care, the mix of skills within a disciplinary group or the skills possessed by an individual worker.
Support worker / support staff (SS)	An individual who works with professionally qualified staff who may have health &/or social care training such as National Vocational Qualifications (NVQ) but who does not have tertiary or equivalent qualifications and who does not have legislative recognition of professional status by the state. Titles included under this category include: Technical instructors, Rehabilitation assistants, Social work assistants, Physiotherapy assistants, Rehabilitation technicians, Psychology assistants, Occupational Therapy technicians, Carers, Intermediate care technicians, Care management assistants, Therapy assistant, Technician & Home Enablers.
TOMS	Therapy Outcomes Measures
Training	A learning process that is used to augment vocationally acquired skills or to upgrade and enhance skills obtained through prior educational experience.
UK	United Kingdom
USA	United States of America
WDQ	Workforce Dynamics Questionnaire
Workforce configuration	The combination of skill mix, training, delegation, substitution and specialization and role overlap
Workforce development	Activities that increase the capacity of individuals to participate effectively in the workplace. It incorporates components of workforce planning, education and training and management.
Workforce planning	A component of workforce development that aims to ensure that there are sufficient staff with the appropriate skills to deliver quality care to patients and secondly, to predict and plan for the future workforce needs.
WTE	Whole Time Equivalent

Executive Summary

Background

The purpose of this research is to examine how, and with what impact, workforce substitution and specialisation is influenced by workforce change policies in the context of older peoples' services. The specific setting for this research is community and intermediate care services (CAICS) for older people.

Aims and objectives

The research aimed to address five questions;

- How do workforce change policies impact on the workforce responsible for delivering services for older people?
- What is the relationship between workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) and patient, staff and service outcomes (including costs)?
- What is the relationship between different service organization and management approaches (team structures, setting of care, supervision and accountability) and patient, staff and service outcomes (including costs)?
- What is the relationship between different organisational and management structures impact and the workforce configuration?
- How does specialization, through the employment of extended scope practitioners, GPs with special interests and geriatricians, impact on the team and service users?

In addition, the research aimed to:

- Develop a model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.
- Develop a framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.

Methodology

Multiple methods were used to address the research questions

- A detailed policy and literature review

- Secondary analysis of existing data arising from a National Evaluation of Intermediate Care services
- A cross sectional survey of 186 older peoples' CAICS, which captures details about the staffing and service configurations
- A prospective study of 20 older peoples' CAICS to examine, in depth specific hypotheses relating to workforce variations on service costs
- Qualitative data collection involving focus groups with 158 staff from 11 of the teams involved in the prospective study
- A discrete choice experiment with 77 patients to explore user preferences around staffing, service setting and frequency

Findings

IC is characterised by a multi-disciplinary team approach to care and as such staffing is organised to facilitate multidisciplinary team working. Joint professional visits, multidisciplinary team meetings, being based together in a common physical space and the sharing of professional skills were all identified as important organisational aspects of multidisciplinary team working.

Staffing models of older peoples' CAICS vary widely between teams, however there are some common features. Overall, more than 60% of all teams included in our study employ an occupational therapist, physiotherapist, at least one support worker, nurse and an administrator. Social workers and speech and language therapists are employed by around half of all CAICS teams. Fewer than 20% of the teams directly employ a medical practitioner, psychologist, mental health practitioner, pharmacist or podiatrist. CAICS are most likely to be led by a nurse, physiotherapist or occupational therapist.

However, there are large variations in team sizes (mean 18.2 WTE, SD 14.1, range 1.4 - 80). The ratios of support workers to qualified staff varied widely, (mean 0.7, SD 0.8, range 0 - 5.6). Additionally, the ratio of the total number of staff to the total referral showed large variations (mean 66.9, SD 70.3, range 2.9 - 385.4).

The qualitative data indicated that there was no consistent rationale for the adoption of particular staffing models. The variations in costs and patient outcomes in relation to staffing models indicate that there is potential for efficiency savings through more effective use of staffing.

Variations in workforce configuration and different service organisation and management approaches were associated with the following patient, staff and service outcomes;

Patient outcomes:

Patient outcomes were positively and significantly associated with five key staffing variables:

- Having care delivered by a higher proportion of support workers
- Being treated by staff from a team which has fewer senior staff
- Being treated by fewer different types of practitioners during the episode of care
- Being treated by staff who belong to a larger team, and
- Increasing total amount of face to face contact time with the patient.

Staff outcomes:

- Better staff outcomes (satisfaction and intention to leave employer and / or profession) were associated with smaller team size; higher levels of staff integration with peers and colleagues; better team working; better management structures and styles; having a specific line manager; a perception that the team delivered high quality care; and at least weekly team meetings.
- Staff who are more autonomous are less likely to leave their profession.
- Higher grade staff (AfC bands 5-8 vs 1-4) have a higher intention to leave their current employer, but have a lower intention to leave their profession than lower grade staff. Younger staff reported a lower intention to leave their employer.
- Social workers, social care workers and support workers were more likely to report an intention to leave their employer and their profession in the next 12 months.

Service outcomes (costs and length of stay):

- Having a higher proportion of skilled staff is associated with *decreasing* service costs initially, although costs start to increase again. In this study the costs were minimised when around 60% of contacts were provided by skilled staff.
- Cost per patient increases as the number of different types of practitioners treating the patient increases. The rate of increase in cost with each additional practitioner is steep at first but then declines.
- The total number of staff in the team is directly associated with higher service costs (ie, the larger the team, the greater the costs).
- No staffing variables were associated with length of stay, but greater access to technology and equipment is associated with reduced length of stay. Better staff integration with their peers and colleagues was associated with lower overall costs of care delivery.
- Teams that reported that they delivered higher quality care also had higher service costs.

The relationship between organisational and management structures and workforce configuration

CAICS are largely heterogeneous, and despite the number of teams surveyed for this study, few clear patterns have emerged that explain the workforce configurations adopted by each team.

There was some evidence of variations in staffing according to the primary setting of care provision. For instance, teams providing home based care provision had higher numbers of support workers, physiotherapists and occupational therapists but fewer medical staff, including general practitioners and geriatricians than inpatient or outpatient services ($p<0.05$). Inpatient services were likely to report higher numbers of nurses and a higher ratio of support workers to qualified staff. Outpatient services reported the highest numbers of medical staff and geriatricians.

A model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.

The heterogeneity of the services we encountered, and the lack of a clear definition of intermediate care services within the UK context led us to explore, in detail, the components or contextual features that go together to make up a service, resulting in a tool we have called the 'service proforma'. The service proforma provides a way to compare services without 'pigeon holing' them into pre-existing taxonomies, which appear to have little value in guiding service development. As such, we have not developed a taxonomy for describing older peoples' community and intermediate care service, but have developed a framework through which the services can be compared.

The six domains used to describe intermediate care services are;

- Context
- Reason for the service
- Service users
- Access to the service
- Service structure
- The organisation of care

Based on the findings from both the cross sectional and prospective studies, as well as the qualitative data we have developed a general picture which describes intermediate care services as a whole. However the details within each of the domains tend to vary quite widely.

A framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.

As mentioned above, the lack of a clear and consistent taxonomy around CAICS means that there is not an established basis for comparison between teams.

To address this objective, we have employed Enderby and Stevensons' "Eight Levels of Care" model, which identifies eight packages of patient care based on the levels of patient care need (Enderby and Stevenson 2000).

For each package of care, we have provided data including the mean number of face to face contacts; mean total contact time; mean length of episode (days); mean staff costs; mean dependency scores on admission (EQ-5D and TOMs); mean change in dependency scores; and the mean ratio of qualified to support staff, which has the potential to be used for service planning and benchmarking

Whilst further research is necessary to verify these findings, it serves as a potentially useful benchmark for service planning. With the move to practice based commissioning, also provides a basis for both measuring, and realistically predicting expected changes in outcomes across different patient groups.

The findings from this study have been integrated into an "Interdisciplinary Management Tool" which is being implemented using action research with several intermediate care teams nationally as part of a further SDO funded project, entitled "Enhancing the Effectiveness of Interprofessional Teamworking: Costs and Outcomes" (NETSCC SDO08/1819/214). An outline of the tool is provided in Appendix 15.

Limitations

The heterogeneity of older peoples' CAICS means that it is not possible to draw widespread generalisations, instead the findings need to be seen and interpreted in the context in which they are to be applied.

Several of the conclusions in this study are based on the relationships between 'support' staff and 'qualified' staff, however we are aware that each of these titles includes myriad roles and practitioners, and are unlikely to be a true reflection of the work carried out by these staff.

The prospective study was observational, thus it is not possible to determine causality or examine the direction of any causal relationship between variables.

Conclusions

The workforce configuration of older peoples' CAICS does have an impact on the costs and outcomes for staff and patients.

The research has provided a comprehensive picture of the range, configuration and staffing of older peoples' community and intermediate care services in the UK, and providing some understanding of the impact of workforce variables on the costs and outcomes of older peoples' services.

While the results of this study can be informative for local providers, purchasers, commissioners and other stakeholders in rehabilitation for older people, local decisions will need to be made in the context of the service delivery infrastructure and development needs. Therefore in deciding about the workforce requirements of older peoples' community based intermediate care and rehabilitation services, stakeholders will need to consider their patient casemix, the local population, and the specific goals of the service. This study has endeavoured to provide a suite of practical tools to support this approach.

The Report

1 Introduction and background

The purpose of this research is to examine how, and with what impact, workforce substitution and specialisation is influenced by workforce change policies in the context of older peoples' services. The specific setting for this research is community and intermediate care services (CAICS) for older people.

1.1 Background

1.1.1 The ageing population

The changing population demographic is an important driver influencing the focus and organisation of health care delivery. The average life expectancy for Europeans has increased from 45 to 73 years over the past century (Tomassini, Glaser et al. 2004). From a health policy perspective, it is particularly important to note that the proportion of people aged 80 and over will increase by 40% between 1995 and 2015 in the current European Union countries (BURDIS Network Project 2004). Approximately 70% of people aged 70 and older, and 50% of people aged 85 and over report difficulties with basic activities of daily living, such as bathing, dressing, toileting, transferring from chair to bed, etc (BURDIS Network Project 2004). Eight percent of people aged 75 and over are unable to move outdoors without help, and this increases to 28% at the age of 85. As well as increasing the risk of premature death, disability increases the need for home help, hospitalisation and nursing home admission. The management of people with disabilities is a key determinant of the quality of life. Almost all indicators of physical and cognitive functioning and their management are related to life expectancy (BURDIS Network Project 2004). The scale of the need for older peoples' services, and resulting workforce requirements is likely to increase.

1.1.2 Older peoples' community and intermediate care services

The setting for this research is older peoples' Community and Intermediate Care Services (CAICS), which incorporates health and social services across England. Specifically, the research examines non-acute, time limited services that are designed to increase the independence of older people. For the purpose of this research, these services have been labelled "older peoples' community and intermediate care services"; however we acknowledge the diverse policy interpretation and delivery of these services.

The shape, organisation and definition of community rehabilitation and intermediate care has been influenced by two key policy documents. The 1998 Department of Health document *Better Services for Older People – Maintaining the Momentum* (Department of Health 1998; Department of Health 1998c) and the Department of Health circular HSC/LAC 2001/01 (Department of Health 2001). These documents proposed that intermediate care would target people who would otherwise face unnecessarily prolonged hospital stays or inappropriate admission to acute in-patient care, long term residential care, or continuing NHS in-patient care; involve active therapy, treatment or opportunity for recovery; maximize independence and enable patient/users to resume living at home; be time limited to no longer than six weeks; and involve cross-professional working.

These definitions were taken forward in the National Service Framework (NSF) for Older People (Department of Health 2001) which was responsible for setting national quality standards for delivering older peoples' care. Following the NSF for Older People, the number and type of community based services for older people have grown substantially (Martin, Peet et al. 2004) and are expected to further expand and increase in complexity as acute care services are progressively moved into primary and community care settings (Department of Health 2006) and as the NSF for Long Term Conditions takes effect.

1.1.3 Workforce change

Community based rehabilitation and intermediate care services operate at the interface of numerous agencies, settings and professional groups and require organisational and workforce structures that can reflect and respond to this complexity. However little is known about the way these services are configured, the workforce they utilise, or the way different staffing configurations impact on outcomes. This research aims to generate a picture of the range, configuration and staffing of community and intermediate care services currently being provided in the United Kingdom and to ascertain whether any relationships exist between service configuration and staffing models.

Traditionally, health care delivery has been defined and dominated by established professional and paraprofessional groups (Larkin 1983; Friedson 1988). Workforce shortages, alongside an increasing focus on patient centred care, call for a labour supply that is able to respond to the needs of patients, rather than practitioners who are constrained by professional role definitions and traditional organisational hierarchies (Calpin-Davies and Akehurst 1999; Department of Health 2000; Department of Health 2004). Despite decades of protection of professional titles and roles, it is well documented that some forms of care can be delivered by more than one type of practitioner (Richardson, Maynard et al. 1998; Cooper 2001; Booth and Hewison 2002). For instance, in many countries, nurses have compensated for doctor shortages by

expanding into traditional medical roles such as prescribing and minor surgery (Richards, Carley et al. 2000; Appel and Malcolm 2002). The UK has introduced a number of policies and programmes to address workforce shortages, resulting in a the development of a range of new flexible models of workforce development and delivery (Department of Health 2000; Department of Health 2002; Department of Health 2002; Changing Workforce Programme 2003; Changing Workforce Programme 2003; Department of Health 2004; Department of Health 2004).

There has been some uni-disciplinary analysis of the factors shaping workforce change (Larkin 1983; Borthwick 2000), but little comparative examination of the factors that influence the workforce as a whole (Nancarrow and Borthwick 2005). Most of the research around workforce flexibility is in the context of the changing skill mix between the medical and nursing professions (Buchan and Dal Poz 2002; Grumbach and Bodenheimer 2004). However, these studies often ignore the structural constraints to workforce change and the potential for role substitution by other providers such as support workers, social care providers and the allied health professions (Martin, Peet et al. 2004; Nancarrow 2004; Nancarrow and Borthwick 2005). There has been little research into the potential for substitution from a more highly qualified worker to a less qualified worker, such as delegation of tasks to support workers in non-medical environments (Grumbach and Bodenheimer 2004; Nancarrow, Shuttleworth et al. 2005). Additionally, there has been little examination of patient, provider or purchaser responses to the changing nature of the workforce, or the way that health care quality and accessibility are influenced by workforce change.

The examination of older peoples' services provides an opportunity to address a number of these gaps. The older peoples' workforce is undergoing substantial changes nationally and internationally (Department of Health 2000; Department of Health 2001b; Nancarrow and Mountain 2002; Department of Health 2004). For instance, within intermediate care and rehabilitation, vertical and horizontal substitution are evident in role overlap between nurses, allied health practitioners and social care providers (Booth and Hewison 2002; Nancarrow 2004) and through the delegation of a range of tasks to the rapidly growing support worker personnel (Nancarrow 2004; Nancarrow 2004). There is also evidence of specialisation within the older peoples' workforce, including extended scope allied health practitioners; GPs with special interests; geriatricians; and nurse consultants. The potential to provide care in a range of different settings, including hospital, residential care and home, further impacts on the way that care is provided, and on the hierarchies and interactions between workers (Freidson 1988).

The NHS Plan details the aim to "redesign care around patients" which should include "decisions about which professional should best carry out which functions with guidelines and protocols for each condition" (Department of Health 2000). The recent Department of Health policy "Delivering the NHS Improvement Plan: The workforce contribution" makes explicit the need for

more flexible roles for staff and increasing flexibility between primary, secondary and intermediate care to help manage long term conditions. A number of recent programmes have worked to rapidly 're-engineer' the health workforce, such as the Accelerated Development Programmes initiated by the Changing Workforce Programme (Changing Workforce Programme 2003), however further research is required to determine their effectiveness.

This research acknowledges that the health care workforce does not operate within a 'closed system', but is influenced by a wide range of international, national and local contextual factors. International workforce shortages impact on the quality and availability of staff (Buchan and Calman 2004). Nationally, staffing and skill mix will are influenced by the systems of health care financing, health worker regulation and the ability of existing professional groups to influence workforce evolution. At a local or service level, the physical setting of care provision (eg home, hospital, community centre) (Nancarrow 2004; Martin, Nancarrow et al. 2005), the structures of team organisation and management (Borrill, Carletta et al. 2000; Rafferty, Ball et al. 2001; DeLoach and Monroe 2004), and the potential interactions between different types of services (eg primary and secondary service models) play an important role in determining staffing and skill mix. The inevitability of variations between services means that it is difficult to develop clearly generalisable models of skill mix and staffing, particularly in the community setting. However, it is possible to develop theoretically generalisable principles within defined contextual frameworks. An important component and contribution of this research will be to develop a way of describing both the nature of older peoples' CAICS, and to explore the contribution of the main contextual factors to workforce change in the community setting for older people. the optimal workforce structures for these services, within well described contextual models.

1.1.4 Research challenges

The rapidly changing policy landscape means that the context in which older peoples' community and intermediate care services are provided is also shifting. Significant policy implementation that coincided with this research included the introduction of Agenda for Change pay scales for staff; the shift to primary care based commissioning; and the reorganisation of primary care trusts. Each of these influenced the structures of care provision and organisation which meant that several of the teams with which we engaged were undergoing some form of change during the process of the research. Additionally, the reorganisation of primary care organisations meant that the key personnel used to access intermediate care teams, such as PCT chief executives or older peoples' leads, were often no longer in post, or had a new remit, increasing the challenge of accessing teams.

In addition to the changes occasioned by the rapidly changing policy and practice landscape referred to above, there are some specific challenges in

developing meaningful comparative analyses between older peoples' community and intermediate care services as follows.

Despite the terminology used in government documents and guidance, it is difficult to clearly categorise any intermediate care or community rehabilitation service according to a particular function, setting or purpose. Equally, the diversity in these services prevents the development of a robust evidence base of outcomes (Carpenter, Gladman et al. 2002; Martin, Peet et al. 2004; Melis, Rikkert et al. 2004). A lack of clear service taxonomy also makes it difficult to transfer findings between settings. We therefore considered it was important for this research to develop a way to capture the depth of variation in service configuration that is community rehabilitation and intermediate care within a reproducible framework that enables comparison.

The objectives of care can vary widely within and between services, ranging from active rehabilitation to social care, resulting in a broad case mix. As a result, diagnostic criteria were not seen as being a valuable indicator of the type and level of care need. Instead, a battery of other, more rehabilitation specific approaches, have been adopted for this study.

An important component of this study was the capture of detailed data about the input of different types to patient care. Because many of the patients were based in their own home, and staff may work for different agencies, it was difficult to ensure complete and accurate capture of the staffing information.

1.2 Research questions

The research aimed to address five research questions (RQs);

1. What is the relationship between workforce change policies and the workforce responsible for delivering services for older people?
2. What is the relationship between workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) and patient, staff and service outcomes (including costs)?
3. What is the relationship between different service organization and management approaches (team structures, setting of care, supervision and accountability) and patient, staff and service outcomes (including costs)?
4. What is the relationship between organisational and management structures and workforce configuration?
5. How does specialization, through the employment of extended scope practitioners, GPs with special interests and geriatricians, impact on the team and service users?

In addition, the research aimed to:

- Develop a model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.
- Develop a framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.

1.3 Research activities

This study used a range of qualitative and quantitative methodologies to provide a comprehensive picture of the breadth of older peoples' CAICS and their staffing models, and the relationship between these models and patient, staff and service outcomes. We also obtained patient preferences.

The research consisted of five discrete, but inter-related elements;

1. **A detailed policy and literature review**, undertaken in 2005, provided important context for the study and specifically addressed RQ 1, and identified existing literature to address RQ 2 - 5. The review included the key policies that impact on workforce change, the historical and sociological background to the health care workforce; and the evidence base for workforce change in older peoples' CAICS. This review was published as a stand-alone report (Nancarrow, Moran et al. 2006), and was subsequently updated in 2008. A synthesis of the two reviews is provided in Chapter 2 of this report. Copies of the full reviews are available from the research team.

2. **Secondary analysis of existing data:** We accessed data arising from previous research into intermediate care services to explore the relationship between staffing models and costs and outcomes. We identified four research projects nationally which had collected data on the costs and outcomes of older peoples' CAICS, and included staffing data. Only one study (Barton, Bryan et al. 2005) was suitable for our reanalysis, and this is described in Chapter 4. The level of data available meant that we were able to use this to address RQ 2, as there was insufficient data on service organisation and structures available to address RQs 3 or 4.

3. **An audit of intermediate care service and staffing data:** In order to obtain a broad picture of the diversity of staffing and service organisation and management structures, we undertook a detailed service audit of 186 older peoples' CAICS teams across England using a 'Service Proforma' (Nancarrow, Moran et al. 2009). Within this we examined the relationships between service organisation, management and staffing structures (RQ 4). From this audit (and other sources), we selected 20 teams to participate in the prospective study.

4. **Prospective study:** The largest component of the research was a prospective study of 20 older peoples' CAICS from across England. This

study incorporated quantitative data collection including costs, patient and staff outcomes; and qualitative data collection using a series of interviews and focus groups with the participating teams (RQ 1-4). This component of the study was also designed to address RQ 5, which examines the impact of specialisation, however, surprisingly, there were no specialist roles identified within staff participating in this study.

5. **Discrete choice experiment:** In order to obtain patient preferences for the different models of care, we undertook a discrete choice experiment (DCE) with 77 older people who were service users of a single service. The DCE explored patient preferences for the type of staff, the frequency and the location of care.

1.4 Report outline

The report is presented in 8 sections;

- Section 2 presents the results of the literature and policy review
- Section 3 Secondary analysis of existing data
- Section 4 Audit of 186 CAICS teams nationally
- Section 5 Prospective study
- Section 6 Qualitative data
- Section 7 Discrete Choice Experiment
- Section 8 Discussion and conclusions: This section brings together the findings of the various research components to address the original research questions, and discusses the conclusions and implications of the research; implications for practice, implications for policy.

2 Literature and policy review

2.1 Introduction

We undertook two literature reviews for this project. The first was a comprehensive policy and literature review, completed in August 2006 which was structured around four areas to provide an underpinning and context for the remainder of the project;

- The policies that have impacted on workforce change
- The history and sociology of the professions and the socio-historical factors leading to the current workforce configuration
- A systematic exploration of the service and organisational components that comprise intermediate care services to help define intermediate care, and develop a framework for service comparison and evaluation.
- A review of the literature on workforce change with specific reference to intermediate care and community based rehabilitation services

The review has been published elsewhere (Nancarrow, Moran et al. 2006). The final section of the review was updated in January 2008. Only the key points arising from both reviews are summarised here, but full copies both reviews are available on request.

2.1.1 Key policies that have impacted on the workforce

The modernisation of health and social care following the 1997 general election stipulated the need for high quality, person centred care that extended across health and social care boundaries. The goals, together with the size of investment required in both capital and human resources, were expressed within the NHS Plan (Department of Health 2000) with the details of service improvement at specialty level, set out in the National Service Frameworks (Department of Health 2001; Department of Health 2005). These documents emphasised the need for and outlined systems that would support:

- *User centred care* where service user needs and opinions are central to the organisation and delivery of care.
- *Patient choice* whereby patients may choose from a 'national menu' of services provided by a choice network of providers nationally and locally.
- *Health focussed* service delivery that engages people in living healthier lives
- *Quality care* through introduction of national guidelines and frameworks, clinical governance and best practice, excellence bodies such as NICE

and SCIE, amalgamated regulatory bodies such as the General Social Care Council and the Council for Regulation of Healthcare Professions, enhanced access to education and training and new methods of education and training such as Inter-professional Education.

- *Timely access* through set targets such as the 4 hour Accident and Emergency turnover time.
- *Efficiency and sustainability* through new financing mechanisms such as payment by results, structural changes such creating Primary Care and Foundation Trusts and commissioning changes such as primary care Practice Based Commissioning and joint ventures with the independent sector.
- *Care closer to home* through shifting of resources and expertise to Primary Care Trusts and encouraging working across the whole health care economy (Department of Health 2006; Department of Health 2008)
- *Partnership working* through legislation enabling local authorities and health authorities to share resources (Department of Health 2000; Department of Health 2000; Department of Health 2001).

Specifically, the modernisation reforms impacted on Older Peoples' services through targeting ageism; the introduction of 'intermediate care' which supports older people through their illness trajectory by integrating and utilising services as identified by patient needs (Department of Health 1997; Department of Health 1998; Department of Health 2001); Legislation enabling health and social care partnerships to form and share resources to deliver intermediate care and to encourage more seamless care for older people (Department of Health 2000; Department of Health 2000); Targeting and improving the management of long term conditions and those with complex needs through 'Expert Patient' roles, improved access to multidisciplinary rehabilitative support from health and social care and through the introduction of the community matron role (Department of Health 2005; Department of Health 2006; Department of Health 2006; Department of Health 2008); and encouraging the joining up of resources for older people across all health care communities in local areas (Department of Health 2008).

Policy that has targeted the NHS workforce encompasses a range of themes which include:

- Increasing staffing numbers through increasing undergraduate training places, international recruitment strategies, attracting new staff into the NHS and encouraging return to practice non-practicing staff (Department of Health 2000; Department of Health 2002; Department of Health 2004);
- Improving staff retention through new career pathways, pay systems and the working lives standard(Department of Health 2000; Department of Health

2001; Department of Health 2001; Department of Health 2004; Department of Health 2004);

- Introducing new roles such as assistant practitioners, consultant therapists and support workers in intermediate care through the changing workforce programme, accelerated development programme and the national practitioner programme (NHS Modernisation Agency ; Department of Health 2000; Department of Health 2000; NHS Modernisation Agency 2004);
- Developing new ways of working such as role sharing and blurring of professional boundaries (Department of Health 2000; Department of Health 2000; NHS Modernisation Agency 2004; Department of Health 2005);
- Improving workforce planning through communication with education bodies, introduction of workforce confederations and workforce care group teams (Department of Health 1999; Department of Health 2000; Department of Health 2000; Department of Health 2001; Department of Health 2002; Department of Health 2004; Department of Health 2006); and
- Improving the quality of the workforce through greater access to training, education & continuing professional development, introducing more rigorous clinical governance and professional regulation (NHS Employers ; Department of Health 1998; Department of Health 2000; Department of Health 2000; Department of Health 2000; Department of Health 2000; Department of Health 2001; Department of Health 2001; Department of Health 2002; Department of Health 2004; Department of Health 2004; Department of Health 2006).

These key policy themes form the basis of our analysis of the impact of workforce change policies which are discussed in Chapter 9 of the report.

2.1.2 Defining intermediate care

Intermediate care is heterogeneous group of services which form part of a complex system of health care delivery. The literature points to highly different constructions in the ways of delivering these types of care, yet there are few studies evaluating intermediate care that are considered to be 'good quality' in the traditional sense of an RCT. Those that do exist point to few measurable differences in outcomes between the 'usual' models of care and the intermediate care service.

The lack of standard definitions or classifications of intermediate care services makes it difficult to compare services and / or outcomes. Existing intermediate care taxonomies incorporate a combination of purposes, functions and structures, yet within these taxonomies, there is little to unite the services in terms of a range of service attributes, which means that they have little value as a basis for analysis or comparison.

As part of this study we undertook a comprehensive review of the intermediate care literature to develop a framework which identifies the key domains of

service delivery and organisation which may impact on the outcomes of the service (Nancarrow, Moran et al. 2009). The framework will also provide a basis for comparison of services and to help guide service commissioning and development. We propose that all intermediate care evaluations should describe, in detail, their context in a comparable way, so that other services can learn from and / or apply the findings from these studies.

We utilised a qualitative (Template) approach to explore the way that intermediate care services have been described across 17 key documents, evaluations and reports to develop a service description template.

The six domains that describe intermediate care services are;

1. Context
2. Reason for the service
3. Service users
4. Access to the service
5. Service structure
6. The organisation of care

Context refers to the social, political and organisational setting in which the intermediate care service is delivered and provided; for instance, services have different funding bodies; serve different types of populations (e.g. urban or rural); may be hosted by a range of different types of trusts.

The **reason for the service** refers to the justification behind the introduction of the various intermediate care services, such as 'bed blocking' and unmet needs of the community.

The **service users** are the actual or potential users of the intermediate care services and were defined by services in three ways; the socio-demographic and medical profile of the client group; Target population for the service; and individual service user needs

Access to services includes the pathways used by the service user to access the intermediate care service, as well as the eligibility criteria used by the service to regulate entry to the service. Access is described in terms of the referral source; access point or system; patient eligibility criteria; and patient exclusion criteria.

The **service structure** refers to the actual operational and organisational details of each individual service. The service structure and organisation and includes the setting or location of care; setting; staffing; average or target duration of input; professional lead and team organisation.

The **organisation of care** refers to the components that go together to make up the individual intervention from the perspective of the client or patient and

includes the actual intervention; duration of individual client input; organisation of input; and intensity of input.

These domains form the basis of a template for service comparison and evaluation which forms the service proforma utilised in the prospective study (Appendix 1).

2.1.3 Workforce change – the evidence base and relevance to intermediate care

The purpose of this section was to identify and characterise the existing literature on workforce within the community and intermediate care settings in relation to its coverage, quantity and quality. The majority of the evidence around staffing relates to nurse and care assistant, or nurse – physician substitution. Little of the existing evidence can be clearly translated into community based, multidisciplinary, intermediate care services.

To achieve this objective an information officer conducted broad searches across Medline, CINAHL, King's Fund, DH-Data, Web of Science, Web of Social Sciences, Cochrane library, Embase, BNI, Biosis and PsychInfo. These searches were limited to the date range 1995 – 2005. The complexity and diversity of the services and multidisciplinary nature of the staffing meant that a number of different search terms were required (Appendix 2). The initial search retrieved 16189 references. This database was then searched electronically for those papers that were specific to intermediate care and rehabilitation, resulting in 372 papers.

Two researchers examined each of the abstracts for their direct relevance to staffing in community and intermediate care services. As a result of the paucity of experimental studies relating specifically to staffing in intermediate care we decided to include all experimental studies (qualitative and quantitative), as well as descriptive studies that provided insights around staffing in community and intermediate care services. There were numerous position statements, primarily from professional organisations defending their role within the intermediate care setting, which were excluded from this review. Fifty-one papers were included in the final review (Table 1). Of these, the majority were descriptive studies. A small number of surveys and audit data are available. No hierarchy of evidence was employed due to the paucity of experimental data.

References for included studies were entered into a searchable Endnote (Version 9.0) database. Keywords for included articles were applied to describe such key features as: study design, country, setting (e.g. home, community); and method.

Overall few studies specifically examined the intermediate care workforce as a primary goal or outcome. In most cases, workforce was a secondary component of the research therefore the relevance to the workforce issues has been extracted for the purpose of this review.

Summary of findings from the 2005 review:

Intermediate care services have diverse models of staffing, however typically intermediate care teams are multidisciplinary (Rudd, Wolfe et al. 1997; Shield 1998; Jones, Wilson et al. 1999; Vaughan and Lathlean 1999; Enderby and Wade 2001; Griffiths 2002; Wiles, Postle et al. 2003; Cohen, Village et al. 2004; Griffiths, Austin et al. 2004; Nancarrow 2004; Parker 2006) even in usual care settings, or when labelled 'nurse led unit', or 'GP led unit'. They are likely to include input from physiotherapy, occupational therapy and therapy assistants (Enderby and Wade 2001; Parker 2006). A wide range of other staff may be involved in the delivery of intermediate care, however this varies greatly across the different services (Vaughan and Lathlean 1999). There is no evidence about the 'best way' to staff an intermediate care service, and this is likely to depend on the setting and purpose of the service(Parker 2006).

Only one experimental study specifically examined the impact of different models of staffing on costs and outcomes (Jones, Wilson et al. 1999) by comparing hospital at home with care on a hospital ward. Overall, patients in hospital at home received more multidisciplinary input during their episode of care and at 3 months follow-up. The greatest contribution to costs of the hospital at home service was nursing costs. An examination of the ratio of nurse contact to non contact time showed higher grade nurses to be extremely expensive per contact hour, and the authors suggested that increasing the proportion of nurses involved in more direct nursing care could reduce the costs of the service. In contrast, the costs of the other members of the multidisciplinary team (e.g. therapists) constituted a relatively small component of the total cost.

A Canadian study examined the impact of staff ratios and dependency-to-worker ratios in residential settings (Ostry, Yassi et al. 2003). They found that inadequate staff ratios and high patient dependency-to-worker ratios may cause higher incidence of staff injury in residential settings. Staffing ratios correlated with the dependency of residents but not with any other facility variable (funding, tasks performed, workload or work pressure).

There is evidence from a number of qualitative studies that intermediate care requires staff to work across professional boundaries, and that initially, this can create tensions, however generally this improves with time, and is perceived by staff to enhance patient and service outcomes (Booth and Hewison 2002; Nancarrow 2004; Nancarrow 2004).

A systematic review of the 'Evidence for the effectiveness of intermediate care' (Parker 2006) found that the evidence supporting the development of specific intermediate care services is quite heterogeneous, and still lacking. They reported that overall, intermediate care services are not associated with adverse consequences for recipients. There was little evidence to support different arrays of staffing, although one study found that six weeks of occupational therapy in an intervention group was associated with greater

improvements in physical function in the short term, and greater satisfaction with a range of services (Parker, Martin et al. Manuscript in preparation). Another study showed that multidisciplinary rehabilitation improved physical outcomes for people with Parkinson's disease, however general and mental health declined. Extrapolating from the main study findings, it appears that despite large variations in staffing across services, there is little measurable effect on the outcomes for service users.

Other findings

- There was no evidence for the effectiveness, or otherwise of the impact of skill mix or staffing structure on service user or staff outcomes within the intermediate care service setting.
- There is evidence of new roles within intermediate care, particularly the growth of support worker roles.
- There has been growth in the roles of support workers in these settings. Support workers undertake a variety of tasks which seem to be dictated by the team structure and purpose.
- The majority of intermediate care teams are multidisciplinary, and there is some documented role overlap in intermediate care settings.
- There are roles for the voluntary, private and social care sectors in delivering intermediate care, although the impact of these roles on services users is yet to be explored.

A second search was conducted in 2008 to identify any new evidence since 2005. The updated search utilised the search terms from the previous review that broadly covered terms describing intermediate care, community rehabilitation and older people and was restricted to the years 2005-2008. We retrieved a further 3814 references. Publications for years 2005-8 listed within the 2007 Kings Fund Information and Library Service reading list for Intermediate Care were then sought from the resulting references to test for inclusiveness. This database was then searched electronically for papers that were specific to skill mix and workforce change, resulting in 346 papers of which 42 were identified as being potentially relevant for the review, and full copies of the articles were obtained.

The literature were derived from a range of countries (Table 1) and settings, including home based care, but also included some long term care facilities, in-patient rehabilitation units and nursing homes. The findings are presented under the headings of the outcomes of the groups affected; patients, staff and the service.

Table 1. Results of literature search

		No. of papers included	
		2005	2008
Total		51	21
Country	UK	43	6
	USA	4	7
	Canada	1	-
	Belgium	-	1
	Norway	-	1
	Sweden	-	1
	Other / not specified	3	3
Methods	Survey / questionnaire	7	3
	Descriptive / case studies	15	4
	Qualitative	8	4
	Systematic / literature review	4	1
	Quasi experimental design	5	4
	RCT	5	2
	Mixed methods	2	1
	Audit	4	1

Professional group	Nurses (& assistants)	8	6 (1)
	Geriatrician / consultant	1	-
	General practitioners	4	-
	Assistant practitioners / support workers	3	4
	Therapists	5	-
	Pharmacists	1	-
	Multidisciplinary team / rehabilitation teams	4	7
Voluntary sector		2	-
Carers		-	-
Service user involvement		2	-
Skills and training needs		6	-
Skill mix		7	2

Included studies

21 papers were included in the review and are described below. These papers were deemed relevant as they examined the impact of different variables on patient, staff and service outcomes.

Excluded studies

21 papers were excluded from the review. It was found that the nature of the literature had changed since the 2005 review, with the current search identifying more outcome focussed research (this included some qualitative data). It was therefore decided that any literature that did not measure patient, staff or service outcomes would be excluded unless it added anything more to the knowledge base that was not identified in the 2005 review.

In addition, research conducted in nursing homes which was not deemed to be transferable into the community based older peoples' care setting was excluded

(however not all nursing home research was excluded). These included one study which explored the relationship between organisational commitment and turnover of nursing home administrators. Another experimental study introduced participatory management practices with a view to sustaining nursing best-care practice.

The key themes that arose from the literature are discussed below and summarised in the respective tables.

Findings from the 2008 review

Relationship between workforce variables and patient outcomes (Table 2)

The literature demonstrates that patient satisfaction is positively associated with well trained workers and respectful staff, however is negatively associated with poor recruitment and retention and delayed or absent workers (Anderson, Wiener et al. 2006). It is also evident that service user perceptions of service quality are likely to be positively influenced by patient characteristics, such as age, and organisational characteristics such as the intensity of care received, staffing organisation, employment conditions for staff, good recruitment and retention rates and greater levels of staff experience and training (Netten, Jones et al. 2007).

Many of the same factors have been found to significantly influence patient functional gain (Nelson, Powell-Cope et al. 2007). Staff experience and training such as competency of support workers in delivering rehabilitation and the presence of advanced practice nurses in teams can improve patient functional gains. Similarly patient functional outcomes can also be enhanced by greater intensity of care, greater therapy and general staffing levels and the use of agency staff have also been found to improve functional gains and outcomes. Teamwork, team order and organisation have also been found to improve functional outcomes (Strasser, Falconer et al. 2005).

Several studies however have indicated that there are other factors that contribute to functional gain outside of these workforce variables. Patient characteristics such as higher cognitive ability of patients (Gindin, Walter-Ginzburg et al. 2007), the patient mix (Nelson, Powell-Cope et al. 2007) and a longer stay in a post-acute care facility (Gindin, Walter-Ginzburg et al. 2007) were all found to positively impact on functional gain.

Relationship between workforce variables and staff outcomes (Table 3)

The evidence base for staff outcomes was surprisingly limited in this setting. Only one qualitative study examined job satisfaction in intermediate care, finding that factors such as the approach to care, levels of autonomy, community setting of care and team coherence positively influenced job satisfaction (Nancarrow 2007). The same study also found institutional factors such as small service size, flat career structures and non-hierarchical

management structures negatively impacted on career development opportunities. Some evidence has also been found to link enhanced levels of self reported staff competence with the use of structured training and educational strategies (Arnetz and Hasson 2007).

Although outcomes were not measured, one qualitative study highlighted the various risks to which community staff are exposed (Taylor and Donnelly 2006). These included manual handing, domestic animals, aggression and harassment and access to properties.

Relationship between staffing and service outcomes (Table 4)

There is limited evidence that a greater percentage of nursing staff trained in rehabilitation can reduce patient length of stay (Nelson, Powell-Cope et al. 2007). Conversely greater years of experience and greater levels of team working can increase length of stay (Nelson, Powell-Cope et al. 2007).

There is also some evidence that the quality of care can be positively influenced by high staff to patient ratios, smaller ward sizes and care being provided by 'in-house' government institutions (Kirkevold and Engedal 2006).

Staffing and organisational characteristics have also been shown to influence staff turnover. One paper demonstrates that higher levels of staff turnover are associated with lower staffing levels, larger service size, lower perceived quality of care and for-profit service ownership (Castle and Engberg 2006).

2.2 Discussion

The results of the two literature reviews show that the nature of the literature around workforce change has evolved significantly over the past decade. The first (2005) review found several papers that were relevant to the topic of workforce flexibility in older peoples' community and intermediate care services, however these were primarily descriptive, and largely lacking empirical data to link workforce changes with outcomes in this setting. This review illustrates the growing interest in, and application of workforce change practices in this setting, but provides little evidence of the effect of the changes.

The more recent (2008) literature review demonstrates that the field of workforce research in older peoples' services has developed further, so that there is now research examining the relationships between outcomes for staff, patients and the service, and a range of staffing and organisational variables. The research in this field is predominantly observational. We only found two randomized controlled trials which explored the effect of staffing related interventions on outcomes in the older peoples' community based service setting. This review illustrates some potential trends, but the relatively small volume of evidence, and the variety of contexts, methods and outcomes calls for more research in this field.

There were some notable absences in the literature:

- There is limited evidence of the impact of multidisciplinarity on the outcomes for patients, staff and services. For instance, there is a lack of evidence about the types of staff that should make up a multidisciplinary team in older peoples' community and intermediate care services, as well as the numbers of different types of staff that contribute to better outcomes.
- Only one qualitative study examined staff satisfaction in this setting.
- There was only patchy evidence on the factors affecting patient satisfaction in older peoples' services. In particular, there was a lack of evidence on the impact of the intensity of care, skills mix and the duration of care on patient satisfaction.
- The length of stay is often raised as an important outcome measure, and the target of most services appears to be to minimise the length of stay. However, there is little evidence of the effect of reduced length of stay on patient and staff outcomes.
- Whilst there was a small amount of literature on factors associated with team organisation and structure, such as the nature of multidisciplinary team meetings, this is an area which would benefit from more research. For instance, further evidence is required about the optimum frequency of team meetings and case conferences, and the management structures of the teams.
- The importance of staff training and experience on outcomes was a recurrent theme in the papers examined, however this is an area which would benefit from more targeted research to identify the importance of the nature of the training, and which staff reap the greatest benefits.

Table 2. Summary of literature review: patient outcomes

Summary: Patient outcomes

Outcome	*Theme*	*Dependent variable*	*Association*	*Ref*
Patient satisfaction	Staff experience / training	Well trained workers	Positive	Anderson 2006
	Treatment of patients	Treated with respect by staff	Positive	Anderson 2006
	Recruitment and retention	Difficulties replacing workers	Negative	Anderson 2006
	Staff attitude	Workers who show up late or not at all	Negative	Anderson 2006
Service user perceptions of quality	Pt characteristics	Age: service user less than 85 years old	Positive	Netten 2007
		Being in receipt of practical help from others (p<0.001)	Positive	Netten 2007
		Needing assistance to complete the questionnaire (p<0.001)	Negative	Netten 2007
		BME respondents (p<0.001)	Negative	Netten 2007
	Intensity of care	Receiving less than ten hours of care / week (p<0.001)	Positive	Netten 2007
	Organisation of time	Allowing at least 10 minutes of travel time between patient visits (p<0.001)	Positive	Netten 2007
	Staffing organisation	Higher proportion of part time workers (p<0.001)	Positive	Netten 2007
	Employment conditions	Higher wage rates relative to local rates (p<0.001)	Positive	Netten 2007

	Higher proportion of workers with guaranteed working hours (p<0.001)	Positive	Netten 2007
Recruitment and retention	No problems recruiting a suitable workforce (p<0.001)	Positive	Netten 2007
	Greater stability of workforce profile (stable workforce profile in past 12 months)	Positive	Netten 2007
Staff experience / training	Longer duration of employment (>5 years)	Positive	Netten 2007
	Older care workforce (proportion of care workers aged over 50)	Positive	Netten 2007
	Proportion of care workers with NVQ qualification (p<0.001)	Negative	Netten 2007
Institutional factors	In house providers vs independent sector providers (p<0.001)	Positive	Netten 2007

Functional outcomes (FIM / ADL / ulcers / incontinence etc)	Staff experience / training	Non - RN staff competent in rehabilitation (as rated by manager)	Associated with FIM gain	Nelson 2007
		Use of advance practice nursing role	Improves outcomes	Krichbaum 2005
	Team working	Positive team member perceptions of team functioning (task orientation, order and organisation, and utility and quality of information)	Associated with FIM gain	Strasser 2005
	Intensity of care	Greater contact hours with patient	Positive	De Witt 2007
	Pt characteristics	Higher cognitive ability of patients	Positive	Gindin 2007
		Patient mix	Associated with FIM gain	Nelson 2007
	Other	Longer length of stay in post-acute care facility	Positive	Gindin 2007
	Staffing organisation	Use of agency staff	Associated with FIM gain	Nelson 2007
	Staffing levels	Greater therapy staffing levels	Positive	Gindin 2007
		Total nursing hours per patient per day	FIM gain	Nelson 2007

Table 3. Summary of literature review: staff outcomes

Summary: Staff outcomes

Outcome	*Theme*	*Dependent variable*	*Association*	*Ref*
Staff satisfaction	Approach to care	Enabling philosophy of care	positive	Nancarrow 2007
		High autonomy	Positive	Nancarrow 2007
	Institutional factors	Community based setting of care	Positive	Nancarrow 2007
	Team working	Team coherence	Positive	Nancarrow 2007
Career development opportunities	Institutional factors	Small service size	Negative	Nancarrow 2007
	Career structures	Lack of clear career structures within intermediate care	Negative	Nancarrow 2007
	Staffing organisation	Non-hierarchical management structures	Negative	Nancarrow 2007
Staff competence (self rated)	Staff experience / training	Educational toolbox provided to nurses	Use of toolbox increased self rated competence scores	Arnetz and Hasson 2007
Staff safety	Risks	(qualitative only) Risks due to access, hygiene and infection, manual handling, aggression and harassment, domestic and farm animals.		Taylor and Donnelly, 2006

Table 4. Summary of literature review: service outcomes

Service outcomes

Outcome	*Theme*	*Dependent variable*	*Association*	*Ref*
Team working	Team organisation	Use of MDT ward round over traditional MDT meetings	Positive	Monaghan, 2004
Length of stay	Staff experience / training	% of RNs certified in rehabilitation	Reduces LOS	Nelson 2007
		RN years of rehabilitation experience	Increased LOS	Nelson 2007
	Team working	Positive team member perceptions of team effectiveness	Increased LOS	Strasser 2005
Quality of care	Staff ratios	High staff/patient ratio (higher than average compared with lower than average)	Positive	Kirkevold and Engedal 2006
	Service size	Smaller wards (defined as <12 beds)	Positive	Kirkevold and Engedal 2006
	Pt characteristics	Degree of mental capacity, function in ADL and the presence of aggressive behaviour	Negative	Kirkevold and Engedal 2006
	Institutional factors	In-house local government providers vs independent service providers	Positive	Netten 2007
Staff turnover	Staffing ratios	lower staffing levels	Higher turnover	Castle and Engberg 2006
	Quality of care	lower quality care	Higher turnover	Castle and Engberg 2006
	Institutional factors	for-profit ownership	Higher turnover	Castle and Engberg 2006
	Service size	Greater bed numbers	Higher turnover	As above

3 An audit of service and staffing configuration of intermediate care teams in England

Additional input to this chapter was provided by Dr Jenny Freeman

3.1 Introduction

The purpose of this study was to capture details of the organisational structure of the older peoples' community based intermediate care and rehabilitation services and to explore these to identify possible trends with regard to staffing models within particular organisational types. Full details of the study have been published elsewhere (Nancarrow, Moran et al. 2009), therefore this chapter presents a synthesis of the main findings.

3.2 Objectives

The principal aim of the audit was to develop a thorough picture of the workforce models and service context involved the delivery of older peoples' intermediate care and community rehabilitation teams in England. These data will be used in the following ways;

- To develop a model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.
- To develop a framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.
- To explore and describe the impact of a range of organisational and workforce variables (such as team structures, management, setting, organisation, role overlap, specialisation and substitution) and their influence on the workforce within the context of older peoples' services.

3.3 Methodology

This section of the study comprises detailed data about older peoples' community and intermediate care teams which were collected using the 'Service Proforma' (Nancarrow, Moran et al. 2009) (Appendix 1).

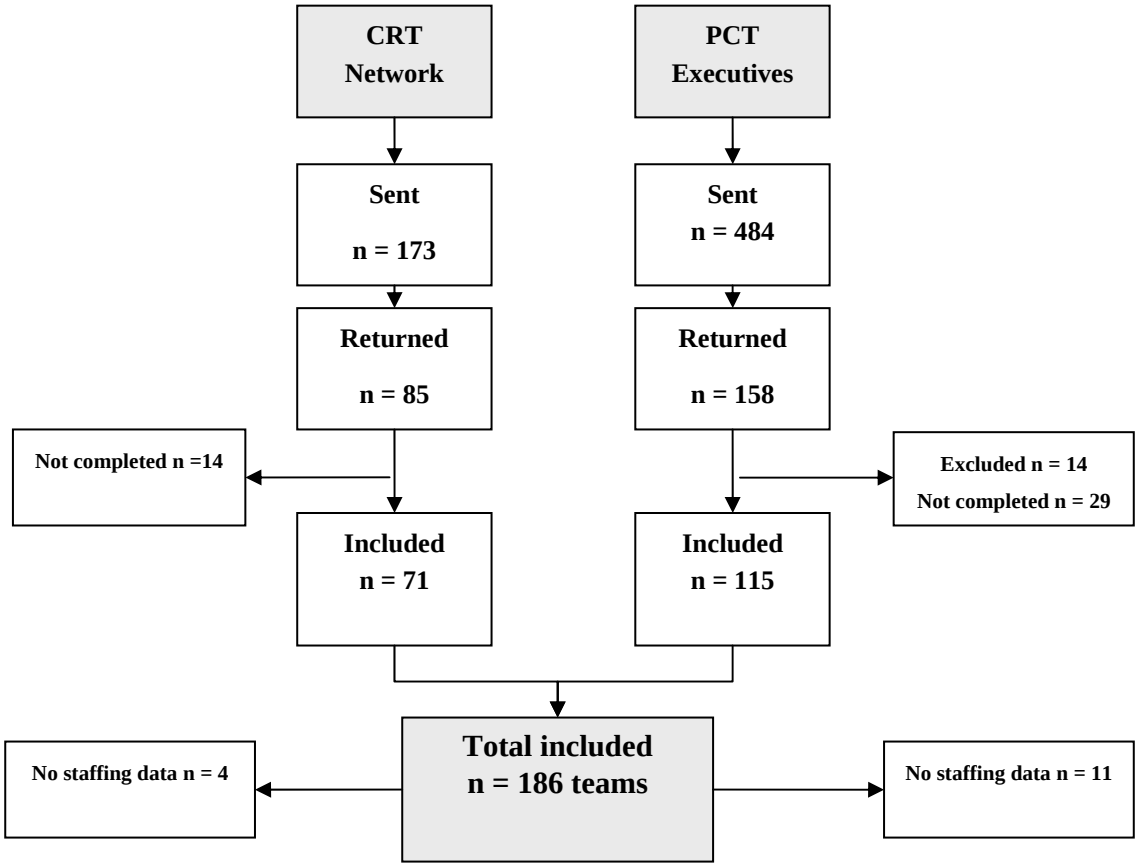
3.4 Results

3.4.1 Response rates

The overall response rate to the Service Proforma was 37% (n=243) (48% for the CRT network and 33% for the PCT chief executives); of these, a total of 186 (77%) of the responses were useable (Figure 1). Of the 186

responses, 15 teams returned Service Proforma without staffing data (8%). Forty teams, comprising 725 staff members, agreed to complete the WDQ.

Figure 1. Response rates



3.4.2 Service characteristics

Table 6 summarises the service characteristics. The majority of teams (83%) provide services in more than one location, predominantly the client's own home. Most teams are hosted by a single organisation (75%), the majority by PCTs (50%), and they serve rural, urban and mixed populations.

Respondents were asked to rank the levels of care provided by their organisation, from 1 – 8, according to the levels of patient need. The most commonly provided level of care was level 5, 'Intensive Rehabilitation' (36%) followed by levels 7 and 4, 'Medical care and rehabilitation' and 'Regular rehabilitation programme', accounting for about 17% of patient needs each. These were followed closely by Level 1, 'prevention and maintenance' (12%). Convalescence (Level 2), slow stream rehabilitation (Level 3) and Specific treatment for an acute disabling condition (Level 6) were the lowest levels of need at 5% or less for each.

3.4.3 Team organisation

Nurses were the most common team leader (31%), followed by physiotherapists (18%) and occupational therapists (13%). Five percent of services were led by a social worker. Most teams (88%) worked from a common team base, and more than half (61%) used a single client file, however social services used a separate file in the majority of cases (75%). Teams tended to meet monthly (38%) or weekly (31%) for operational meetings. Around half (46%) of all teams met weekly for case conferencing. Others met daily (10%), or informally when required (24%) (Table 5).

3.4.4 Throughput

Teams accepted a mean of 940 referrals (SD 1331), median 600 (range 20 – 1300). The number of referrals per year was evenly spread with 18% of teams accepting <250 referrals/year, 24% of teams accepting between 250 and 500 referrals/year, 24% of teams accepting between 500 and 1000 refs/year and 35% accepting greater than 1000 referrals per year.

3.4.5 Staffing

There were large variations in staffing across the range of community rehabilitation and intermediate care services that responded to the audit (see Tables 7 & 8). The mean ratio of yearly referrals to WTE staff (excluding administrative staff) was 66.9 (SD 70.3), median 44.0 (range 2.9 - 385.4). The referral to staff ratio did not appear to be significantly influenced by the location of care provision (Table 9).

The majority of services employed at least one whole time equivalent occupational therapist, physiotherapist, support worker, administrator and nurse. Less than half of all teams employed one whole time equivalent

social worker, speech and language therapist, geriatrician, dietician, psychologist or general medical practitioner. The staff most likely to be employed on a casual or sessional basis were dieticians followed by speech and language therapists, podiatrists, GPs, geriatricians and psychologists.

Table 5. Team organisation (n=186)

Organisational characteristics		%
Professional background of team leader	Nurse	31
	Physiotherapist	18
	Occupational therapist	13
	Other	10
	Shared	9
	Social worker	5
	No team leader	5
	District nurse	3
	Medic	4
	Missing	2
Frequency of team meetings	Daily	8
	Weekly	31
	Fortnightly	6
	Monthly	38
	Every 6 weeks	2
	Other (when needed / adhoc)	9
	Missing	6
Frequency of case conferences	Daily	10
	Weekly or less	46
	Fortnightly	3
	Monthly	3
	Other	24
	Missing	14

Table 6. Summary of service characteristics & purpose (n=186 unless otherwise indicated)

Service characteristics		%
Primary location of care	Client's own home	68
	Hospital – inpatient	9
	Hospital – outpatient	7
	Resource centre	1
	Nursing Home	1
	Community hospital	7
	Community health	5
	Other	2
Number of settings	> 1 location of care	83
Host organisation/s	PCT	50
	Acute	17
	Mental health	2
	Social services	3
	PCT and social services	13
	PCT and acute trust	6
	Social services and acute	1
	Other joint hosts	5
	Other single host	3
Population type	Urban	36
	Rural	23
	Mixed	37
	Other	4
Level of care (most frequently provided), n=120	Level 1 – Prevention and maintenance	12
	Level 2 – Convalescence/respite	2
	Level 3 – Slow stream rehabilitation	5
	Level 4 – Regular rehabilitation programme	17
	Level 5 – Intensive rehabilitation	36
	Level 6 – Specific treatment for acute and disabling condition	3
	Level 7 – Medical care and rehabilitation	17
	Level 8 – Rehabilitation for complex profound disabling condition	9

3.4.6 Relationship between staffing and setting of care

There was some evidence of variation in staffing according to the primary setting of care provision. Services that delivered care in the home reported higher numbers of support workers, physiotherapists and occupational therapists but fewer medical staff, including general practitioners and geriatricians ($P<0.05$) than inpatient or outpatient services (Table 9). Inpatient services were likely to report higher numbers of nurses and a higher ratio of support workers to qualified staff ($p<0.05$). Inpatient teams were also more likely to have more frequent team meetings. Outpatient services reported the highest numbers of medical staff and geriatricians ($p<0.05$).

The setting of care did not appear to be associated with differences in the mean or maximum duration of care or service throughput. There was also little difference between services in terms of the number of different types of staff that they employ, even though the make-up of that skill mix varied slightly according to the setting of care provision.

3.4.7 Relationships between structure and staffing

There was evidence of a statistically significant relationship between the level of care provided (low (levels 1-3), medium (levels 4-5) and high (6-8)) and location of care (home versus outpatient and inpatient): organisations providing medium levels of care were more likely to provide that care in the home rather than at an outpatient or inpatient clinic (Table 10) ($\chi^2=19.1$ on 2df, $P< 0.001$).

There was a positive association between the number of referrals per year and the number of WTE qualified staff (excluding administrative & support staff) $r_s=0.555$, $p<0.01$ (see Figure 2), with the mean number of referrals per year to WTE qualified staff (less admin) being 108.5 (median 70.1, range 2.9 to 1216.7) (Table 8).

Similarly, there was a positive association between the number of WTE staff (excluding administrate staff but including support staff) and referrals $r_s=0.535$, $p<0.01$.

There was little evidence of a relationship between number of staff (less admin) and the size of the population.

There was a significant positive linear relationship between the number of WTE support workers employed and the number of WTE qualified staff employed $r=0.463$, $p<0.01$.

Table 7. WTE Staffing

Variable	Whole Time Equivalents (n=171)		
	None (%)	**Less than 1 (%)**	**At least 1 (%)**
Occupational therapist	5.8	7.0	87.2
Physiotherapist	10.5	5.9	83.6
Support worker*	14.0	5.8	80.1
Administrative support	20.5	14.6	64.2
Nurse	31.6	5.3	63.2
Social worker	54.4	3.5	42.1
Speech and language therapist	59.6	19.3	26.1
Geriatrician / consultant	76.6	9.4	14.0
Other**	86.6	3.5	9.9
Dietician	78.6	12.3	9.4
General Practitioner / Medical	86.6	5.9	7.6
Psychologist	86.0	8.2	5.9
Mental Health practitioner[&]	95.3	0.0	4.7
Pharmacist	95.3	2.9	1.8
Podiatrist	92.4	7.6	0.0

* Technical instructors, Rehabilitation assistants, Social work assistants, Physiotherapy assistants, Rehabilitation technicians, Psychology assistants, Occupational Therapy technicians, Carers, Intermediate care technicians, Care management assistants, Intermediate care support worker, Technician, Falls assistant, Therapy assistant, Technical assistant, Technician, home enablers.

** Link Worker, Health assessor, Counsellor, Visual rehabilitation worker, Manager, Team leader, Psychotherapist, Liaison Officers, Care management assistant, Coordinator/Manger includes CCO, care coordinator, case manager, team manager, stroke coordinator

[&] CPNs, Community mental health nurses

Table 8. Staffing profile (n=171 unless otherwise stated)

	Mean (SD)	Median (range)
Number of:		
WTE staff employed per team*	18.2 (14.1)	14.2 (1.4 to 80)
WTE qualified staff employed[&]	10.6 (7.7)	8.1 (0.2 to 43.0)
Different practitioners employed[£] (including session staff)	7.2 (2.9)	7 (1 to 15)
Ratio of:		
Support workers to qualified staff[$]	0.7 (0.8)	0.4 (0 to 5.6)
Referrals to WTE qualified professional staff (n=137)	108.5 (145.5)	70.1 (2.9 to 1216.7)
Referrals to WTE qualified + support staff[$] (less admin)(n=137)	66.9 (70.3)	44.0 (2.9 to 385.4)
Referrals to WTE support staff (n=120)	274.7 (519.9)	137.2 (10 to 5221.7)

* Includes administrative staff and support staff

& Excludes staff who work on a casual / session basis

£ Includes staff who work on a casual / session basis

$ Excludes administrative staff

Figure 2. Staff grade n=302

Grade	Percent (%)
Pre registration	27.5
Junior qualified	5.3
Middle qualified	8.3
Senior qualified	38.4
Senior management	6.6
Administration	9.9
Other	4.0

Table 9. Relationship between staffing and setting of care

	Client's home n=112	Inpatient / residential[1] n=21	Outpatient[2] n= 19
Staff	Mean (SD)	Mean (SD)	Mean (SD)
Support workers*	5.6 (6.8)	4.9 (7.2)	3.4 (4.2)
Physiotherapists*	2.8 (2.8)	1.6 (2.0)	1.4 (1.9)
Occupational therapists*	2.8 (2.3)	1.6 (1.9)	1.7 (1.8)
Social workers	0.8 (1.4)	0.9 (2.2)	0.6 (1.5)
Podiatrists	0.0 (0.1)	0.0 (0.0)	0.1 (0.2)
SLTs	0.4 (0.6)	0.2 (0.5)	0.1 (0.3)
Nurses*	2.0 (2.8)	4.1 (6.3)	2.0 (2.4)
Dieticians	0.2 (0.4)	0.1 (0.3)	0.0 (0.1)
Psychologists	0.1 (0.3)	0.2 (0.5)	0.1 (0.3)
General practitioners *	0.0 (0.1)	0.5 (1.1)	0.6 (2.3)
Geriatricians*	0.1 (0.4)	0.5 (1.2)	0.8 (1.4)
Medical staff*	0.1 (0.4)	1.1 (1.9)	1.4 (2.5)
Administrative support	1.3 (1.3)	0.8 (0.9)	1.2 (1.2)
Mental health nurses	0.1 (0.3)	0.0 (0.0)	0.0 (0.0)
Pharmacists	0.1 (0.4)	0.0 (0.1)	0.0 (0.0)
Total WTE other staff	1.4 (1.0)	1.0 (0.0)	0.6
No. of different staff employed (including session staff)	6.2 (2.8)	6.9 (4.4)	6.2 (3.1)
Ratio of support workers to qualified staff*	0.6 (0.5)	1.1 (1.8)	0.7 (0.8)
Ratio of referrals to WTE staff (less admin)	81.8 (171.6)	66.8 (88.7)	113.7 (132.4)
Service characteristics			
Max. duration of care (weeks)	18.7 (37.2)	15.2 (17.5)	38.2 (71.7)
Av. duration of care (Weeks)	7.6 (10.5)	6.6 (4.7)	13.9 (25.4)
Referrals per year	978.0 (1487.0)	516.7 (522.3)	945.3 (905.8)
Freq. of team meetings*	4.1 (1.6)	4.9 (1.2)	3.6 (2.1)

*$p<0.05$ [1]Inpatient includes hospital inpatient, resource centre, and community hospital

[2]Outpatient includes hospital outpatient, community health service

3.4.8 Cluster analysis

The cluster analysis was undertaken to determine whether there were any patterns emerging regarding staffing variations across different types of teams. Six variables considered a priori to be important were included in the cluster analysis: number of referrals per year, duration of care, number of WTE qualified staff, number of WTE support staff, location of care and level of care provided. This produced two clusters as outlined in Table 11. Cluster 1 only delivered care at home to patients with medium level needs. Cluster 2 was more heterogeneous with respect to both location of care and level of care, providing care across the range of these two variables. In addition cluster 1 received more than twice as many referrals per year and had a lower duration of care. In terms of staffing levels, the number of qualified staff was similar between the two clusters, but the number of support workers differed, which was higher in Cluster 1.

Table 10. Relationship between the level of care and the location of care

	Location of care		
	Home	Outpatient	Inpatient
Level of care (%)			
Low (n=21)	42.9	23.8	33.3
Medium (n=63)	84.1	9.5	6.3
High (n=35)	48.6	14.3	37.1

Chi-squared = 21.6 on 2d.f., $p < 0.001$

Table 11. Results of the cluster analysis (median and range, unless otherwise stated)

	Cluster 1 (n=39)	Cluster 2 (n=37)
Number of referrals per year	905 (120 to 6000)	416 (66 to 2000)
Duration of care (weeks)	4 (0.7 to 14)	6 (0.9 to 96)
Number WTE qualified staff	9 (2.8 to 43)	10.5 (2.5 to 37)
Number WTE support workers	7 (0 to 39)	4.5 (0 to 22)
Location of care (%)		
at home	100	37.8
Outpatient	-	18.9
Inpatient	-	43.2
Level of care (%)		
Low	-	27
Medium	100	16.2
High	-	56.8

3.5 Discussion

3.5.1 Limitations of the study

Other studies of intermediate care (Martin, Peet et al. 2004; Nancarrow, Shuttleworth et al. 2005) have shown that around forty percent of intermediate care teams are jointly hosted by health and social services (Table 12). However, this audit has primarily captured the views of NHS led teams, with only 13% of responding teams being jointly hosted by health and social services. The approach to sampling, in which the CRT network and PCT chief executives were sent the second survey is likely to account for the large number of health led organisations that responded to the audit. As a result, this audit cannot be said to be generalisable to all community and intermediate care teams. However, without a database of all older peoples' intermediate care services, it is difficult to be clear about the nature of the overall intermediate care population.

The response rate to the chief executive survey was lower than that recorded in previous, similar studies (Parker 2006), and may be due to the substantial reorganisation to NHS organisations at the time of the survey.

Table 12. Intermediate care and community rehabilitation host organisations as reported by other studies

Host	(Nancarrow et al., 2005b) (n=33)	(Martin et al., 2004) (n=70)	This audit (n=186)
Joint health and social services	45%	46%	13%
Health only (PCT, Acute or Mental Health Trust)	33%	29%	77%
Social services only	12%	3%	3%

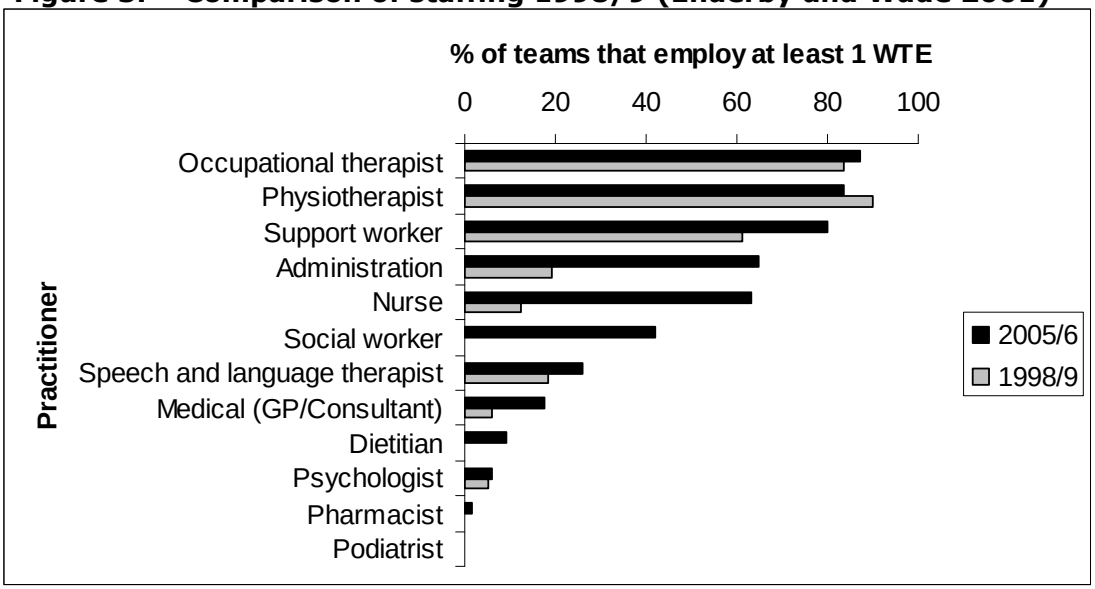
3.5.2 Staffing

Enderby and Wade (Enderby and Wade 2001) undertook a similar survey of the Community Rehabilitation Team Network in 1998/99. Figure 3 compares the staffing profile of the services in 1998/99 with the findings from this study. It is interesting to note that there has been a substantial increase the numbers of teams employing administrators, support workers and nurses, and new roles have been introduced into intermediate care including social workers and pharmacists.

The skill mix of intermediate care, with the emphasis on nursing and therapy staff, implies a focus on physical rehabilitation as opposed to the more social aspects of rehabilitation, although the increase in social worker numbers may indicate a shift in this area. The 'health' focus may also be a result of the high proportion of NHS, as opposed to social services hosted teams represented in this study.

The demographic information from the WDQ also indicates that community rehabilitation and intermediate care teams utilise more senior than junior or middle grade qualified practitioners. These findings are in line with the findings from a smaller study of intermediate care which demonstrated a greater proportion of senior professional staff than mid or junior grades (Nancarrow, 2004).

Figure 3. Comparison of staffing 1998/9 (Enderby and Wade 2001)



3.5.3 Levels of care need

The relationship between staff numbers and service throughput, whilst correlated, is confounded by the different levels of care need. We would have expected that those services reporting the more dependent clients (i.e. medium and high levels of care need) would have a higher ratio of qualified staff to support workers. The cluster analysis (Table 11) found approximately similar numbers of qualified staff across the two groups, however cluster 1 had a slightly higher ratio of support workers (care delivered at home to patients with 'medium' care needs).

Another evaluation that used similar tools found a poor relationship between the level of care needs identified by services and staffing models (Nancarrow, Enderby et al. 2005). The 'levels of care' tool may be a useful tool for services to help identify their levels of client needs, however further validation of the tool needs to be undertaken to determine the relationship between levels of need, staffing, and patient outcomes.

We expected to see a trend in terms of the levels of care and the location of care, with less dependent patients more likely to be seen at home, and more dependent clients managed in an institutional setting (hospital, resource centre beds etc). This trend was seen in the low and high level care groups (see Table 10), where a higher proportion of low level care needs were managed at home, and approximately half of the higher level need services were provided in institutions. However, the 'medium' level of care need services showed the highest proportion of home based care provision.

A limitation of this component of the study was that we asked services to identify, and rank in order, the predominant levels of care needs of clients using their service. This would be more accurate if it was determined

through an actual assessment of a series of patients. The results of this audit may also reflect the fact that many services do not target groups with specific levels of need or dependency but see patients with a wide range of needs.

3.5.4 Service throughput

The National Evaluation of Intermediate Care undertaken by the Universities of Birmingham and Leicester found that the majority of intermediate care schemes had limited capacity, with one third of services accepting 250 or fewer referrals per year and only 17% taking 500-2000 per year. This study, however, revealed greater throughput with more than half of all teams (59%) accepting 500 or more referrals per year. There is evidence that hospital based rehabilitation beds have been closed in response to NHS financial reforms (Barrett 2006) and it is likely that community services have filled the gap left by these closures, which may account for the higher levels of throughput recorded in this study.

3.5.5 Variation

This analysis of community rehabilitation and intermediate care teams has highlighted the enormous extent of variation in types of services, which have largely been established to address similar needs within the community. Obviously, local contextual variations will impact on the way that these services are formed and delivered. However, the extent of the variation makes comparison between services difficult, and therefore this presents a challenge to identifying models of care that can be described as 'good practice' and transferred into other environments. It also challenges attempts to evaluate intermediate care or community rehabilitation services as an overarching service type, because the variations in staffing, and therefore costs, as well as the approaches to service delivery and organisation reduce the transferability of the findings.

Despite the enormous variations in team configurations, many of the existing studies of intermediate care have found that different schemes demonstrate little, if any difference in patient outcomes (Nancarrow, Moran et al. 2006). This may mean that there is the potential for efficiency savings through the identification of appropriate staffing models and systems of service organisation, with little effect on outcomes.

Table 13. Summary of findings

Outcome / Relationship		Factor	Association
Staff	Number and ratio of staff	Ratio of staff to referrals (excluding admin)	Positive relationship
		Size of population served	No relationship
		Number of qualified to number of support staff	Positive relationship
Service	Setting of care (inpatient vs outpatient vs home)	Staff type:	
		Medical staff	Fewer medical staff in home based services ($p<0.05$)
			Greatest numbers of medical staff in outpatient facilities
		Support workers	Greater numbers of support workers in home delivered care ($p<0.05$)
			Higher ratio support workers to qualified staff in inpatient care services ($p<0.05$)
		Nurses	Greater numbers of nurses in inpatient settings ($p<0.05$)
		Occupational therapists & Physiotherapists	Greater numbers of OTs and PTs in home delivered care ($p<0.05$)
		Number of different practitioners	No relationship
		Team meetings	More frequent in inpatient settings ($p<0.05$)
		Duration of care	No relationship
		Service throughput	No relationship
		Primary level of care provided	Medium levels of care were more likely to be provided in the home rather than at an outpatient or inpatient clinic

4 The relationship between staffing and outcomes: A secondary analysis of existing data

Additional input into this chapter was provided by Professor Stirling Bryan, Dr Billingsley Kaambwa and Mr Graham Martin.

4.1 Introduction

This chapter presents the results of the re-analysis of existing data from one National Evaluation of Intermediate Care to explore the relationship between staffing, patient outcomes and costs.

4.2 Objective

The purpose of this component of the study was to examine existing research in the older peoples' CAICs setting that have captured data on patient outcomes, costs, and staffing to explore whether a relationship exists between staffing and outcomes in this context.

4.3 Methodology

We identified four, relevant national studies on older peoples' services, which had the potential to address the research objectives. These studies were;

- The National Evaluation Of Intermediate Care (Funded by DoH, Policy Research Programme)
- Evercare (Funded by DoH)
- An RCT Of Day Hospitals Vs Home Based Rehabilitation (NHS Executive, Health Technology Assessment)
- A National Survey on the Costs of Provision of Services for Older People.

When we commenced our study, not all of these studies were complete, however all were finished by the end of 2007. All studies were incorporated into the literature reviews, however only the National Evaluation of Intermediate Care (Barton, Bryan et al. 2005) could be included in the secondary analysis as this was the only study which collected a sufficient quantity and / or type of data which could be used to answer the research questions. Evercare and the National Survey on the Costs of Provision of Services for Older People did not have the necessary staffing and outcome variables to address the research questions. The RCT of Day Hospitals Vs Home Based Rehabilitation had incorporated the appropriate variables, but had insufficient data (fewer than 90 cases) pertaining to all of the necessary variables to justify undertaking secondary analysis for the purpose of this study.

The National Evaluation of Intermediate Care Services (Barton, Bryan et al. 2005) was undertaken by the Universities of Birmingham and Leicester. It involved extensive qualitative and quantitative data collection within five case-study sites in England between January 2003 and November 2004. The processes used for the collection and analysis of quantitative data in the case-study sites are described in detail elsewhere (Barton, Bryan et al. 2005).

The case-studies were five primary care trusts selected as to represent 'whole systems' (an area with a specific geographical boundary) of intermediate care. By studying whole systems as opposed to individual service models we aimed to achieve a more detailed understanding of the implementation of intermediate care and its impact upon system-level costs and outcomes.

Quantitative data were collected by staff employed by the intermediate care services according to protocols established by the evaluation team. Staff completed a study proforma with their patients, at the point of entry to the service, and then further questions were completed on the day of discharge, transfer or following the end of service provision. All intermediate care admissions over a defined period were included.

Data were available on patient age, gender, Barthel score at admission and discharge, EQ-5D at admission and discharge, type of service defined in terms of admission avoidance or other, and location of service in terms of residential or non-residential.

The Barthel score is a measure of a patient's ability to undertake a set of activities of daily living, such as feeding, bathing and grooming. It is typically completed by the health professional, and is scored on a scale of zero to twenty with zero indicating that the patient is fully dependent on others for all activities, and twenty indicating that the patient is independent (Mahoney and Barthel 1965; Collin, Wade et al. 1988). The EQ-5D, formerly know as the EuroQol, is a generic measure used primarily by economists to calculate quality adjusted life years (QALYs). It uses a single question to assess each of five health domains; mobility, self-care, usual activities, pain/discomfort and anxiety/depresssion. The EQ-5D has a complex scoring system, which ranges from 1 which indicates full health, through to -0.59 (Donlan 1997).

Data on skill mix were collected as descriptive data, but not included in any of the analyses undertaken to date. These data recorded the types of health care worker included in each of the teams at the time of the evaluation, and the number of whole-time equivalents. These were summarised in terms of two skill mix variables; ratio of support workers to qualified staff and the number of different professions included within the team. For the purposes of these two measures, support workers included staff involved in the direct delivery of patient care but who do not have a professional qualification, and included assistant practitioners, therapy assistants, support workers, generic rehabilitation assistants, health care assistants and social care workers. Staff were categorised as 'qualified' if they had a recognisable professional title which is associated with tertiary training, and included

nurses, doctors, allied health practitioners and social workers. The 'number of different types of professions' was simply a count of the numbers of different types of practitioners (including support workers) involved in the delivery of patient care. Additionally, the team data were used to calculate the total number of WTEs employed, as a proxy for the size of the service.

4.4 Analyses

Data used in the National Evaluation, plus the additional variables defined from the team data were used to undertake a set of multivariate analyses. These were to assess:

- The impact of skill mix on outcomes of care as measured by the change in the Barthel index.
- The impact of skill mix on outcomes of care as measured by the change in the EQ-5D.
- The impact of skill mix on length of care episode (or length of service provision).
- The impact of skill mix on costs of care as measured.

Based on previous analyses of costs and outcomes, the relationship with age was thought to be monotonic but non-linear, and so age-squared was used as an independent variable. Likewise, based on economic theory, for the analysis of costs total WTE squared was also defined, as this helps us identify possible economies of scale across the teams.

Multivariate analyses were undertaken using individual patient data, but taking into account the clustering of cases within teams, using random-effects models within STATA. Ordinary Least Squares (OLS) regression was undertaken for the analyses of outcomes (change in EQ-5D and Barthel) as dependent variables, whilst generalised linear models with a log link and gamma distribution were used for the analyses of length of stay and cost per patient. Generalised linear models are considered to be more appropriate for the analysis of skewed and heteroscedastic data while retaining the original scale of the data (Blough and Ramsey 2000).

When interpreting the statistical significance of the models, we have adopted the approach of Bland (2000) whereby p-values greater than 0.10 indicate little or no evidence of a relationship, values between 0.05 and 0.10 indicate weak evidence of a relationship, values between 0.01 and 0.05 indicate evidence of a difference or relationship and values less than 0.01 indicate strong evidence of a difference or relationship.

Additionally, the specification of the estimated regression equations was assessed using the Ramsey REST test (Ramsey 1969). This test performs auxiliary regressions that add in powers of the fitted values to the original equations. Statistically significant coefficients on these new terms have been found to be indicative of misspecification.

4.5 Results

Across the four analyses, data were available on between 349 and 415 patients, describing costs and outcomes across 14 separate teams. Patient and team characteristics are summarised in Table 14.

4.5.1 The relationship between skill mix and outcomes of care as measured by the Barthel index

There is strong evidence that younger patients and less independent patients on admission (as indicated by lower Barthel scores) were associated with greater improvements in Barthel over the period of care (Table 15). None of the skills staffing parameters were statistically significant. Whilst the overall explanatory power of the relationship was significant, as evidenced by the block F-test, there was also evidence of possible misspecification.

4.5.2 The relationship between skill mix and outcomes of care as measured by the EQ-5D

There is strong evidence that lower EQ-5D scores on admission are associated with greater improvements in EQ-5D over the period of care (Table 15). There is also weak evidence that residential intermediate care services, and higher support staff to qualified staff ratios are associated with greater improvements in EQ-5D scores. Overall, the relationship has significant explanatory power, but misspecification is suggested.

4.5.3 The relationship between skill mix and process of care as measured by length of care episode

Acute admission avoidance schemes are strongly associated with having shorter periods of intermediate care. There is weak evidence that more elderly patients have shorter lengths of stay. None of the skills staffing parameters were statistically significant.

4.5.4 The relationship between skill mix and costs of care

Residential services and longer periods of care were strongly associated with higher costs, however, the size of these effects are small. There was evidence that greater numbers of different types of staff were associated with lower costs (Table 15). The coefficients on total staff numbers and total staff numbers squared suggest that cost per case initially increase as teams grow, but after then begin to fall. Further analysis indicates that the point at which cost per case begins to fall is around 12 WTE staff.

Table 14. Description of patient and team characteristics

Patient characteristics	Median (n=238)	Min;Max (n=238)
Age	81.82	18.87;100.63
Baseline Barthel	15.00	3.00;20.00
Change in Barthel	1.00	-5.00;14.00
Baseline EQ-5D	0.52	-0.59; 1.00
Change in EQ-5D	0.07	-1.11; 1.59
Team characteristics	Median (n=238)	Min-Max (n=238)
Ratio of support staff to qualified staff	0.67	0.00; 4.00
Number of different types of staff	5.00	3.00; 9.00
Total number of staff (WTEs)	7.75	1.82; 23.70

Note: 238 observations were used as this sample represents the set of patients that were common to all four sets of regression analyses.

Table 15. Regression results (n=238)

	Change in Barthel score[1]	Change in EQ-5D [2]	Length of care (days)[3]	Cost (£s)[3]
Age squared	-0.0004***	-8.07×10^{-6}	-0.0001*	-1.53×10^{-5}
Gender	0.2586	0.0603	-0.0234	0.0411
Baseline Barthel score	-0.2902***		-0.0131	0.0445
Baseline EQ-5D score		-0.4297***	0.0943	0.0075
Admission avoidance	0.6064	0.0013	-0.2212**	0.0313
Residential care	0.5896	0.0545*	0.0969	1.6019***
Length of care	-0.0019	-0.0004	-	0.0260***
Ratio support to qualified staff	0.1998	0.0489*	-0.0381	0.0747
No. of different staff types	-0.0717	0.0178	0.0556	-0.1726**
Total no. of staff	-0.0014	-0.0003	1.26×10^{-5}	0.1919***
Total no. of staff squared				-0.0081***
Constant	8.3307***	0.1611	3.9200***	5.7977***
R-squared	0.2170	0.2523	0.0556	0.2609
Block F-test[4]	<0.0001	<0.0001	-	-
RESET test	0.0281	0.0423	-	-

1 Positive changes reflect gains in a patient's level of independence.

2 Positive changes reflect improvements in a patient's health related quality of life.

3 Estimated with a log link and gamma distribution.

4 Tests the hypothesis that all parameters are equal to zero.

* 0.10 > p-value > 0.05 ** 0.05 > p-value > 0.01 *** p-value <0.01

4.6 Conclusions

The analyses show that costs and outcomes of intermediate care are partly explained by differences in patient and service characteristics, however, the impact of service skill mix is limited. There is weak evidence (p=0.079) that the ratio of support staff to qualified staff impact on health gains (measured by the change in EQ-5D) seen during care, with higher proportions of support staff being associated with greater improvement. There is stronger evidence (p=0.028) that higher numbers of different types of staff are associated with lower costs.

One possible reason for the association between the higher ratio of support staff (SS) producing greater changes in EQ-5D is that substitution of SS for qualified staff (QS) improves outcomes. Alternatively, it could mean that additional SS allow a better service to be delivered, for example, increasing the number of SS staff allows for service development. This second interpretation is in line with findings seen in general practice (Richardson, Maynard et al. 1998).

This second interpretation is less plausible as some aspects of service expansion will be controlled for by the 'total number of staff' variable within the regression. In other words, increasing SS staff without reducing QS staff is not responsible for the better outcomes associated with the higher support staff to qualified staff ratios.

Other possible explanations are that intermediate care patients may not require the intensive or specialised treatment of support staff, thus a higher ratio of SS to QS may be the optimum combination that will lead to better outcomes. Similarly, it may be that those patients who do require more specialised input are directed to services that provide that input.

The impact of greater numbers of different types of staff on costs could reflect economies produced by specialisation. Understanding how costs were calculated within the National Evaluation is important before considering this issue further. Cost per patient was calculated based on a cost per day for the entire service based on budgets and an individual patient's length of care. So, cost per patient is driven by both service budget and length of stay. As the relationship between number of different types of staff and length of care is small and statistically insignificant, it appears that the effect is through the size of the service budget. The mechanism by which service budgets are reduced is open to speculation. Two possible processes are reduced number of visits and/or the use of smaller numbers of staff.

The results also show a potential conflict between patient outcomes and costs; increasing support staff numbers relative to qualified staff appears to be associated with improved health outcomes (as measured by the EQ-5D), but if this is achieved at the expense of multidisciplinarity (as measured by numbers of different types of staff) then costs will increase.

4.6.1 Limitations

We must also consider whether these results are robust. Whilst the regressions have reasonable explanatory power, there is evidence from the RESET test that there is misspecification. Possible causes of this could be the choice of regression technique or the omission of relevant variables. The Barthel and EQ-5D scores possess some characteristics that are similar to truncated data, with minimum and maximum permitted scores (and hence changes in scores). Consequently, some studies that have analysed quality of life data of this kind have used truncated regressions and censored least absolute deviations (CLAD) regressions (Clarke, Gray et al. 2002; Saarni, Härkänen et al. 2006). These were undertaken, however, they did not affect the results appreciably.

Likewise, the possibility of omitted variables was investigated by analysing other specifications that included interaction terms between the staff mix variables. These additional regressions led to problems with interpretation probably caused by using so many cluster-based independent variables in the face of so few clusters. The RESET tests also indicated that misspecification problems persist even the presence of these more complex specifications.

Whilst the presence of clustering was taken into account in the analysis, it should be noted that the small number of clusters will limit our ability to detect any associations that are present. This is exacerbated by the limited variability seen between the clusters in terms of skill mix (Table 15).

Interpretation of the results is also limited by the fact that we do not know the number of visits and type of therapy/care provided at the visits. So, for example, we do not know whether the improved outcomes associated with support staff is due to the type of input ('x' rather than 'y') or more frequent input ('more of x').

This study has identified a relationship between staffing and outcomes, however ht is important to note that this was an observational study, and as such, no causal inferences can be made. Whilst the associations and explanations offered here are plausible, these relationships are ideally tested within a controlled evaluation.

In conclusion, this study provides limited evidence of the role of skill mix on the costs and outcomes of intermediate care services. The work is based around an observational dataset and the use of skill mix variables at the service level, which together may limit our ability to identify possible relationships. A controlled study with clearly defined packages of inputs being provided to patients, would provide a clearer picture of how skill mix can impact on costs and outcome of intermediate care services. Until such work is done, services will continue to develop in a largely piecemeal way, with the consequences of this being largely hidden.

Table 16. Summary of findings

Outcome	Theme	Dependent variable	Association
Patient Outcome	Patient char.	Lower baseline EQ-5D scores associated with greater improvements in EQ-5D over the period of care	Positive (strong)
		Less independent patients have with greater gains in Barthel score	Positive (strong)
		Younger patients, greater functional gains measured by Barthel score	Positive (strong)
	Setting of care	Residential IC services are associated with greater improvements in EQ-5D scores	Positive (weak)
	Skill mix	Higher support staff to qualified staff ratios are associated with greater improvements in EQ-5D scores	Positive (weak)
		No significant associations between the number of different types of staff and total number of staff with patient functional gain	None
Service outcome	Length of care	Acute admission avoidance schemes are strongly associated with having shorter periods of intermediate care	Positive (strong)
		More elderly patients have shorter lengths of stay	Positive (weak)
		Length of stay not influenced by staffing parameters	None
	Costs	Residential services strongly associated with higher costs (size of these effects are small)	Higher costs
		Longer care duration strongly associated with higher costs	Higher costs
		Greater numbers of different types of staff were associated with lower costs	Lower costs
		The point at which cost per case begins to fall is around 12 WTE staff	

5 The relationship between staffing models, costs and patient outcomes: results from the prospective study

5.1 Introduction

This chapter reports on the prospective study component of the research, which involved the recruitment of twenty older peoples' community rehabilitation and intermediate care teams that collect detailed costs and outcomes data for patients and staff. In addition, the teams provided detailed contextual data using the Service Proforma (Nancarrow, Moran et al. 2009). We used these data to address the objectives below. Qualitative data were captured from the same teams and are presented separately in Chapter 6.

5.2 Objectives

- To describe the impact of a range of organisational and workforce variables (including team structures, management, setting, organisation, role overlap, specialisation and substitution) and their influence on the workforce within the context of older peoples' services.
- To examine the way that variations in workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) impact on patient, staff and service outcomes (including costs).
- To explore the impact of different service organisation and management approaches (team structures, setting of care, supervision and accountability) on patient, staff and service outcomes (including costs).
- To explore the relationship between organisational and management structures and workforce configuration.
- To describe the way that specialization, through the employment of extended scope practitioners, GPs with special interests and geriatricians, impacts on the team and service users.

5.3 Methodology

5.3.1 Recruitment of teams:

We aimed to recruit 20 older peoples' teams to participate in the prospective study. No formal sample size calculation was determined as there was not a primary outcome variable of focus, however based on the information provided in the service audit (Chapter 3) we anticipated that this would enable us to recruit approximately 2000 patients.

There is no national database of the types of services we aimed to recruit for this study, and at the time of recruitment, primary care trusts in England were undergoing major reorganisation, which impacted on the structures, organisation and host of the types of teams we were attempting to recruit. Thus, we drew on several sources to recruit teams;

- All teams that participated in the service audit (Chapter 3) were asked whether they would be interested in participating in the prospective study
- Local networks (e.g. intermediate care networks within London, Sutton and Merton and South Yorkshire)
- Personal communication and recommendation, for instance, through contacts by members of the project steering committee.

To ensure appropriate diversity of the range of older peoples' community rehabilitation and intermediate care services, we aimed to purposively include teams on the basis of diversity of skill mix of staff; host organisation; and team size.

5.3.2 Eligibility criteria

Older peoples' community based rehabilitation or intermediate care services, whose primary client base is people over the age of 65, and where the delivery of care is deemed to be transitional, that is, clients receive a package of care which aims to make them more independent.

5.3.3 Participants

The study participants included all of the staff involved in delivering services with the selected teams, and a consecutively recruited cohort of patients who were admitted into the service over a three month recruitment period.

5.3.4 Data collection

The responding teams were followed prospectively so that all new consecutive referrals for a three-month period were followed until discharge, or for a maximum period of 3 months. This enabled us to examine the outcomes for older people in relation to a range of different staffing configurations.

For each team we obtained data on workforce variables; the systems of service organisation and management; and the outcomes for staff, the service users and the service;

- Organisational context data was collected using the Service Proforma (Appendix 1). This was completed by the team leader or a senior team member.
- Staff level data were collected from each staff member using the Workforce Dynamic Questionnaire (Appendix 4).
- For each patient recruited into the study, staff members completed a "Client / service user record pack" which captured information about service use and change in patient health status (using the EQ-5D and TOMS) for the duration of the study (Appendix 5).

A number of different tools and approaches were required to access these data, which are summarised in Tables 17-21 under the headings of contextual data; sources of data for the prospective study; and outcome measures.

Table 17. Contextual data

Data collection tools	Description
The Service Proforma	The Service Proforma was developed through a systematic literature review (Nancarrow, Moran et al. 2009). It describes the 'inputs' that can have an impact on service delivery and outcomes, such as, setting of care, host organisation, and case mix of patients. (Appendix 1)
The Levels of Care	The Levels of Care tool is a matrix describing eight possible categories of patient need. It has been used in this study as one proxy for the severity of patient illness, and to help identify potential groups of patients based on their level of service requirement (Enderby and Stevenson 2000).

Table 18. Sources of data for the prospective study

Domain		Source of data
Workforce configuration	Skill mix	Service proforma
	Substitution, specialisation, delegation	WDQ, case study analysis
	Training	WDQ
	Role overlap	WDQ
Organisation and management	Team structures	Service proforma and focus group with team
	Setting of care	Service proforma
	Supervision / accountability	Service proforma, WDQ and focus group with team
Staff outcomes	Satisfaction	WDQ, focus groups with staff
	Autonomy	WDQ
	Recruitment and retention	Crude staff turnover and vacancy rates using service data
User outcomes	Patient and carer satisfaction	Validated patient and carer satisfaction survey
	Change in health status	TOMs measured at start and end of episode of care, EQ-5D
Service outcomes	Costs	Budget analysis; micro-costing studies using staff diaries
	Acceptability to users	Conjoint analysis (undertaken in a separate study)

Table 19. Outcome measures

	Outcome measures/ tools	Description
Service outcomes	Length of stay	Date of discharge - date of admission
	Discharge destination/outcome	Location where patient was discharged to which could be home, residential care, supported housing, acute hospital.
	Costs of service delivery	See description below
Patient outcomes	The Therapy Outcome Measure (TOMS)	The TOMs scale is a therapist-rated rehabilitation outcome measure. It contains four dimensions: Impairment (degree of severity of disorder); Activity (degree of limitation); Social participation; and Wellbeing (effect on emotion/level of distress), with each dimension scored on an 11-point ordinal scale (0 to 5, including half-points). Lower scores indicate higher levels of impairment. Operational definitions of these ratings are given in (Enderby, John et al. 2006).
	The EQ-5D	The EQ-5D, formerly know as the EuroQol, is a generic measure used primarily by economists to calculate quality adjusted life years (QALYs). It uses a single question to assess each of five health domains; mobility, self-care, usual activities, pain/discomfort and anxiety/depresssion. The EQ-5D has a complex scoring system, which ranges from 1 which indicates full health, through to -0.59 (Dolan 1997).
	Patient Satisfaction	The patient satisfaction instrument used for this study was developed and validated in the context of the National Evaluation of Intermediate Care (Wilson, Hewitt et al. 2006) (Appendix 6)

Staff outcomes	The Workforce Dynamics Questionnaire	The WDQ is a validated, 58 item, likert scale questionnaire, which is self-completed by staff members. It explores 11 domains: management; team working; training and skills development; access to support and equipment; autonomy; role perception; satisfaction, integration with team members; and role confidence. The WDQ also explores closeness of working and role overlap of the staff member to provide an 'interprofessional' score. It was developed and validated in the context of older peoples' services (Nancarrow, Moran et al. 2006).
	Staff turnover rates	Turnover rates(Chartered Institute of Personnel and Development 2004) (Total number of leavers per annum / Average total number employed over period x 100) and staff vacancy rates, calculated from data provided from each of the case study services

Table 20. Operational codes and descriptors for TOMs rating scale

Rating code	0.0 – 0.5	1.0 – 1.5	2.0 – 2.5	3.0 – 3.5	4.0 – 4.5	5
Description	Profound	Severe	Severe/ Moderate	Moderate	Mild	Normal

Reference: Enderby P, John A, Petherham B. (2006) Therapy outcome measures for rehabilitation professionals, Chichester, John Wiley and Sons Ltd

Table 21. Summary of questionnaire-based outcome measures

		Range of scores	
Measure	**Sub-scales**	**Worst**	**Best**
$EQ\text{-}5D_{vas}$	n/a	0	100
$EQ\text{-}5D_{index}$	n/a	-0.594	1.000
TOM	Impairment	0	5
	Activity	0	5
	Participation	0	5
	Wellbeing	0	5
Patient satisfaction questionnaire		0	100
	Affective	0	100
	Cognitive	0	100
	Coordination of discharge	0	100
	Timing of discharge		
	Pain	0	100
WDQ	Overall satisfaction	0	100
	Autonomy	0	100
	Role perception	0	100
	Role flexibility	0	100
	Integration	0	100
	Team working	0	100
	Management	0	100
	Access to technology and equipment	0	100
	Training and career progression	0	100
	Quality of care	0	100
	Intent to leave	0	100

5.4 Analysis

5.4.1 Outcome measures

The statistical analyses investigated the association between the following outcomes and the following characteristics:

Outcomes ("dependent variables")

Patient outcomes:

- Change from baseline in EQ-5D
- Change from baseline in TOMS (four domains: impairment, activity participation and wellbeing)
- Overall satisfaction with care

Service outcomes:

- Length of stay

Staff outcomes:

- Overall job satisfaction
- Intention to leave current employer
- Intention to leave profession

Characteristics ("independent variables")

Staff characteristics on WDQ:

- Age
- Gender
- Length of service
- Seniority: senior staff (defined as band 5-8) or non-senior staff (bands 1-4, social services grade or student)
- Speciality (Nurse, Social worker/social care worker, Occupational therapist, Physiotherapist, Support worker, Other)

5.4.2 General analysis strategy

Several patient, staff and team characteristics were investigated for their relationship to the above outcomes, which were determined a priori from the literature review, and / or to specifically address the research questions. This section of the results describes the statistical methodology employed to investigate whether (and if so, how) the outcomes and characteristics are related.

It was also expected that there would be differences between teams in terms of many of the outcomes, and that this may lead to spurious associations between outcomes and the characteristics. To investigate the impact of team, the following approach was adopted:

- The association between team and each outcome was modelled with team being treated as a fixed effect in an analysis of covariance (ANCOVA) model

- The association between the patient/team characteristics and each outcome was assessed by considering the team as a random effect in a generalised least squares (GLS) model.
- After selecting the most appropriate characteristics in 2), the model was re-fitted with these characteristics and the team identifier all included as fixed effects.
    - If the effect of team was still substantial, no overall model was fitted and instead we look within teams,
    - If team was found to have minimal effect, the model stability was assessed removing data from each team in turn and then re-fitting the model. Firstly, data from team A was removed and the model re-fitted, followed by teams B, C and so on. For each model, the results were compared back to the model derived on all teams, and any discrepancies investigated.

In assessing staff outcomes, associations were sought between the outcome and all team characteristics. For patients and service outcomes, associations were sought between the outcome and all team, patient and staff characteristics. The latter was defined as the average score for each domain within the team.

Although ideally the model would look to include covariates irrespective of statistical significance, the number of team characteristics was limited to statistically significant terms since the number of teams with evaluable data was relatively low.

A two sided statistical significance level of 5% was used for all comparisons. No adjustments were made for multiplicity. The results are expressed as coefficients (the degree of change in outcome per unit change in predictor variables) with their corresponding confidence intervals. Analyses are performed at the level of the individual patient, staff members and services (according to the questions), and account for possible intra-class correlations associated with the cluster effect of the specific services (Donner and Klar 2000). The analyses were carried out in the Stata statistical package (version 10).

5.4.3 Economic analysis

The preceding analysis describes the characteristics of the teams, their patients and how they interact to influence outcomes and satisfaction, however another important issue is their impact on costs. Different skills mixes have different resource requirements, and potentially different costs. When making decisions about which skills package should be provided to patients, due consideration needs to be given to their relative cost-effectiveness in order that can attempt to maximise health gains using the available resources.

We reported earlier what the existing literature had to say on this issue, and then undertook further analysis of the Birmingham dataset to identify possible relationships between skills mix, costs and outcomes. In this

Chapter, we report the analysis within the project that was designed to investigate these issues in much greater detail.

The purpose of this work was to:

- Examine the impact of substitution and specialization on the costs and outcomes for services and service users.
- Measure the impact of workforce cohesion on the costs and outcomes for services and users.

In general terms, these questions were addressed using micro-costing methods within each case study. Such studies calculate costs at the individual patient level using detailed information on the resources used and resource specific unit costs. These costs were then the focus of multivariate analysis, which sought to explain variation in terms of skills mix characteristics and workforce cohesion. The analysis of the patient and staff outcomes is reported elsewhere in the report, however, an examination of cost-effectiveness is included within this chapter.

Costs

The costing studies used the NHS and Social Service perspective which is recommended by the National Institute for Clinical Excellence for its technology appraisals (National Institute for Clinical Excellence 2004). Resource use was collected by staff-completed case report forms (CRFs) for all new referrals entering the service during a one month period, and then followed-up until discharge. The CRFs identified all contacts with health and social care professionals, the job title of the professional, the length of the contact, and whether it was face-to-face or otherwise.

The total number of minutes by professional was calculated for each patient and then combined with unit costs to derive a cost for each patient. The unit costs for each type of professional (2006/7 prices) are given in Appendix 7 (Curtis 2007). Costs were not discounted as all patients were discharged within one year of referral to intermediate care.

Costs were limited to staff-related costs, with service based overheads excluded from the analysis. Consequently, the care setting does not influence the costs reported here; a 30 minute nurse contact in a residential home has the same cost as a 30 minute nurse contact at a patient's home. Likewise, the same unit costs are used for all teams. A critical overview of the unit costs and the costing methods are given in the discussion.

Outcomes

The EQ-5D was completed at initial assessment and discharge for all patients. EQ-5D scores were then calculated using the United Kingdom tariff based on time-trade-off values (Dolan 1997). These data were then combined with the length of time between initial assessment and discharge to produce quality adjusted life-years (QALYs), and QALY change relative to baseline.

Analysis

The initial analysis is descriptive in nature. Mean resource use, costs and QALYs per patient are reported for each team. No hypothesis testing is undertaken for these analyses.

Following this, multivariate analyses are undertaken to examine the relationship between skills mix and costs. Two sets of analyses are undertaken, using cost and the natural log of cost, as the data are heavily skewed. In such circumstances we would anticipate the regressions on log transformed data to be better specified.

Within these multivariate analyses, skill mix is characterised in terms of the proportion of staff that have a professional qualification, and the number of different professions involved in the care of the patient. These two explanatory variables attempt to capture notions of substitution and specialisation. Within these analyses, patient characteristics are also taken into consideration. For all explanatory variables other than gender, squared variables were also entered into the equations as non-linear relationships were considered likely with many variables.

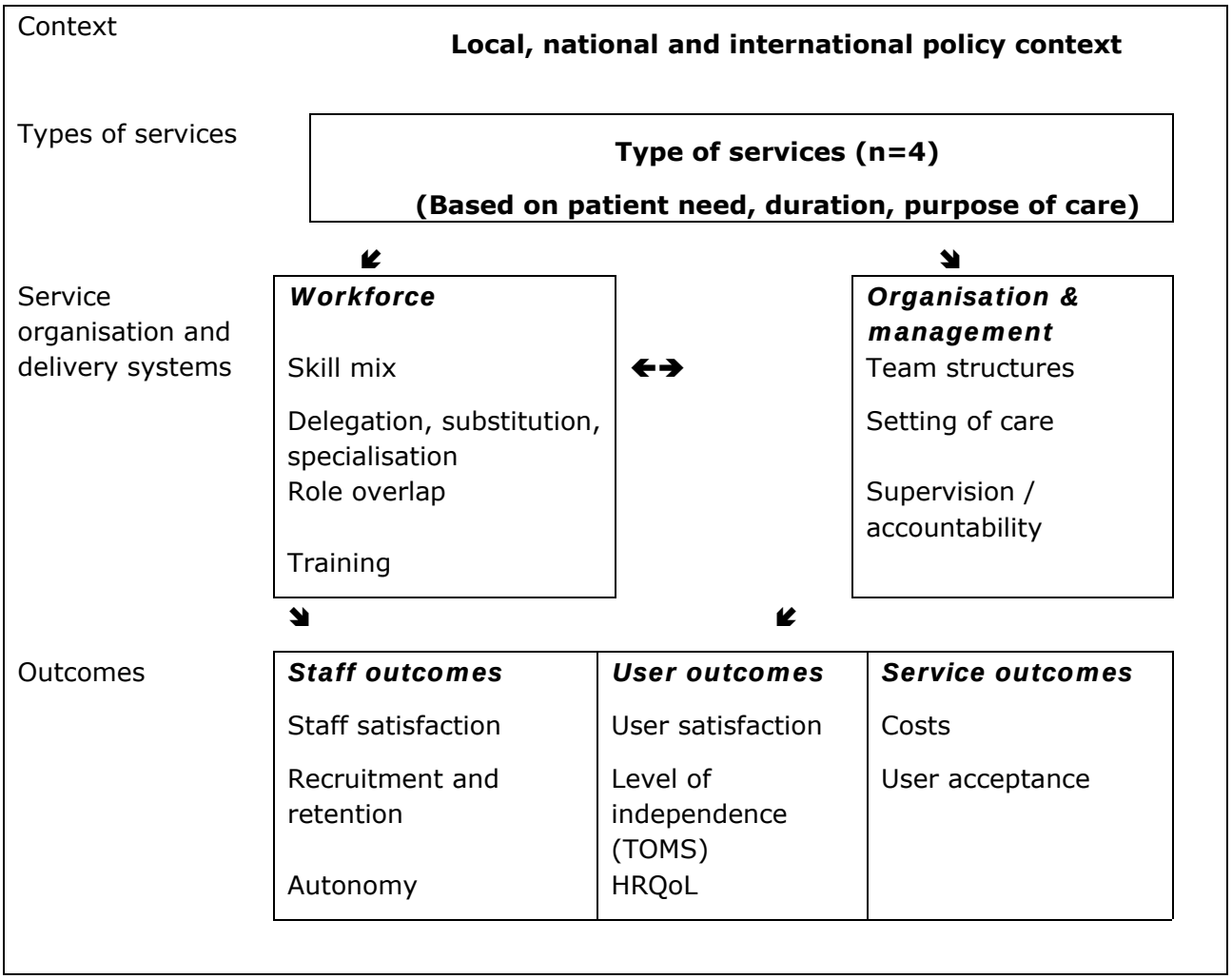
Whilst the preceding analysis examines costs and outcomes separately, cost-effectiveness involves the simultaneous examination of costs and outcomes. A separate set of analyses are undertaken to look at this issue. Firstly, mean costs and QALYs gained are plotted for each team on the cost-effectiveness plane. This highlights which teams are the most cost-effective. Secondly, the correlation of skills-mix variables with average cost-effectiveness ratios are estimated; a multivariate analysis is not possible at the team level as only 20 observations are available.

Finally, the simple multivariate analyses examining skills mix, costs and outcomes, are extended to include the impact of workforce cohesion on the costs and outcomes for services and users. The additional explanatory variables chosen *a priori* for this, based on our expectations of what could plausibly be related to costs of care, were autonomy, integration, quality and team working. These were measured by the mean team scores on these domains, and were treated as having fixed effects within the models.

For all regression analyses, the team characteristics are incorporated within the multivariate analysis using a random effects model in STATA.

Figure 4 illustrates the type of data, and relationship between the different variables that were gathered from each of the teams. These components are drawn from the review of the literature on community and older peoples' services.

Figure 4. The prospective data collection framework



5.5 Governance

The trial received multi-centre ethical approval (MREC approval no: 06/Q1606/132). Local research governance approval was obtained at each of the participating sites. Progress of the research was reviewed approximately annually by an external steering group. We did not form a separate, independent data monitoring group as this was not deemed necessary for a non-controlled trial, and no interim analyses were planned.

5.6 Results

5.6.1 Response rates and participating teams

We received expressions of interest from 27 teams to participate in the prospective study and delivered training and resources to all of these teams. However, not all of these teams actively undertook data collection. Table 22 summarises the teams whose data were included and excluded from each

analysis (full details available in Appendix 7). Six teams were excluded from all analyses as the only data received were staff WDQ responses, and no team or patient information was available. One team had no service proforma data and was therefore excluded from analyses since there was no data available to investigate the relationship between team characteristics and outcomes. A total of 19 teams were therefore included in the full multivariate analyses which sought to capture the relationship between team characteristics, staff characteristics, patient satisfaction and patient outcomes.

The overall response rates were as follows;

- Service proforma data was received from 19 teams
- Patient record packs were received for 1880 patients from 20 teams
- Patient satisfaction questionnaires from 618 patients in 20 teams
- Workforce Dynamics Questionnaires from 340 staff in 25 teams (however only 298 responses from 19 teams were used in the multivariate analyses).

Table 22 summarises the responses from each team for each component of the data collection.

Table 22. Number of team responses

Team	Completed Service proforma	Completed WDQs	Completed Patient Record Packs	Completed patient satisfaction surveys
A	Yes	43	313	127
B	Yes	23	85	19
C	Yes	8	18	6
D	No	10	53	30
E	Yes	10	69	33
F	Yes	9	52	17
G	Yes	15	173	62
H	No	2*	0	0
J	Yes	11	81	4
L	Yes	6	30	3
M	Yes	8	98	23
N	Yes	0	100	8
PA	Yes	5	21	9
PB	Yes	19	16	14
PC	No	0	0	0
Q	Yes	10	46	8
SA	Yes	18	73	29
SB	Yes	55	225	88
SD	No	3*	0	0
SF	No	3*	0	0
SG	Yes	19	82	38
T	Yes	7	56	21
TA	Yes	17	240	54
U	Yes	5	49	25
W	No	6*	0	0
X	No	6*	0	0
Z	No	7*	0	0
Total included	**19**	**298**	**1880**	**618**

*=not included in overall analyses.

5.6.2 The nature of the participating teams

The following section summarises the organisational, staffing and patient characteristics of the responding teams. The contextual data for each team was provided on the Service Proforma (Appendix 1) and is summarised in Tables 23-25 below.

Table 23. Organisational characteristics of participating teams

Team ID	Host	Rural / urban	Total staff	No. diff types staff	% qualified staff	Setting of care provision	Primary level of care need	Annual patient through-put
A	PCT	Mixed	51.1	13	65%	Home	5	1800
B	Social Services	Urban	16.6	9	78%	Home	5	310
C	PCT	Urban	17.28	8	74%	Home	4	398
E	PCT	Rural	8.73	8	59%	Home	2	320
F	Social Services	Mixed	24.9	11	9%	Resource Centre	4	183
G	PCT	Sub-urban	43	9	48%	Home	1	1650
J	Acute Trust	Urban	3.5	4	86%	A&E	7	777
L	PCT	Mixed	11	4	100%	Home	1	240
M	PCT	Urban	8.7	6	58%	Home	3	576
N	PCT	Urban	28.28	9	45%	Home	7	728
PA	PCT		18.5	10	53%	Home	4	400
PB	PCT	Mixed	33.71	5	65%	Community Hospital	4	166
Q	Social Services	Mixed	26.6	9	25%	Home	4	460
SA	PCT		27.22	8	76%	Home	8	365
SB	PCT	Sub-urban	60.9	11	63%	Home	5	2000
SG	PCT	Mixed	26.12	11	70%	Day centre	1	400

Source of data: Service proforma

Table 24. The sources of referral into the services (n=1920)

Referral sources into the service	N	%
Allied Health Professional	384	20
GP	330	17
Ward in acute hospital	323	17
Social worker	165	9
Community nurse	133	7
Accident & Emergency	135	7
Community Hospital	103	5
Patient recruited from ward by scheme staff	11	1
Doctor	26	1
Other ICT/ward	13	1
Self/informal carer/friend/family	22	1
Other	145	8
Missing	130	7
Total	1920	

Source: Patient record packs

Staff characteristics

Based on the 340 responses to the WDQ, staff were predominantly female (84%); slightly more than half of the respondents (55%) reported that they work full time; the mean hours of employment per week was 31; and the mean duration of employment of staff in their current team was 4 years (Appendix 8). The WDQ responses by team are included in Appendix 11.

Patient characteristics

Of the 1882 patients for whom we received patient record packs, 63% were female with an average age of 79.7 (Table 26). The level of dependence of the patients at admission was measured by the EQ-5D, TOMs and levels of care need. Dependency at admission, as measured by the EQ-5D and TOMs impairment scores show some differences between teams (Table 34). One quarter of all patients were identified as requiring a regular rehabilitation programme at admission to the service. A surprisingly large proportion (6%) were judged not to require any intervention (Table 27).

Table 25. Location of care provision (n=1920)

Location of care provision	n	%
Own home	1221	64
Intermediate care facility	116	6
Residential/nursing home	84	4
Accident and emergency	72	4
Sheltered housing	54	3
Relative's home	36	2
Day hospital	29	2
Community hospital	36	2
Acute hospital	14	1
Resource centre	27	1
Other	48	3
Missing	183	10
Total	1920	

Source: Patient record pack

Table 26. Summary of patient admission details of participating teams (from patient record pack)

Team ID	N	Mean age (SD)	Gender (% female)	EQ5D admiss'n	TOMs impairment admiss'n	TOMs activity admiss'n	TOMs particip'n admiss'n	TOMs wellbeing admiss'n
A	313	80.2 (9.4)	193 (65)	0.4 (0.3)	3.3 (0.9)	3.2 (1.0)	3.2 (1.0)	3.7 (1.0)
B	85	83.8 (6.9)	64 (75)	0.5 (0.3)	3.1 (0.8)	3.3 (0.9)	3.2 (0.9)	3.6 (1.1)
C	18	72.3 (7.6)	12 (67)	0.3 (0.3)	3.3 (0.8)	2.9 (1.0)	2.7 (1.0)	3.7 (1.0)
D	53	80.5 (12.0)	32 (62)	0.4 (0.3)	2.8 (0.7)	3.0 (0.8)	3.3 (1.0)	3.7 (0.8)
E	69	78.6 (11.8)	46 (69)	0.3 (0.3)	3.1 (0.7)	3.0 (1.0)	3.4 (1.0)	3.8 (0.9)
F	52	82.4 (7.5)	40 (77)	0.4 (0.3)	3.2 (0.7)	3.3 (0.8)	3.7 (1.1)	3.9 (1.1)
G	173	78.0 (10.8)	113 (65)	0.3 (0.4)	3.3 (0.9)	3.2 (1.0)	3.3 (1.0)	3.9 (0.8)
J	81	81.5 (6.8)	65 (81)	0.5 (0.3)	3.2 (0.9)	3.2 (1.1)	3.5 (1.2)	4.1 (1.0)
L	30	77.8 (8.3)	18 (64)	0.5 (0.3)	2.5 (1.2)	3.3 (0.7)	3.2 (1.2)	3.6 (0.8)
M	98	82.0 (9.1)	58 (60)	0.4 (0.4)	3.3 (1.0)	3.1 (1.1)	3.5 (1.2)	3.9 (1.1)
N	100	80.5 (10.7)	66 (66)	0.5 (0.3)	3.1 (1.1)	2.9 (1.3)	3.2 (1.2)	3.7 (1.1)
PA	21	70.0 (12.6)	7 (39)	0.4 (0.3)	3.6 (1.1)	3.9 (0.6)	3.8 (0.8)	4.3 (0.5)
PB	16	75.1 (12.0)	10 (71)	0.4(0.3)	3.3 (0.9)	2.9 (0.9)	2.8 (0.7)	3.0 (0.8)
Q	46	80.3 (10.6)	28 (68)	0.6 (0.3)	2.9 (0.8)	2.9 (0.7)	2.7 (1.0)	3.5 (0.8)
SA	73	71.3 (14.2)	29 (43)	0.5 (0.3)	3.4 (1.0)	3.0 (1.1)	2.9 (1.0)	3.4 (1.0)
SB	225	82.9 (9.6)	144 (66)	0.3 (0.4)	3.1 (0.9)	3.2 (1.0)	2.8 (1.1)	3.6 (1.1)
SG	82	80.3 (6.1)	38 (68)	0.5 (0.3)	3.1 (0.8)	3.4 (0.9)	3.4 (1.2)	3.9 (0.9)
T	56	80.2 (11.2)	37 (76)	0.3 (0.4)	2.9 (1.0)	2.6 (1.1)	2.9 (1.2)	3.5 (1.1)
TA	240	76.5 (14.1)	158 (67)	0.4 (0.3)	3.1 (0.9)	3.1 (1.0)	3.2 (1.2)	3.6 (1.2)
U	49	82.4 (12.1)	32 (67)	0.2 (0.4)	2.5 (1.0)	2.6 (0.9)	2.7 (1.0)	3.3 (1.2)
all teams	1880	79.7 (11.0)	1190 (66)	0.4 (0.3)	3.1 (0.9)	3.1 (1.0)	3.2 (1.1)	3.7 (1.0)

Table 27. Overall patient levels of care need at admission (n=1920)

Level of care need at admission	N	%
0 Client does not need any intervention	109	6
1 Client needs prevention/maintenance programme	248	13
2 Client need convalscence/respite	43	2
3 Client needs slow stream rehabilitation	315	16
4 Client needs regular rehabilitation programme	488	25
5 Client needs intensive rehabilitation	220	11
6 Client needs specific treatment for individual a	99	5
7 Client needs medical care and rehabilitation	83	4
8 Client needs rehabilitation for complex disablin	27	1
Missing	288	15
Total	1920	

Source: Patient record pack

5.6.3 Summary of outcomes for each team

The majority of the patients completed their episode of care on the intermediate care scheme (63%), and just over half the patients (58%) completed their episode of care at home. A small proportion (8%) were transferred to an acute hospital before completing their episode of care. Only 1% of participants died on the scheme (Tables 28). Team outcomes for all measures is detailed in Appendix 10.

Appendix 9 summarises the patient satisfaction scores for all teams. Overall, patient satisfaction was high with a mean score of 80.1. However, 'timing of discharge' scored 54.8, indicating an overall lack of satisfaction with this item. Similarly, access to pain relief scored 69.5, highlighting it as an area for potential improvement in older peoples' teams. This may be a reflection of the lack of available medical input to several teams.

Table 28. Outcome of care episode (overall) (n=1920)

Outcome of episode of care	N	%
Episode of care completed on scheme	1212	63
Transferred before end of episode of care	228	12
Patient/user died	25	1
Other outcome not covered	227	12
Missing	228	12
Total	1920	
Discharge destination		
Own home	1105	58
Relative's home	15	1
Temporary residential or nursing home care	15	1
Permanent residential or nursing home care	58	3
Transferred to acute hospital	156	8
Transferred to community hospital	21	1
Transferred to other intermediate care setting	29	2
Patient/user died	25	1
Other discharge place	19	1
Transferred to another setting	22	1
Other outcome not covered above	227	12
Missing	228	12
Total	1920	

Source: Patient record pack

5.6.4 The relationship between staffing models and patient outcomes (TOMs, EQ-5D, Patient satisfaction)

We explored the relationship between a range of patient, team and organisational characteristics and patient outcomes. The patient outcomes investigated were the changes in EQ-5D and TOMs (impairment, activity, participation and wellbeing) scores, and patient satisfaction.

The variables investigated were derived from the findings of the literature, as well as building on the findings from the secondary analysis of existing data (Chapter 4)

Additional covariates for patient outcomes

In these analyses, the staff characteristics derived from the WDQ were included as potential predictors of outcome. For each team, the following were derived from staff who responded to the WDQ questionnaire:

- Average age of the staff
- Average length of service
- Proportion of senior staff (grade 5-8)
- Average score on each WDQ domain

The following patient baseline characteristics were also evaluated:

- Age
- Gender
- Where the patient is receiving care (home, in-patient, other)

The following post-baseline characteristics were also investigated for their association with the outcomes:

- Total number of face-to-face contacts with staff
- Total time spent by staff
- Proportion of time
- Total number of different staff disciplines seen
- Intensity of treatment, defined in two ways:
- Total time spent

As the above are "on-treatment" measures, we decided to model and interpret these separately.

Finally, the EQ-5D at admission was used as a covariate in all analyses of change in EQ-5D, the TOMS impairment at admission was a covariate in all analyses of change in TOMS-impairment, and so on.

Patient outcomes – EQ-5D, TOMS

On univariate analyses, several characteristics were consistently found to associate with change in EQ-5D and TOMS:

Team characteristics: total size of team (larger improvements in larger teams), and the ratio of skilled to (skilled + support) staff in the team (larger improvements in teams with a smaller proportion of skilled workers)

Team characteristics from WDQ: the proportion of senior staff in the team (larger improvements with a lower proportion of qualified staff)

Patient characteristics at admission: level of care need at admission (not a straightforward relationship: on average, larger improvements were seen in patients around the centre of the 9-point scale), location where the patient receives care (non-home based)

Patient characteristics post-baseline: total length of time spent, number of face-to-face contacts with staff, number of different staff types seen, and the percentage of face-to-face contacts that were with skilled staff

Two further characteristics were associated with some of the outcomes, although at a lesser level. Female patients showed greater change in TOMS score for wellbeing, participation and impairment than their male counterparts. More curiously, larger (and marginally statistically significant) changes in TOMS participation and impairment were seen in teams where the average intention to leave the profession was higher. We speculate this is an artefactual relationship, perhaps related to the size of the team: intention to leave the profession was strongly associated with the size of the team (rho=0.46, $p<0.0001$) and, since the change in all TOMS domains was higher in larger teams, it is reasonable to ascribe the association to this factor.

For the multivariate modelling, we therefore included all patient characteristics (age, gender, level of care need at admission and the baseline value of the outcome being analysed), but limited the team characteristics to the total number of staff and the ratio of qualified/qualified + support staff (derived from the patient record pack data which are specific to each patient).

Change from baseline in EQ-5D

On multivariate analysis, several factors were found to be associated with EQ-5D (Table 29). The most obvious factor was the EQ-5D at admission (lower baseline scores being associated with greater improvement), but the care need at admission was also important with the greatest improvements being in those patients in the "middle" categories. Teams with a greater number of staff and/or a lower proportion of qualified staff also had greater increases.

Table 29. Factors associated with EQ-5D change

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
EQ-5D at admission	-0.509	-0.557	-0.460	<0.001
Team characteristics				
Total number of staff	0.001	0.000	0.003	0.005
Ratio of qualified / qualified+support	-0.002	-0.003	0.000	0.006
Employee characteristics				
Proportion of senior staff in team	-0.011	-0.109	0.088	0.828
Patient characteristics				
Level of care at admission				0.007*
Level 1 v level 0	-0.067	-0.162	0.027	
Level 2 v level 0	0.015	-0.117	0.146	
Level 3 v level 0	-0.009	-0.101	0.083	
Level 4 v level 0	0.029	-0.061	0.120	
Level 5 v level 0	0.011	-0.084	0.106	
Level 6 v level 0	-0.045	-0.153	0.063	
Level 7 v level 0	-0.004	-0.120	0.112	
Level 8 v level 0	-0.158	-0.317	0.001	
Age (per additional 10 years)	-0.004	-0.019	0.011	0.633
Gender: females v males	-0.003	-0.037	0.030	0.845
Where receiving care				0.134*
In-care v home care	0.034	-0.014	0.082	
Other v home care	0.103	-0.021	0.227	
Constant	0.532	0.217	0.849	0.001

*global test

Despite this, there remained substantial differences across the teams even after the above factors have been fitted (overall test p=0.0004). Teams L, SA and U in particular had greater improvements in EQ-5D than the model was able to predict, whilst the improvements were in teams C,PA,Q and SG were smaller than anticipated by the model.

Of the post-baseline covariates, only the proportion of face to face contacts spent with qualified staff was significantly associated with change in EQ-5D. The EQ-5D change was greater in patients who had seen a greater proportion of support staff: when added to the above model, the coefficient (95% CI; p-value) for the proportion of support staff was = 0.064 (0.007 to 0.121; p=0.026).

Change from baseline in TOMS impairment

The model fitted for change in EQ-5D was also fitted for each TOMS domain, with the only exception being TOMS domain at admission (Table 30).

An increased change in TOMS impairment was associated with a worse TOMS impairment at admission, larger teams, and a greater proportion of support workers in each team. There was also a greater improvement seen in females and in patients with levels of care need in the middle of the 9-point scale. The improvement was also marginally statistically significantly associated with a lower proportion of senior staff in the team.

Table 30. Factors associated with change in TOMS impairment

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
TOMS impairment at admission	-0.246	-0.298	-0.194	<0.001
Team characteristics				
Total number of staff	0.006	0.002	0.009	0.001
Ratio of qualified / qualified+support	-0.005	-0.008	-0.001	0.006
Employee characteristics				
Proportion of senior staff in team	-0.282	-0.601	0.036	0.083
Patient characteristics				
Level of care at admission				0.002*
Level 1 v level 0	-0.015	-0.244	0.213	
Level 2 v level 0	0.074	-0.276	0.424	
Level 3 v level 0	0.152	-0.073	0.376	
Level 4 v level 0	0.275	0.056	0.495	
Level 5 v level 0	0.321	0.082	0.561	
Level 6 v level 0	0.012	-0.265	0.289	
Level 7 v level 0	0.082	-0.215	0.379	
Level 8 v level 0	-0.142	-0.568	0.284	
Age (per additional 10 years)	-0.027	-0.069	0.014	0.199
Gender: females v males	0.118	0.023	0.213	0.015
Where receiving care				0.564*
In-care v home care	0.076	-0.063	0.214	
Other v home care	0.034	-0.337	0.405	
Constant	1.759	0.871	2.647	<0.001

*global test

After having fitted this model, there were still significant differences between teams (p=0.019), with a particularly poor fit in teams C and PA, both of who provided lower impairment change scores than the model is able to predict.

With regards to the post-baseline covariates, the change in TOMS impairment was significantly associated with the patient seeing a greater proportion of support staff, a greater total time, and fewer different types of staff. When added to the above model, the coefficients (95% CI; p-values) were: proportion of support staff: 0.164 (0.001 to 0.330; p=0.052), total time spent (log scale): 0.159 (0.100 to 0.219; p<0.001), number of practitioners seen: -0.071 (-0.117 to -0.025; p=0.002).

Change from baseline in TOMS activity

An increased change in TOMS activity was associated with a worse TOMS activity at admission, larger teams, and a greater proportion of support workers in each team, and a lower proportion of senior staff in the team. There was also a greater improvement seen in younger patients and in patients with levels of care need in the middle of the 9-point scale (Table 31).

Table 31. Factors associated with change in TOMS activity

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
TOMS activity at admission	-0.198	-0.248	-0.149	<0.001
Team characteristics				
Total number of staff	0.004	0.001	0.007	0.009
Ratio of qualified / qualified+support	-0.005	-0.008	-0.002	0.003
Employee characteristics				
Proportion of senior staff in team	-0.298	-0.591	-0.005	0.046
Patient characteristics				
Level of care at admission				<0.001*
Level 1 v level 0	0.069	-0.166	0.304	
Level 2 v level 0	0.293	-0.068	0.653	
Level 3 v level 0	0.267	0.036	0.497	
Level 4 v level 0	0.380	0.156	0.604	
Level 5 v level 0	0.435	0.191	0.679	
Level 6 v level 0	0.168	-0.108	0.445	
Level 7 v level 0	0.207	-0.095	0.509	
Level 8 v level 0	0.091	-0.346	0.529	
Age (per additional 10 years)	-0.052	-0.095	-0.008	0.019
Gender: females v males	0.047	-0.051	0.145	0.347
Where receiving care				0.889*
In-care v home care	0.034	-0.103	0.170	
Other v home care	0.009	-0.372	0.390	
Constant	1.833	0.924	2.742	<0.001

*global test

Again however, the residual difference between teams was substantial, with the model being unable to explain much of the between-team difference ($p<0.0001$). In particular, the change in TOMS activity was overestimated in teams Q and PA.

With regards to the post-baseline covariates, the change in TOMS activity was significantly associated with the patient seeing a greater proportion of support staff, a greater total time, and fewer different types of staff. When added to the above model, the coefficients (95% CI; p-values) were: total time spent (log scale): 0.175 (0.114 to 0.237; $p<0.001$), number of practitioners seen: -0.065 (-0.113 to -0.017; $p=0.005$).

Change from baseline in TOMS participation

An increased change in TOMS participation was associated with a worse TOMS participation at admission, larger teams, and (less strongly) with a higher proportion of support staff in the team (Table 32). There was also a greater improvement seen in younger patients and in patients with levels of care need in the middle of the 9-point scale.

The model was again unable to fit all teams ($p<0.0001$), with the change in TOMS participation in team F in particular being underestimated.

Of the post-baseline covariates, a significant association was found only with the total time spent. When added to the above model (again on a log scale), the coefficient (95% CI; p-value) was 0.117 (0.070 to 0.164; $p<0.001$)

Change from baseline in TOMS wellbeing

An increased change in TOMS wellbeing was associated with a worse TOMS wellbeing at admission and in patients with levels of care need in the middle of the 9-point scale (Table 33).

The model was again unable to fit all teams ($p<0.0001$), with the change in TOMS participation in teams F and G being the most underestimated and team PA being notably overestimated.

Of the post-baseline covariates, a significant association was found only with the total time spent. When added to the above model (again on a log scale), the coefficient (95% CI; p-value) was 0.084 (0.039 to 0.123; $p<0.001$)

Overall patient satisfaction

Few factors were found to be associated with overall satisfaction, including the team (Table 34). When the above multivariate model was fitted, only size of team appeared significantly associated with increased patient overall satisfaction (coefficient = 0.08, 95% CI 0.03 to 0.14;$p=0.004$). In clinical terms, an increase of 10 team staff was associated with an increase of 0.8% in average patient satisfaction.

Table 32. Factors associated with change in TOMS participation

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
TOMS participation at admission	-0.204	-0.250	-0.159	<0.001
Team characteristics				
Total number of staff	0.004	0.001	0.007	0.003
Ratio of qualified / qualified+support	-0.003	-0.006	0.001	0.109
Employee characteristics				
Proportion of senior staff in team	-0.046	-0.347	0.256	0.767
Patient characteristics				
Level of care at admission				<0.001*
Level 1 v level 0	0.021	-0.222	0.263	
Level 2 v level 0	0.320	-0.050	0.691	
Level 3 v level 0	0.214	-0.023	0.451	
Level 4 v level 0	0.319	0.088	0.549	
Level 5 v level 0	0.346	0.096	0.596	
Level 6 v level 0	0.055	-0.228	0.339	
Level 7 v level 0	-0.047	-0.356	0.261	
Level 8 v level 0	0.009	-0.441	0.459	
Age (per additional 10 years)	-0.046	-0.090	-0.002	0.042
Gender: females v males	0.059	-0.042	0.160	0.253
Where receiving care				0.671*
In-care v home care	0.062	-0.079	0.203	
Other v home care	-0.021	-0.414	0.372	
Constant	1.210	0.696	1.723	<0.001

*global test

Table 33. Factors associated with change in TOMS wellbeing

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
TOMS wellbeing at admission	-0.250	-0.294	-0.207	<0.001
Team characteristics				
Total number of staff	0.005	-0.003	0.014	0.183
Ratio of qualified / qualified+support	0.000	-0.007	0.007	0.991
Employee characteristics				
Proportion of senior staff in team	-0.357	-0.978	0.264	0.260
Patient characteristics				
Level of care at admission				0.001*
Level 1 v level 0	-0.067	-0.296	0.162	
Level 2 v level 0	0.059	-0.290	0.408	
Level 3 v level 0	0.081	-0.144	0.306	
Level 4 v level 0	0.140	-0.080	0.361	
Level 5 v level 0	0.176	-0.064	0.416	
Level 6 v level 0	-0.017	-0.292	0.259	
Level 7 v level 0	-0.047	-0.349	0.256	
Level 8 v level 0	-0.440	-0.865	-0.016	
Age (per additional 10 years)	-0.0176	-0.060	0.025	0.415
Gender: females v males	0.079	-0.016	0.174	0.103
Where receiving care				0.128*
In-care v home care	0.102	-0.060	0.264	
Other v home care	0.336	-0.037	0.708	
Constant	1.226	0.558	1.894	<0.001

*global test

Table 34. Factors associated with overall patient satisfaction

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Team characteristics				
Total number of staff	0.08	0.03	0.14	0.004
Ratio of qualified / qualified+support	-0.05	-0.12	0.02	0.144
Employee characteristics				
Proportion of senior staff in team	1.48	-4.31	7.27	0.616
Patient characteristics				
Level of care at admission				0.168*
Level 1 v level 0	1.19	-6.55	8.92	
Level 2 v level 0	4.24	-4.97	13.44	
Level 3 v level 0	1.78	-5.85	9.41	
Level 4 v level 0	2.14	-5.33	9.62	
Level 5 v level 0	3.56	-4.03	11.15	
Level 6 v level 0	7.62	-0.73	15.97	
Level 7 v level 0	5.41	-3.05	13.86	
Level 8 v level 0	0.97	-11.34	13.28	
Age (per additional 10 years)	-0.38	-1.30	0.52	0.404
Gender: females v males	-0.61	-2.50	1.28	0.526
Where receiving care				0.173*
In-care v home care	2.48	-0.19	5.15	
Other v home care	-0.89	-8.42	6.63	
Constant	79.464	68.19	90.74	<0.001

*global test

Further modelling revealed no significant association between overall satisfaction and any of baseline EQ-5D, baseline TOMS, total time spent, number of face-to-face contacts, number of different staff types seen, or the proportion of qualified staff seen.

5.6.5 Staff outcomes

The overall results of the Workforce Dynamics Questionnaire for staff from the twenty teams are presented in Table 35. Appendices 11 and 12 presents the results broken down by team and profession.

Training and career progression opportunities, uncertainty and overall satisfaction scored relatively low overall. Occupational therapists and physiotherapists were the least satisfied groups in this cohort, and also reported the lowest scores on training and career development opportunities. Dieticians and physiotherapists reported the highest autonomy scores of 83.3 and 74.9 respectively, whereas support workers and administrative staff had the lowest autonomy scores, both around 27. The professional group least likely to report an intention to leave their profession was speech and language therapists (95.6). Those with the lowest score on this domain was 'others' (61.1), which includes a range of roles, including discharge liaison practitioners.

There was substantial variation in scores between teams on some domains. Team satisfaction scores ranged from 53.9 (Team SB) to 77.8 (Team T). However, 'intention to leave employer' scores were even more divided, ranging from 62.2 (Team X) to 91.4 (Team D). Access to technology and equipment varied from poor (43.1: Team H) to excellent (90.7: Team W). Team working scores ranged from 57. 6 (Team PA) to 89.7 (Teams E & TA), whilst 'management structures and styles' varied from 44.3 (Team D) to 94.6 (Team Z). Overall, quality of care was rated highly across all teams, with all team scores above 70.

Table 35. Overall WDQ descriptive results all teams

WDQ domain	N	Min	Max	Mean (SD)
Access to technology and equipment	325	5.6	100	74.7 (20.8)
Autonomy	327	0.0	100	56.5 (26.1)
Integration with peers and colleagues	313	11.1	100	78.1 (22.7)
Management structures and styles	325	2.2	100	81.0 (21.9)
Quality of care	323	11.1	100	89.5 (12.7)
Role flexibility	318	9.3	100	78.9 (14.5)
Role perception	326	23.5	100	71.0 (14.3)
Team working	325	11.1	100	80.1 (14.9)
Training and career progression opportunities	324	8.3	100	56.3 (20.2)
Uncertainty	316	0.0	100	52.7 (20.3)
Overall satisfaction	319	0.0	100	66.4 (20.2)
Intention to leave (employer)	313	0.0	100	73.8 (32.8)
Intention to leave (profession)	308	0.0	100	83.0 (27.6)
Valid N	291			

Table 36 illustrates the breakdown of mean face to face versus administrative time for each professional group. It is interesting to note that, with the exception of case managers, the staff most commonly involved in the delivery of older peoples' services (support workers, nurses, physiotherapists, occupational therapists, social workers and social care practitioners) all spend between 25 and 24% of their time on administration (not including travel time). This is particularly evident in the social care / social worker and occupational therapy groups who spend a high proportion of their time liaising with other organisations or attempting to access packages of care or equipment.

Table 37 illustrates the proportion of time that qualified staff spend with the patient according to the patient level of care need. Not surprisingly, the group 'client does not need any intervention' has the highest proportion of qualified staff time. Given the short time these patients have in contact with the service,

it indicates that the qualified staff are likely to be assessing and making referrals. The proportion of qualified staff time with the patient decreases almost linearly to level 4 care need, then increases quite dramatically for level 6 need. In the higher levels of care need (6 – 8), the higher proportion of qualified staff is likely to reflect the more specific, or intensive health or medical needs for those patients.

Table 36. Proportion of practitioner time spent in face to face contact versus administration

Practitioner type	Proportion of total time spent in face to face contact	Proportion of total time spent doing administration
Psychologist	0.89	0.11
Dr (other than consultant or GP)	0.88	0.12
Case Manager	0.86	0.14
Discharge liaison professional (OT or nurse)	0.82	0.18
Geriatrician/Consultant	0.77	0.23
Support Worker	0.74	0.26
Dietitian	0.65	0.35
Nurse	0.63	0.37
Other	0.63	0.37
Physiotherapist	0.61	0.39
Podiatrist	0.60	0.40
General Practitioner	0.60	0.40
Speech & Language Therapist	0.59	0.41
Occupational Therapist	0.58	0.42
Social Worker	0.57	0.43
Social care practitioner	0.55	0.45
Mental Health Nurse / CPN	0.55	0.45
Manager, team leader	0.42	0.58
Pharmacist	0.34	0.66
Administrative Personnel	0.00	1.00

Table 37. Proportion of time spent with qualified staff by level of care

Level of Care Need	Proportion of total time spent with qualified staff	Proportion of total time spent with support staff
0 Client does not need any intervention	0.80	0.20
1 Client needs prevention/maintenance programme	0.65	0.35
2 Client needs convalescence/respite	0.64	0.36
3 Client needs slow stream rehabilitation	0.57	0.43
4 Client needs regular rehabilitation programme	0.52	0.48
5 Client needs intensive rehabilitation	0.63	0.37
6 Client needs specific treatment for individual acute disability	0.65	0.35
7 Client needs medical care and rehabilitation	0.40	0.60
8 Client needs rehabilitation for complex disabling condition	0.52	0.48

5.6.6 Impact of staffing models on staff outcomes (Staff satisfaction and staff intention to leave profession / employer)

Univariate analysis

Higher staff satisfaction had a statistically significant association with the following characteristics (Table 38).

Table 38. Factors associated with WDQ scores for staff satisfaction (univariate analysis)

	Coefficient	p-value	Lower 95% CI	Upper 95% CI
Team				
Overall test for association	-	0.002		
Team characteristics				
Fewer total number of staff	-0.21	0.004	-0.35	-0.07
Greater meeting frequency (weekly v less frequent)	6.79	0.021	1.04	12.54
Case meeting frequency (ad-hoc v weekly)	5.43	0.069	-0.42	11.28
Management: Specific TM v Split	8.26	0.001	3.17	13.36
Management: Other v Split	5.21	0.194	-2.65	13.08
Employee characteristics				
No significant associations				
Employee WDQ responses				
Integration	0.24	<0.001	0.14	0.34
Team working	0.63	<0.001	0.49	0.76
Management structures & styles	0.43	<0.001	0.32	0.59
Training & career progression opportunities	0.53		0.43	0.63

		<0.001		
Quality of care	0.62	<0.001	0.45	0.79

On univariate analysis, most of the WDQ responses were associated with satisfaction. The initial multivariate model building did not include WDQ response, since it is difficult to distinguish the effects of team/employee characteristics and the WDQ data; the latter could be considered a response, rather than a predictor, in this context. We firstly construct a model using team and staff characteristics, and will return later to WDQ responses.

Final statistical model for WDQ overall satisfaction - excluding WDQ variables

The multivariate model below (Table 39) has fitted all team characteristics that were found significant on univariate analysis, together with staff characteristics.

Table 39. Factors associated with WDQ scores for staff satisfaction (multivariate analysis)

	Coefficient	p-value	Lower 95% CI	Upper 95% CI
Management: Specific team manager v Split	6.82	0.03	0.83	12.81
Management: Other v Split	3.94	0.35	-4.29	12.17
Total number of staff	-0.20	0.003	-0.34	-0.07
Case meeting frequency				
(ad-hoc v weekly)	2.87	0.31	-2.69	8.44
Age (years)	0.12	0.38	-0.14	0.37
Gender (male v female)	-0.79	0.52	-3.24	1.65
Length of service (per month, on log scale)	-0.86	0.46	-3.15	1.43
Senior staff				
(band 5-8 v band 1-4/student/social services)	-8.53	0.16	-20.42	3.36
Speciality:				
Social worker/social care worker v nurse	-5.34	0.44	-19.03	8.35
Speciality: Occupational therapist v nurse	-3.65	0.62	-18.15	10.84
Speciality: Physiotherapist v nurse	3.80	0.77	-21.62	29.22

Speciality: Support worker v nurse	-0.31	0.98	-28.17	27.55
Speciality: Other v nurse	3.82	0.69	-15.11	22.76
(Constant)	77.49	<0.001	56.56	98.42

No statistically significant differences were found among teams after the above model was fitted (p=0.65) and was retained only as a random effect. No other team characteristic was found to be statistically significant when added to this model.

The factors showing a statistically significant association with overall staff satisfaction were therefore found to be management structure and team size. Teams with a specific team manager and a lower total numbers were associated with an increased staff satisfaction. The results were however influenced on the largest team (SB, 60.9 FTE staff) which, when excluded from the modelling, showed a lower and non-significant association (-0.17 reduction per additional staff member, p=0.13).

As stated earlier the WDQ responses were also associated with satisfaction. This was investigated further by tabulating the two-way associations between these responses and team characteristics (Tables 40 - 41) . As can be seen below, larger team size was negatively associated with team working, management structures and styles, training/career progression and quality of care. Staff from teams with split management also showed a decrease (albeit less conclusively) in these measures. These findings are consistent with the theory that smaller teams and specific team management affect staff performance which, in turn, affects staff satisfaction. It is, however, beyond the scope of this modelling to attempt to determine whether this theoretical pathway is correct.

Table 40. Associations: case conferencing and management structures with WDQ scores

	No. of teams	No. of respondents	Mean	SD	p-value
Associations with case conferencing					
Integration v case conferencing					
Weekly	9	133	78.0	23.9	0.810
Other	8	130	77.3	21.7	
Team working v case conferencing					
Weekly	9	136	77.9	17	0.076
Other	8	131	81.2	13.3	
Management (WDQ) v case conferencing					
Weekly	9	136	78.9	23.2	<0.001
Other	8	131	87.4	12.6	
Training/career progression v case conferencing					
Weekly	9	136	53.5	20.9	0.020
Other	8	130	59.2	18.3	
Quality of care v case conferencing					
Weekly	9	136	86.6	14.7	<0.001
Other	8	129	92.8	9.4	
Autonomy v case conferencing					
Weekly	9	136	60.3	23.5	0.026
Other	8	132	53.5	26.2	
Associations with management structure					
Integration v Management structure					
Split management	8	152	78.5	22.5	0.930

Specific team manager	7	100	77.4	23.6	
Other	3	29	77.8	22.6	
Team working v Management structure					
Split management	8	154	78.5	15.6	0.229
Specific team manager	7	101	81.2	13.4	
Other	3	30	82.5	18.4	
Management (WDQ) v Management structure					
Split management	8	154	79.2	21.8	0.068
Specific team manager	7	101	83.6	20.3	
Other	3	30	87.5	14.7	
Training/career progression v Management structure					
Split management	8	153	55.1	20.2	0.470
Specific team manager	7	101	57.9	19.2	
Other	3	30	54	18.8	
Quality of care v Management structure					
Split management	8	153	88.2	14.2	0.072
Specific team manager	7	100	91.8	10.2	
Other	3	30	91.1	8.2	
Autonomy v Management structure					
Split management	8	154	57.8	25	0.888
Specific team manager	7	102	57.7	26.5	
Other	3	30	55.4	21.4	

Table 41. Association: team size and WDQ scores

Associations with team size	No. respondents	Rho	p-value
Integration v team size	281	0.03	0.601
Team working v team size	285	-0.18	0.002
Management (WDQ) v team size	285	-0.31	<0.001
Training/career progression v team size	284	-0.14	0.019
Quality of care v team size	283	-0.12	0.041
Autonomy v team size	286	0.04	0.469

Intent to leave employer

Univariate analysis

Low staff intention to leave employer had a statistically significant association with the following characteristics (Table 42).

Table 42. Factors associated with intent to leave employer (univariate analysis)

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Team				
Overall test for association	-			0.40
Team characteristics				
Fewer total number of staff	-0.24	-0.44	-0.04	0.02
Employee characteristics				
No significant associations				
Employee WDQ responses				
Integration	0.36	0.19	0.52	<0.001
Team working	0.86	0.63	1.09	<0.001
Management structures & styles	0.37	0.19	0.54	<0.001
Training & career progression opportunities	0.71	0.54	0.89	<0.001
Quality of care	0.51	0.21	0.81	<0.001

Following the same approach as with overall staff satisfaction, we found the following model to be the best fit (Table 43):

Table 43. Factors associated with intention to leave employer (multivariate analysis)

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Total number of staff	-0.25	-0.48	-0.02	0.03
Age (years)	0.38	-0.06	0.81	0.09
Gender (male v female)	0.21	-15.18	15.60	0.98
Length of service (per month, on log scale)	-2.55	-6.29	1.20	0.18
Senior staff (band 5-8 v band 1-4/student/social services)	-18.09	-37.20	1.03	0.06
Speciality:				0.10*
Social worker/social care worker v nurse	-8.00	-30.93	14.93	
Occupational therapist v nurse	0.09	-13.57	13.75	
Physiotherapist v nurse	2.23	-10.73	15.18	
Support worker v nurse	-23.16	-45.02	-1.30	
Other v nurse	7.14	-9.99	24.27	
(Constant)	94.11	64.08	124.15	<0.001

*global test

Team was not associated with intention to leave (p=0.83). Intention to leave the post was higher in larger teams, whilst a non-significant relationship was seen between intent to leave and three further factors: seniority (senior staff hold higher intention to leave, p=0.06); age (older staff hold higher intention to leave, p=0.09) and speciality (intent to leave is highest in social workers/social care workers, support workers and other staff (global p-value=0.10). The association between team and intent to leave did not appear unduly influenced when teams were removed.

As noted previously, the four WDQ responses (team working, management, training and quality of care) were associated both intention to leave and also with total number of patients, which is consistent with the theory that smaller

teams and specific team management affect staff performance which, in turn, affects staff satisfaction.

Intent to leave profession

Univariate analysis

Low staff intention to leave profession had a statistically significant association with the following characteristics (Table 44).

Table 44. Factors associated with intent to leave profession (univariate analysis)

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Team				
Overall test for association	-			0.89
Team characteristics				
No significant associations				
Employee characteristics				
Senior staff				
(band 5-8 v band 1-4/student/social services)	10.70	3.54	17.87	<0.001
Speciality:				0.002*
Social worker/social care worker v nurse	-6.67	-20.78	7.44	
Occupational therapist v nurse	-0.82	-11.57	9.92	
Physiotherapist v nurse	-4.88	-15.16	5.40	
Support worker v nurse	-18.44	-28.02	-8.86	
Other v nurse	-3.81	-16.44	8.81	
Employee WDQ responses				
Integration	0.19	0.05	0.33	0.01

Team working	0.36	0.15	0.58	<0.001
Training & career progression opportunities	0.35	0.19	0.52	<0.001
Autonomy	0.21	0.08	0.34	0.002

*global test

Following the same approach as with overall staff satisfaction, we found the following model to be the best fit (Table 45):

Table 45. Factors associated with intent to leave profession (multivariate analysis)

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Age (years)	0.04	-0.34	0.42	0.83
Gender (male v female)	-11.31	-24.90	2.28	0.10
Length of service (per month, on log scale)	-0.84	-4.10	2.42	0.61
Senior staff				
(band 5-8 v band 1-4/student/social services)	-11.91	-28.34	4.53	0.16
Speciality:				0.03*
Social worker/social care worker v nurse	-14.22	-33.79	5.35	
Occupational therapist v nurse	-0.72	-12.52	11.09	
Physiotherapist v nurse	-2.36	-13.58	8.86	
Support worker v nurse	-30.32	-49.18	-11.47	
Other v nurse	-3.23	-17.91	11.46	
(Constant)	102.91	78.74	127.08	<0.001

*global test

Team was not associated with intention to leave the profession (p=0.59). The only apparent relationship was with speciality, where social workers/social care

workers and support workers had the highest inclination to do so. There were no clear associations evident between speciality and WDQ response (Appendix 12).

5.6.7 The impact of staffing models on service outcomes (length of stay)

The overall length of stay was defined as the number of days spent under care between admission and discharge, or more precisely as (Discharge date – admission date + 1). Where the admission date was not recorded it was estimated from the first patient contact data records or the date on which baseline EQ-5D was completed, whichever was earlier. Likewise, where date discharge of discharge was missing it was imputed from the last patient contact, the date of EQ-5D completion at study end, or the date of death. The duration of stay was analysed on the log scale.

On univariate analysis, length of stay was shorter in patients with higher need for care at admission (although not linearly), in patients who received no home care and in younger patients (Table 46). Of the team and WDQ characteristics, only access to technical equipment showed a statistically significant relationship with length of stay, with better access being associated with shorter stay.

Below we fitted the multivariate model which incorporates the patient characteristics and the access to technical equipment. The patient age was found to be non-linear and was modelled as a quadratic term; however, the asymptote was above 100, indicating older age was associated with prolonged care for all age ranges in the study.

Table 46. Factors associated with Length of Stay

	Coefficient	Lower 95% CI	Upper 95% CI	p-value
Employee characteristics				
Mean score for access to technical equipment	-0.04	-0.06	-0.01	0.006
Patient characteristics				
Level of care at admission				
Level 1 v level 0	1.66	1.40	1.91	
Level 2 v level 0	1.98	1.59	2.36	
Level 3 v level 0	2.07	1.82	2.32	
Level 4 v level 0	2.40	2.16	2.65	
Level 5 v level 0	2.34	2.07	2.61	
Level 6 v level 0	1.64	1.33	1.95	
Level 7 v level 0	1.69	1.37	2.02	
Level 8 v level 0	1.86	1.38	2.35	
Age				0.002*
Linear	0.04	0.00	0.07	
Quadratic	0.00	0.00	0.00	
Gender: females v males	0.07	-0.04	0.19	0.23
Where receiving care				0.001*
In-care v home care	-0.36	-0.55	-0.16	
Other v home care	-0.22	-0.66	0.21	
Constant	3.05	0.71	5.39	0.011

*global test

Length of stay is, by definition, linked closely to many of the post-baseline measures and so no formal modelling was done to investigate this.

The model was not able to distinguish between teams; even after the above model terms are fitted, there are substantial differences across teams ($p<0.0001$). Duration of stay was consistently longer in teams B, PA and SG than indicated by the model, and was overestimated in teams SB and TA.

5.6.8 The impact of staffing on service outcomes (costs)

Data were available for 1913 patients, with very little missing data relating to resource use (e.g. 3.9% for length of stay), but with higher rates for QALYs gained (30.9%).

Resource use

Twenty teams were included, with only six providing data on less than 50 patients, and four providing data on more than 100 patients (Table 47). Resource use was highly variable between teams and within in teams. Mean number of face-to-face contacts ranged from 3 to 65 across teams, total contact time from 145 mins (2.4 hours) to 5814 mins (96.9 hours), and length of stay from 1 day to 141 days. Standard deviations were generally around the same value as the means, however, the data were highly skew.

When these statistics are repeated by level of care on admission, clear patterns are evident (Table 58). For levels of care 0 to 5, the number of face-to-face contacts, total contact time and total cost all monotonically increase with increasing care needs. For levels of care 6-9, again there is monotonically increasing amount of resource and cost devoted to patients, however, the 'discontinuity' between levels of care 5 and 6 suggest that lower and upper levels may represent qualitatively different sets of patients. It is also interesting to note that the QALYs gained by patients in each group also show this general pattern.

Table 47. Summary of resource use for each team

Team	Number of observations	Number of face to face contacts	Total contact time, mins	Length of episode, days	Staff costs, £s	QALYs gained
	Max-Min across all variables	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
A	303-218	16 (17)	1055 (1059)	20 (18)	369 (337)	0.010 (0.023)
B	85-57	11 (15)	951 (1085)	69 (54)	374 (415)	0.032 (0.071)
C	18-15	16 (15)	1990 (1935)	141 (53)	811 (789)	0.023 (0.153)
D	53-51	17 (19)	876 (801)	53 (36)	274 (232)	0.019 (0.055)
E	68-57	11 (12)	658 (688)	34 (32)	214 (221)	0.014 (0.032)
F	52-41	37 (36)	1610 (1745)	33 (23)	434 (415)	0.036 (0.048)
G	169-118	8 (7)	560 (418)	32 (23)	201 (149)	0.020 (0.031)
J	81-68	3 (2)	145 (64)	1 (7)	53 (25)	0.000 (0.001)
L	30-27	6 (4)	412 (341)	47 (27)	199 (161)	0.008 (0.024)
M	98-73	11 (8)	556 (403)	40 (32)	191 (135)	0.022 (0.045)
N	99-68	4 (7)	225 (347)	10 (23)	76 (106)	0.001 (0.015)
PA	21-11	12 (15)	1089 (1338)	90 (49)	360 (364)	0.026 (0.154)
PB	16-14	65 (28)	5814 (2512)	23 (12)	2246 (917)	0.016 (0.013)
Q	44-35	60 (46)	3878 (2546)	47 (31)	1011 (604)	0.020 (0.047)
SA	71-42	26 (22)	2027 (1870)	61 (43)	720 (662)	0.029 (0.046)
SB	223-143	9 (9)	747 (727)	22 (19)	258 (221)	0.020 (0.036)
SG	82-39	14 (14)	725 (592)	72 (41)	294 (232)	0.001 (0.054)
T	56-42	37 (64)	2662 (4141)	22 (20)	775 (1040)	0.018 (0.030)
TA	240-161	9 (15)	532 (734)	32 (31)	175 (217)	0.017 (0.035)
U	49-41	11 (15)	735 (963)	9 (12)	254 (292)	0.008 (0.017)

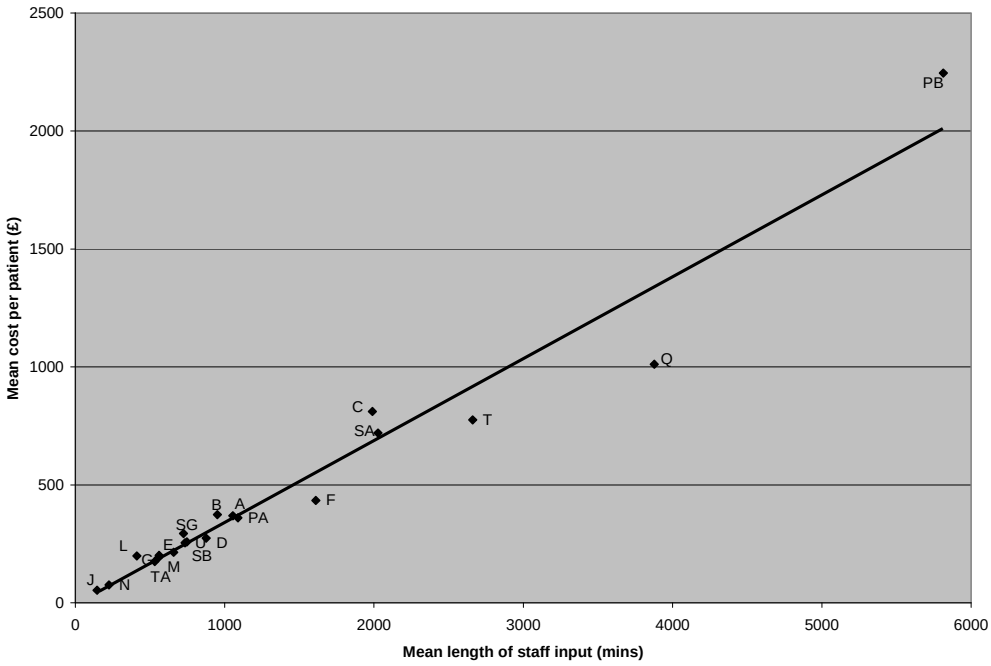
Table 48. Summary of resource use by level of care on admission

Level of Care	Number of observations	Number of face to face contacts	Total contact time, mins	Length of episode, days	Staff costs, £s	QALYs gained
	Max-Min across all variable	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Does not need any intervention	105-87	2 (2)	172 (241)	5 (17)	66 (96)	0.001 (0.005)
Prevention/maintenance programme	248-180	8 (11)	571 (785)	28 (35)	205 (245)	0.002 (0.046)
Convalescence/respite	43-31	9 (10)	652 (768)	27 (28)	235 (265)	0.019 (0.035)
Slow stream rehabilitation	312-229	13 (17)	847 (1063)	38 (36)	280 (293)	0.015 (0.038)
Regular rehabilitation programme	487-366	22 (28)	1383 (1814)	41 (30)	457 (553)	0.023 (0.041)
Intensive rehabilitation	220-162	25 (23)	1623 (1528)	50 (44)	557 (522)	0.034 (0.061)
Specific treatment for individual acute disability	99-69	8 (10)	602 (726)	29 (32)	225 (247)	0.012 (0.031)
Medical care and rehabilitation	83-54	19 (35)	1452 (2644)	22 (26)	465 (689)	0.016 (0.031)
Rehabilitation for complex disabling condition	27-20	20 (29)	1586 (1807)	51 (48)	525 (514)	0.022 (0.074)

Cost and skill mix

Staff time was combined with unit costs to produce a cost per patient, and these show the same degree of variability. By assessing the relationship between staff input and cost, we can identify those services that have relatively more expensive (or less expensive) staff skills mix. Figure 5 shows the mean data for each team, with those teams below the line displaying lower mean costs than expected from the level of staff input (most notably F,T and Q), and those teams above the line showing higher mean costs than expected (most notably C and PB).

Figure 5. Relationship between staff input and cost



When considering the regressions on untransformed cost, six variables have statistically significant relationships (Table 49). However, the analysis on log-transformed cost appears better specified with more significant variables and a higher R-squared. Additionally, many of the relationships are non-linear (as evidenced by the significant squared terms).

In the regression on log-transformed cost, age is positively associated with cost with each added year increasing cost by 3%; although there is a negative coefficient on the squared term, the size of the coefficient means that this will have very little effect. There is a large positive coefficient on the number of different types of practitioner and a negative coefficient on the squared term,

which indicates an 'n-shaped' relationship with respect to costs and which is statistically significant.

Table 49. Regression of patient characteristics and staff input on costs

Independent variable	Dependent variable	
	Cost	ln(cost)
	Parameter	Parameter
Gender (female)	1.749	-0.018
Age	5.385	0.027*
Age squared	-0.047	-0.000*
Baseline EQ5D	73.682	0.114
Baseline EQ5D squared	-70.736	-0.114
No. practitioners[#]	85.475*	0.887***
No. practitioners squared	12.187**	-0.062***
Proportion skilled[##]	-1081.269***	-1.569***
Proportion skilled squared	777.497***	1.236***
Total number of staff in team	10.149***	0.032***
Total number of staff squared	-0.167***	-0.000***
TOMS impairment score	-67.577	-0.012
TOMS activity score	-59.229	0.150
TOMS participation score	-10.522	0.143
TOMS wellbeing score	58.904	0.097
TOMS impairment score squared	7.907	-0.013
TOMS activity score squared	3.605	-0.026
TOMS participation score squared	-5.444	-0.044*
TOMS wellbeing score squared	-10.610	-0.016
Constant	372.125	2.353***
n	1189	1189
R-squared: within	0.197	0.379
between	0.727	0.784
overall	0.349	0.534

Key:

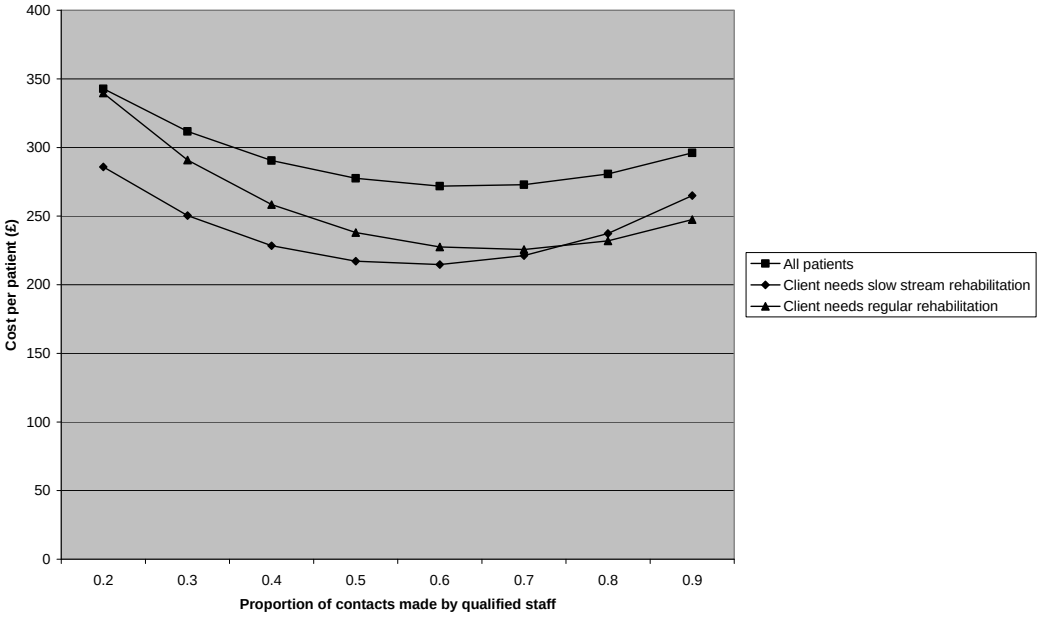
[#] Number of different types of practitioner involved in patients' care

[##] Number of skilled staff / skilled staff + support staff

* 0.01<p<0.05 ** 0.001<p<0.01 *** p<0.001

The impact of skill-mix, as described by the proportion of visits that are skilled staff, is also significant. However, the negative coefficient on the un-squared term, in combination with the positive coefficient on the squared term, indicates a 'u-shaped' relationship. This is mapped out in Figure 6 which shows that mean cost per patient is minimised when around 63% of contacts are from skilled staff. The inclusion of team size reflects the importance of returns to scale within economics. The coefficients on these two variables indicate that increasing size at first increases the mean cost per patient, and then reduces it beyond a certain size.

Figure 6. Effect of skills mix on cost per patient



Note: Cost based logarithmic equation reported in Table 49, and a patient with the following characteristics: female, aged 70, baseline EQ5D=0.6, visited by 3 types of different practitioner, with a team size of 10 and all baseline TOMS of 2.

Patient dependencies, as assessed by the TOMS scores, do not appear to have consistent effect in the log-transformed regression (Table 49). Furthermore, only with TOMs participation does this relationship appear statistically significant.

These regressions are repeated for each patient group as described by their level of care on admission (Table 50). No statistically significant relationships are consistently seen across all groups, however, this may be an artefact of the different sample sizes available; in fact, models could not be specified for two levels of care due to insufficient patient numbers. For the four largest groups (levels 1, 3, 4 and 5), it can be seen that the signs on the statistically significant variables are the same, although the size of coefficients appear different. This indicates subtly different relationships between patient groups, as shown by the relationship between skill mix and cost per patient for levels of care 3 and 4 in Figure 6.

Table 50. Regression of patient characteristics and staff input on log transformed costs by level of care

Independent variable	Level of care						
	0	1	3	4	5	6	7
	n=45	n=165	n=233	n=391	n=190	n=61	n=55
Gender (female)	0.0246	0.088	-0.085	0.012	-0.111	0.114	-0.388
Age	0.044	0.030	0.090	-0.034	0.083**	0.099	-0.063
Age squared	-0.000	-0.000	-0.001	0.000	-0.001**	-0.001	0.001
Baseline EQ5D	-0.454	-0.300	-0.079	-0.369	0.526	0.056	0.142
Baseline EQ5D squared	-0.239	0.016	0.738	0.214	-0.081	0.078	-0.982
No. practitioners [#]	-0.152	0.950 ***	0.934***	0.578***	0.878***	0.280	0.493
No. practitioners squared	0.214	-0.067 **	-0.078**	-0.023	-0.076**	0.011	-0.009
Proportion skilled[##]	-0.341	-0.761	-2.332**	-2.465***	-1.434	1.269	-1.829
Proportion skilled staff squared	0.528	0.911	2.022**	1.830***	1.235	-1.221	1.327
Total no. staff in team	-0.005	0.019	0.016	0.038***	0.074***	-0.018	0.057
Total no. staff squared	0.000	-0.000	-0.000	-0.001***	-0.001***	0.000	-0.001
TOMS impairment	-0.542	0.178	0.360	-0.547	0.103	-0.109	-0.942

score							
TOMS activity	0.729	-0.246	-0.220	0.218	-0.494	-0.032	1.583*
TOMS participation	0.049	0.104	0.450	0.121	0.304	0.009	0.281
TOMS wellbeing	-0.300	-0.011	-0.057	0.038	0.213	-1.470*	-0.277
TOMS impairment squared	0.061	-0.038	-0.070	0.074	-0.010	0.013	0.151
TOMS activity squared	-0.096	0.056	0.040	-0.034	0.060	-0.001	-0.230
TOMS participation squared	0.020	-0.044	-0.087	-0.039	-0.076	-0.019	-0.082
TOMS wellbeing squared	0.010	-0.001	0.006	0.003	-0.041	0.186	0.077
Constant	2.756	1.828	-0.565	6.246***	0.483	4.337	5.189
R-squared overall	0.777	0.627	0.465	0.482	0.502	0.618	0.689

0= Client does not need any intervention

1= Client needs prevention/maintenance programme

3= Client needs slow stream rehabilitation

4= Client needs regular rehabilitation programme

5= Client needs intensive rehabilitation

6= Client needs specific treatment for individual acute disability

7= Client needs medical care and rehabilitation

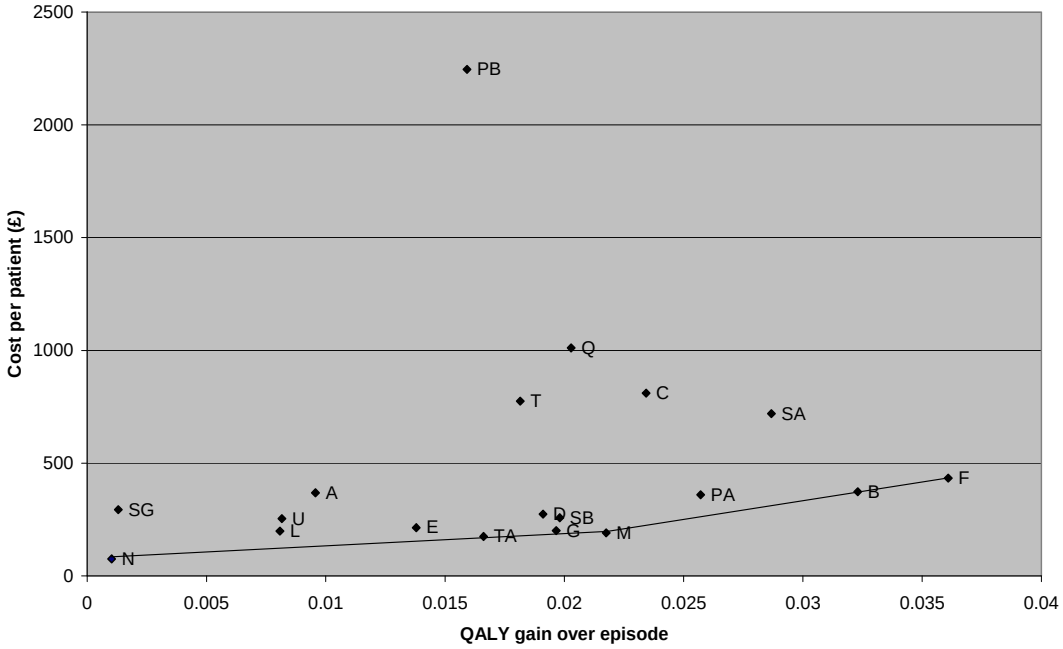
Cost-effectiveness and skill mix

Cost-effectiveness can not be assessed on an individual basis as the concept is based on means for definable population groups. Therefore any exploration of cost-effectiveness is limited as it is necessarily based around the 20 teams (and hence, can only be based on 20 observations). Plotting team means on the

cost-effectiveness plane show that three teams define an 'efficient frontier', or in other words, are cost-effective relative to the others; these are N, M and F (Figure 7). However, there is a set of other teams that are close to this frontier; SG, U, A, L, E, TA, D, G, SB, PA and B. (The probability by which these differ from those on the frontier could be calculated as each point effectively represents the centre of a probability distribution, however, this was not considered necessary for these descriptive purposes). Another set of teams appears less cost effective (T, C, Q and SA), whilst PB is the least cost-effective.

A simple explanatory analysis was undertaken using correlations with team cost-effectiveness. When the two skills-mix variables are considered, only weak correlations are observed; r=0.08 between average cost-effective ratios and the proportion of staff that are skilled, and r=-0.05 between average cost-effective ratios and the number of different professions involved in care.

Figure 7. Cost effectiveness of the different teams



Note: Data points represent mean cost and mean QALY gain for each of the teams. The slope of an imaginary ray drawn from the origin to the data point equates to cost divided by QALY gain and represents the average cost-effectiveness ratio.

The slope between points equates to incremental cost divided by incremental QALY gain and represents the incremental cost-effectiveness ratio. The three team linked by the two lines are

relatively more cost-effective than the others.

Cost, skill mix and team cohesion

When the four measures of team cohesion are entered into the equations originally reported in Table 49, they show evidence of relationships with cost per patient (Table 51). When regressed on log-transformed cost, integration is negatively related to cost (with a 1 point increase in the mean scores of a team being associated with a 1.0% reduction in cost per case). There is weak evidence of a positive relationship with respect to quality (p=0.055), with a 1 point increase in mean team scores being associated with a 1.8% increase in costs.

Summary and interpretation

The regressions reported in Tables 49 and 51 show clear relationships between staffing variables and cost; these are present for both skills mix and team cohesion. Of all the other variables, only patient age and participation (as measured by the TOMS) are statistically significant.

The staffing variables show that costs are positively related to the number of professions involved in the care of a patient, although this is at a decreasing rate as the number of professions increase (as shown in Figure 8). The size of this effect is very large, with an extra practitioner increasing the cost per patient by around £150 (using the covariate values selected for Figure 8). Whilst there may be plausible explanations in terms of team working, such as increased specialisation/intensity of care associated with more professions, or perhaps more comprehensive care associated with multi-disciplinary teams, we must be aware of the limitations of this form of analysis. For example, higher costs are associated with a greater number of visits, and a greater number of visits associated with more different types of practitioner; therefore, we may be partly describing costs in terms of a proxy for resource use (and hence the very strong relationship).

Table 51. Regression of patient characteristics, staff input and cohesion on costs

	Dependent variable (n=1167)	
	Cost	ln(cost)
	Parameter	Parameter
Gender (female)	2.992	-0.023
Age	4.678	0.026*
Age squared	-0.038	-0.000
Baseline EQ5D	66.074	0.085
Baseline EQ5D squared	-80.716	-0.096
No. practitioners[#]	73.289*	0.862***
No. practitioners squared	12.365*	-0.063***
Proportion skilled[##]	-1208.869***	-1.470***
Proportion skilled squared	851.141***	1.127***
Total number of staff in team	12.411***	0.037***
Total number of staff squared	-0.195***	-0.001***
TOMS impairment score	-51.269	0.023
TOMS activity score	-70.172	0.138
TOMS participation score	-29.693	0.146
TOMS wellbeing score	57.368	0.097
TOMS impairment score squared	4.362	-0.020
TOMS activity score squared	6.355	-0.023
TOMS participation score squared	-2.043	-0.045*
TOMS wellbeing score squared	-10.516	-0.015
Team autonomy	7.312**	0.000
Team integration	-3.086	-0.009**
Team quality	16.099**	0.018
Team working	-2.947	-0.002
Constant	-941.285	1.553

R-squared: within	0.203	0.379
between	0.725	0.797
overall	0.363	0.540

Key:

Number of different types of practitioner involved in patient's care

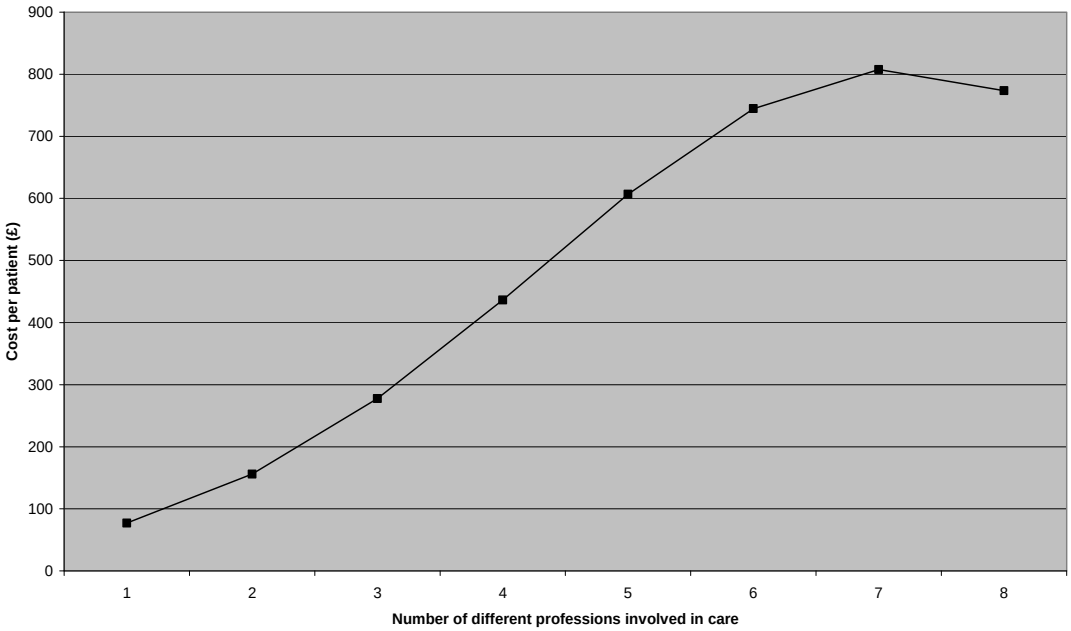
##

* 0.01<p<0.05

** 0.001<p<0.01

*** p<0.001

Figure 8. Effect of number of professions on cost per patient across all teams



Note: Cost based logarithmic equation reported in Table 49, and a patient with the following characteristics: female, aged 70, baseline EQ5D=0.6, 50% of face-to-face contacts with skilled staff, with a team size of 10 and all baseline TOMS of 2.

The relationship between proportion of skilled staff and costs is perhaps, less problematic as there are no clear confounding variables. One possible explanation for this 'u-shaped' curve is that increasing amounts of skilled staff up to a certain point can substitute for greater amounts of unskilled staff, but beyond a certain point this substitution is less efficient (Figure 6. However, the differences between patient groups (Table 50) are difficult to describe with any great confidence due to the small sample sizes seen with some levels of care.

The other notable relationship seen in Tables 49 and 51 is that involving size of team. Again, interpretation of this needs some care, partly because this is not the expected shape of curve, but also because not all service costs are included in the analysis. Part of the reason we expect to see a pattern in costs in relation to size are the savings generate through sharing overheads across more staff (so-called 'economies of scale), however, this is not possible within the analysis presented here as costs are restricted to those relating to staff.

The statistically significant relationships between the team integration and cost per patient show the importance of working relationships in service provision. There is also weak evidence of a positive relationship between quality and cost per case. However, it should also be noted that the causality could be in the opposite direction, with better resourced services allowing staff to develop their roles such that they deliver a higher service quality. It should also be noted that different team cohesion variables are statistically significant within the regression on untransformed cost. Whilst this specification is not considered the best for the analysis of highly skew data, these differences highlight some uncertainty around these relationships.

5.7 Discussion

The 19 teams included in the analyses were diverse in terms of their host organisations (PCT, acute trusts, social services), urban or rural location, size (staff and patient throughput), and staffing models. It is difficult to determine whether these teams are truly reflective of the wider population of older peoples' community and intermediate care services, however they reflect a broad spectrum of team characteristics.

This chapter has reinforced the diversity of team structures and organisation found in the service audit reported in Chapter 3; however as was found in the cross-sectional study, the majority of teams provide care in the patients' own home. The most common levels of patient care need at admission were levels 4,3,1 and 5 respectively. This is in contrast to the service audit, where the most frequently addressed level of care need was level 5, however the cross sectional study reported team level perceptions, whereas this study is based on individual patient requirements, which is likely to be a more accurate reflection of true needs.

This chapter has explored the relationship between several patient, staffing (team), and organisational characteristics on outcomes for patients, staff and services. The results have been presented above under the respective outcomes headings. Below, the key variables are described under the headings of patient, staff and team characteristics (Tables 52-54), and their impact described.

Table 52. Relationship between patient characteristics and outcomes

Patient characteristics	Relationship to outcomes
Patient age:	Younger patients have a greater potential for improvement on the TOMs domains of impairment, activity and participation. Older patients are more expensive to treat (a 1 year increase in age increases costs by 3%), and tend to require a longer duration of care.
Gender:	Females showed a greater improvement in TOMs wellbeing, impairment and participation scores.
Level of care need at admission:	Total costs increased as level of care need increased on LoC 0 – 5. The higher level of care groupings were associated with a shorter length of stay. In general, greater improvements in patient outcomes (EQ-5D and TOMs) were seen in the LoC groups 2 – 5.
TOMs scores at admission:	A lower TOMs score at admission was associated with a greater potential for improvement across all TOMs domains. A lower level of dependency on the TOMs participation score at admission (ie less dependent patients) was associated with lower service costs.
EQ-5D scores at admission:	A lower EQ-5D score on admission was associated with a greater potential for improvement.

Table 53. Individual staff characteristics

Staff characteristics	Relationship to outcomes
Age:	Younger staff have less intention to leave their employer than older staff.
Specialism:	Social workers, social care workers and support workers were more likely to report an intention to leave their employer and their profession in the next 12 months.
Intention to leave profession (WDQ):	Teams where staff reported a higher intention to leave their profession also had a greater increase in TOMs participation scores (although this is possibly an artefact of team size).
Autonomy (WDQ):	Staff with higher autonomy scores were less likely to report an intention to leave their profession.
Training and development opportunities (WDQ):	Better training and development opportunities are associated with greater staff satisfaction and a lower intent to leave the employer or the profession.

Table 54. Team level characteristics

Team level characteristics	Relationship to outcomes
Proportion of skilled staff:	Having care delivered by a higher proportion of support staff is associated with greater improvements in patient outcomes as measured by the EQ-5D and TOMS impairment, activity and participation scores. However, it is more expensive to utilise a higher proportion of support staff. From a cost perspective, the costs of care delivery are minimised when approximately 60% of care is provided by 'skilled' staff.
Number of different types of practitioners:	Patients who see fewer different types of practitioners show greater improvements in TOMs impairment and activity scores. The costs associated with increasing the numbers of different types of staff increases at a decreasing rate with each additional staff member.
Total no of staff in team:	A smaller team size is associated with greater staff satisfaction and a lower intention to leave the employer. However, a larger team is weakly associated with better patient satisfaction (an increase in 10 staff is associated with a 0.8% increase in patient satisfaction). Larger team size is also associated with

	improvements in the EQ-5D and the TOMs participation and activity scales.
Frequency of team meetings:	Weekly team meetings (as opposed to less frequent meetings) is associated with greater staff satisfaction.
Specific (vs split) management:	Staff with a specific team manager are more satisfied than staff in teams with split management styles.
Quality of care delivered (WDQ):	Teams in which staff perceive that they deliver higher quality of care have higher staff satisfaction and lower intention to leave.
Team working score (WDQ):	Better team working scores were associated with higher staff satisfaction and lower intention to leave the employer and profession.
Team integration score (WDQ):	Better (higher) staff integration scores were associated with greater staff satisfaction and lower intention to leave the employer and profession. Higher integration scores were also associated with a slightly, but statistically significant lower cost of service delivery.
Access to technology and equipment (WDQ):	Better access to technology and equipment was associated with a reduced length of stay.
Team management score (WDQ):	Higher WDQ management scores were associated with greater staff satisfaction and lower intention to leave the employer and the profession.

Surprisingly, the organisational characteristics, including variables such as the host organisation, the numbers and types of different service settings, were not associated with any of the outcomes investigated in this study. This may be due to the overall small sample size of 19 teams (that completed the service proforma), which makes meaningful comparisons of organisational characteristics difficult.

Patient characteristics

We found that some patient variables were associated with outcomes. Overall, younger, female patients with greater levels of dependency at admission to the service have the greatest potential to improve. Patients with more intensive levels of care need at admission to the service (eg, those requiring medical input) are more likely to have a shorter stay in the service. Additionally, the age of the patients was found to be positively associated with increased costs of service delivery. These results are in direct contrast to the Birmingham,

Leicester National Evaluation of Intermediate Care (Barton, Bryan et al. 2005) services which found that neither age nor gender were good predictors of service costs.

Individual staff characteristics

Individual staffing characteristics were found to impact primarily on staff level outcomes (satisfaction, intention to leave employer, intention to leave profession). However the role and relationship between these factors is complex.

Overall, younger, lower grade staff were less likely to report that they intend to leave their employer in the next 12 months than higher grade staff. However support workers, social workers and social care workers, were more likely to report an intention to leave their profession and their employer in the next twelve months. These staff were also the least autonomous of all of the clinical staff surveyed.

More autonomous staff were less likely to report wanting to leave their profession, but higher staff autonomy within teams was associated with greater costs. Staff autonomy has previously been found to be associated with higher job satisfaction in intermediate care services (Nancarrow, 2007).

Providing better training and development opportunities for staff increased their overall satisfaction, and reduced their intention to leave their employer or their profession.

The higher intention to leave (employer) scores reported by the more senior staff may be a reflection of the lack of career development opportunities offered by intermediate care services. As previous literature shows (Nancarrow 2007), and the qualitative chapter in this report demonstrates, several staff reported that they would need to leave their current employer to progress their career.

In contrast to other studies (Netten, 2007, Anderson 2006), we did not find any direct relationships between the individual staffing characteristics and patient outcomes. This may be due to the fact that the individual staffing data were derived from the WDQ, and could not be associated with individual patient outcomes. Instead, the staffing data were aggregated to team level.

Team characteristics

The team level characteristics provide the greatest insight into variables that may impact on patient, staff and service outcomes, however some of the findings appear slightly contradictory.

Possibly the most important finding from this study is the evidence that teams with a higher proportion of support workers have better patient outcomes across the EQ-5D and all TOMs domains (except wellbeing). However, utilising a higher proportion of support workers is also, generally, more expensive. We could hypothesise that these higher costs may be attributable to an assumption

that support staff spend more time, and have more contacts with the patient than qualified staff, however this was not shown to be the case in the data from this study. Patients were found to spend between 52% and 80% of their time with qualified staff as opposed to support staff across all levels of care, with the exception of level 7 (client needs medical care and rehabilitation), where 60% of their time was spent with support staff. This group of patients only accounts for 4% of total numbers so is unlikely to unduly influence the overall findings.

Patients have better outcomes if they are seen by fewer different types of staff. Yet, outcomes improve for patients if the team managing their care is larger, and larger teams are more likely to have a greater variety of staff. Possible explanations for this are that larger teams may be more likely to have more support workers, although our findings show that team size is not related to the proportion of support workers employed. Further research is required to understand these relationships.

Interestingly. increasing team size is negatively associated with staff outcomes. The effect of team size on staff outcomes is consistent with the findings of Castle and Engberg (2005) who found that greater bed numbers was associated with higher staff turnover in nursing homes.

Similarly, Castle and Engberg (2005) found that lower staff perceptions of quality of care were associated with higher turnover, which is reinforced by our findings.

Team working was found to be associated with service costs and staff outcomes. In particular, having a dedicated line manager for the team, at least weekly team meetings, higher team working and management scores, and better integrated staff were all associated with better staff outcomes. Higher team working and integration scores were also associated with a lower cost of service delivery. This study did not find any relationship between team working scores and patient outcomes, unlike previous literature (Strasser 2005).

Better access to technology and equipment was associated with a reduced length of patient stay.

5.7.1 Critique of the methods

This chapter has drawn on three main sources of data: patient level data, staff level data and team level data. To undertake comparisons between the variables at a team level has meant aggregating the findings from some of these variables, reducing the numbers of observations to 19. Similarly, all analysis of team characteristics could only be based on 19 observations, reducing the strength of the study to draw conclusions at this level.

Patient outcomes (TOMs) data were collected by staff working with the patients. All staff were trained in the use of the collection of the data, and the tools have been demonstrated to have inter and intra rater reliability, however

it is impossible to know how accurately staff collect the outcomes data, or whether they may have a tendency to exaggerate improvements in patient health status. This is, in part, overcome by the use of the EQ-5D, which is completed by the service user.

We have analysed and drawn conclusions on data based on professional title or the difference between 'support worker' and 'qualified professional' rather than on the specific roles carried out. Given the large variations in the roles ascribed to each category, these titles are unlikely to be true reflections of the complexity of the work performed by these practitioners. However, there is no alternative way of classifying staff available to us at this stage.

A large component of the data collection by staff involved the recording of staff contacts with each patient. Specifically, at each patient visit, staff were asked to record their professional title, duration of the visit, and purpose of the visit (ie direct patient care, administration, or travel time). There were inconsistencies in the way these data were recorded, and whilst we have endeavoured to ensure the accuracy of these results, there are still potential inaccuracies.

The overall response rates to the patient satisfaction questionnaires was lower than anticipated, at only 618 total responses, or around 33% of the total number of patients recruited into the study. This substantially reduced our ability to draw any conclusions about the patient satisfaction findings with respect to the workforce.

The inability of the models to accurately predict the outcomes across all teams demonstrates the enormous variability across the different teams, and the difficulties drawing clear conclusions from the data. On the other hand, it identifies the potential for teams to identify areas in which their service delivery is inconsistent, and perhaps less (or more) efficient than that of other teams.

Whilst we have been systematic in our attempts to identify the most appropriate and meaningful variables to best represent the relationships between different approaches to staffing and outcomes, it is possible that there are other, unexplored variables which may explain some of the relationships seen in this study.

The assessment of costs has focused on staff costs only, with wider service costs not included. This was because we wanted to focus on staffing issues and not have any relationships obscured by non-staff costs and accounting differences between the teams. This does, however, limit out interpretation of the results. So, for instance, the interpretation of cost-effectiveness is very tentative as all costs are not included. Also, the interpretation of 'returns to scale' in the regressions are limited by the exclusion of these other costs, which have know relationships with size of team or service.

The other main limitation is that which is inherent within an observational study, namely, that the various relationships do not imply causality, and nor do

they suggest the direction of any causality. So, whilst plausible explanations are possible that match up with economic theory, rationales for policy and/or intuition with each of the identified relationships, these are best tested in a controlled evaluation. Also, whilst we have identified possible relationships, we have not fully explained the mechanism for these relationships.

5.8 Conclusions

The study has examined the relationship between several previously unexplored variables and identified several interesting, and plausible, relationships between staffing characteristics and costs of patient care. These include relationships relating to skills mix and team cohesion. We are less able to assess the degree to which these factors impact on cost-effectiveness as the number of teams included was small, and the costing perspective was limited to staff costs. The policy implications of this work are complex, as they need to take into account the limitations of the study design (i.e. observational study) and the ability of policy to influence the significant variable (e.g. workforce cohesion).

6 Qualitative findings arising from the prospective study

6.1 Introduction

This chapter presents the qualitative data arising from focus group interviews with staff members from the teams participating in the prospective study. These interviews were conducted with the following objectives in mind:

6.2 Objectives

- To describe the impact of a range of organisational and workforce variables (including team structures, management, setting, organisation, role overlap, specialisation and substitution) and their influence on the workforce within the context of older peoples' services.
- To examine the way that variations in workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) impact on patient, staff and service outcomes (including costs).
- To explore the impact of different service organization and management approaches (team structures, setting of care, supervision and accountability) on patient, staff and service outcomes (including costs).
- To explore the relationship between organisational and management structures and workforce configuration.

6.3 Methodology

Focus group interviews were held with staff from 11 of the teams that participated in the prospective study to examine the impact of different workforce models from the staff perspective. Focus groups were undertaken at the same time as the team received training in the use of the data collection tools. For some teams, more than one focus group was undertaken to ensure all of the team members were able to participate. Separate telephone interviews were also conducted with four team managers. The data from these interviews has been included in this analysis.

The focus groups covered the following topics (Appendix 10):

- The aims and objectives of the service
- The way the team is organised
- Roles and responsibilities of different staff members

- Benefits and difficulties of the current staffing models
- Challenges to delivering the service
- Working relationships between different types of staff members
- Management processes (frequency of team meetings, service location, information systems and transfer)
- Workforce priorities

We had originally intended to undertake focus groups with all of the participating teams, however we achieved early saturation of the data, rendering the collection of additional data redundant, as well as being a large burden on the participating teams.

Focus groups were tape-recorded and transcribed verbatim and analysed using the Ritchie and Spencer (Ritchie and Spencer 1995) Framework approach using the qualitative data analysis NVivo Package (Version 7) as an administrative tool.

A coding framework was established based on *a priori* issues which formed the basis of the research questions. An initial coding template was developed by one researcher who coded both the *in vivo* terms used by interviewees, as well as the codes developed by the research team. Two other researchers independently coded two additional transcripts using this template, and compared their findings with the original coding framework. The three researchers compared and their findings to reach consensus on the final coding framework, and subsequently developed a coding 'glossary' to define all of the codes to help increase consistency of coding.

The resulting coding framework was then organised hierarchically under five headings to address the research questions. These headings were used as 'tree nodes' within NVivo and form the organising structure for the presentation of the results.

6.4 Results

A total of 16 focus groups were undertaken. The teams that participated in the focus group interviews are summarised in Table 55.

Table 55. Teams that participated in the focus groups

Team identifier	*Number of focus groups*	*Total number of staff involved*	*Geographic region (England)*
A	***4****	***40***	***South West***
B	***2****	***20***	***South***
C	***1***	***10***	***South***
D	***1***	***15***	***South East***
E	***1***	***15***	***South East***
F	***1****	***15***	***North East***
G	***3****	***15***	***North East***
J	***1***	***3***	***North East***
L	***1***	***5***	***North East***
M	***1***	***7***	***North East***
N	***1***	***8***	***North East***
TOTAL	***16***	***158***	

*Managers separately interviewed

Further contextual details about each of the participating teams can be found in Appendix 8.

The data are presented below. There is some overlap between the responses and this reflects the overall sense of trying to capture a moving landscape in a single frame. The data are presented in subdivided so that the responses from the teams adhere to the themes which grew out of the initial analysis.

Strands emerged out of the themes that informed the structure of our analysis. These strands tend to be binary in nature with positive and negative aspects apparent, dependent on from which angle they are viewed. Themes, where

possible, have been divided into these two camps within the structure described above.

6.4.1 What do IC teams look like and how do they function?

We asked participants to describe how their service was staffed and how it functioned. This allows us to explore how different staffing models have come about, the shape of the team, staff roles, and how staff work together.

Rationale for staffing models

There were no clear explanations as to why particular staffing models had been adopted. It is likely that the staffing models and structures that have evolved in intermediate care are dependent upon why and how these teams were originally established and to an extent their clientele.

Team A, for example, was introduced following the closure of an acute local hospital which saw the need to 're-provide' this service in the community. The resulting clientele had acute health needs and needed to be kept out of hospital. These factors ultimately impacted on the staffing structure, which was heavily nurse oriented.

'And they (clients) tend to be people who are unwell with a chest infection or a urine infection or that sort of a thing, who don't need huge input but just need some intensive input for a week or so.' (Manager, Team A)

Another team did not have access to a community stroke service in their local area so the manager felt the need to include dieticians and speech and language therapists in the skill mix so the team was equipped with the skills to address this shortfall.

Team B perceived their staffing structure, which is a mix of social care and health care professionals, to be influenced by their host organisation, social services, and because their subsequent focus of care is to reduce residential care / nursing home admissions and minimise social care packages. The manager here responds to the interviewer's question as to why their team is staffed as it is:

'..it's very beneficial to social services in trying to reduce those moving on to residential care and nursing homes, you know, that aspect, that financial aspect is all powering really for social services….We do see people who are discharged from hospital but that's not our predominate role' (Team B)

Staff organisation

IC is characterised by a multi-disciplinary team approach to care and as such staffing is organised to facilitate multidisciplinary team working. Joint professional visits, multidisciplinary team meetings, being based together in a common physical space and the sharing of professional skills were all identified as important organisational aspects of multidisciplinary team working.

'…there is lots of joint working, joint visits, joint goal setting and I think it is very much a team approach, as opposed to disciplines and slices of different intervention.' (Team C)

And as seen from team G's discussion about process of discharge from hospital, team working is a highly valued process:

'It's got to be a team thing, it's got to be a multidisciplinary decision and I don't think one single profession is the right profession to make all those decisions.' (Team G)

Roles

One consequence of multidisciplinary team working is the sharing of professional roles, often termed 'generic working'. Staff tended to describe their roles in terms of working with others rather than their distinct professionally based role. Sharing information across professional groups and to an extent sharing professional roles was commonplace, as this occupational therapist acknowledged:

'I think as well, since joining the team, the main thing for me is I have become more and more specialised at being more and more general.' (Team N)

A social worker also commented:

'…I do find that when I go out and do a visit, if I have to do in on my own that I am thinking with an OT hat on and a physio hat on as well.' (Team F)

The following exchange shows the extent to which professionals work outside their professional remit:

F I think one of the (ways to) describe it as common, everyday things that OT wouldn't think twice about taking somebody to the toilet, you ask a physio "it's not our job", but now in the community they've got to do it.

F Even speech therapists take people to the loo.

F Yes, I mean at one time..

F I went into speech therapy to keep above the waist.

F It doesn't work that way.

F No it doesn't. (Team F)

Although there was variation in how different roles of IC staff were described, it was clear that IC staff were primarily responsible for screening and assessing clients and organising care. One staff member expressed;

'our assessment skills are extremely good because they have to be - we have to sort out people that we can assist and rehabilitate' (Team A).

Another key role is the implementation of rehabilitation programmes. This is reinforced by the way support workers or rehabilitation assistants were utilised.

The professional role was generally described in terms of triage, assessment and the establishment of rehabilitation programmes while the support staff role carry out rehabilitation programmes and report back to professionals about client change and progress. The following exchange between the interviewer and professionally qualified staff members demonstrates this theme:

I So what things do you think your sort of keeping hold of at the moment that are very important to keep within your professional envelope?

F I think probably initial assessments and our specialist assessments that we need and the ones, it becomes more basic, then we can hand it down to the technical instructors to continue with. Which we do.

F Yes, the goal setting, and we will do, and then they can then just follow the..

F ...the rehab programmes yeah.

Management and team leadership

No single model of management or leadership was replicated across all teams. There was an acknowledged difference between the responsibilities of team management, team leadership and professional leadership with the following exchange giving an indication of the complexity of management and leadership in this setting. The interviewer has just asked how the service is managed.

F It is managed by the – well the therapists are managed by a therapy manager.

I So you have got a therapy manger over the physios?

M I am an Occupational Therapist but my manager is a physio.

I And the physio covers?

F She is a therapy team leader….

M It is a physiotherapist who is the team lead and then we have got an Occupational Therapist as the clinical lead.

I Right, I am with you, and above them, who manages them?

F The head of adult services for the community.

I For the community.

F As it is multi-disciplinary, we have got operational leads and professional leads.

Training, education and supervision

There was no consistency in the delivery of training, continuing education or supervision across the teams, nor were there any clear structures in place to ensure team members received ongoing training and education. It was clear

however that training was largely 'in-house' and dependent upon finances available for external courses. Despite a lack of clarity and structure around training, it was apparent that multidisciplinary team working accounted for much inter-professional learning:

'…and we learn from each other, we learn from feedback from the rehab (assistants) and the enablers, because sometimes as therapists we may assess and decide that there is limited scope for improvement and we can be proved wrong.' (Team F)

Support workers, however tended to have a clearer system for training and education than their professional colleagues and as such were the main recipients of training either formally through National Vocational Qualifications (NVQs) or through structured supervision and support from professional team members.

6.4.2 Implications of staffing models - what works

We asked staff to identify what they felt were the benefits of how their team was staffed and structured. From this information it was possible to attain staff perceptions of what aspects of their staffing structure and organisation 'works' for both themselves and their patients.

Generic working

A few teams acknowledged that the sharing of skills between professional groups allows them to be more responsive and flexible:

'I think one of the most positive aspects of the service since it began has been the flexibility of the staff to change and to try all new ways of working. If it hadn't have been for that we wouldn't be doing what we are doing now.' (Team M)

Indeed the majority of teams perceived role sharing as essential to 'get the job done';

'… there is no defensiveness or possessiveness about roles because there is more than enough work to go round…' (Team C)

And although generic working implies the sharing of professional skills, it was also acknowledged that each professional still had expertise to offer:

'And we also recognise that we all have, even though we've got a wide generic middle of calm, we've also got our own specialities at either end.' (Team G)

Staff relationships and communication

Generic and multidisciplinary working were factors commonly associated with good teamwork. There was a strong feeling that staff valued teamwork and the camaraderie and trust that came with it, a sentiment that staff were working

for the common good against the odds. The NHS in this respect unwittingly inspires its employees:

'Even though we have just whinged for about half an hour, we are all incredibly high, we were thinking about this the other day, that the core competency of our team is the sort of cohesiveness and morale and there isn't - even though we are all different grades, there is no competitiveness.' (Team C)

Communication and teamwork were time and again identified by teams as essential to delivering their services, in particular where resources and time were stretched:

'But the important thing is good communication, so that we are making the most of the resources we have got really.' (Team F)

Co-location

The shared office as a hub of activity attracted positive comments when help or advice was needed and it was to be found within the same building or office space. This was identified as a key 'success' factor to facilitating good team working and communication processes, the benefits of which cascaded to patient level. This was the case at a team level:

'I think when we are all together as well, you can voice any concerns that you have got, if you think that the care package that they have got should include something else or you are worried about a certain aspect of it, then the Social Workers and the OT and physio can deal with it straight away, rather than having to wait say a week until you see them.' (Team F),

And also at a service level:

'I think that's possibly because we are in the same building, we are physically just tables apart, we have a good working relationship, so that when the staff in rapid response [a different team] feel that the person may need some more therapy, the therapist will talk directly to the therapists in our team, so we try to minimise the gap between passing from one service to another and have it as seamless and straightforward as possible.' (Team M)

The importance of co-location to the successful delivery of intermediate care services was also reinforced by a lack of presence of certain staff groups within teams and the complications disjointed communication can cause:

'…we used to have nurses on site within our team and recently all that's changed, so a lot of the nursing staff have gone out into the community, so sometimes It's difficult for us to have face to face contact with them and ask the questions that we need to ask about specific issues with patients, we can get messages to them but it's not like it used to be when they were there in the same office, so that's all changed recently.' (Team N)

Good leadership and management

Good team leadership was seen to encourage team cohesion and teamwork amidst the complexities of role sharing, as identified in this exchange:

F I think one of the most positive aspects of the service since it began has been the flexibility of the staff to change and to try all new ways of working. If hadn't have been for that we wouldn't be doing what we are doing now.

I How have you achieved that because that's not always achieved? Is it something in the water that makes you just nice, friendly, flexible, positive people?

M I think it is the leadership the team has got, they are not aloof at all, they feel like part of the team and are prepared to do whatever they ask anybody to do, which is like plainly obvious as well, quite often the first people to stand forward when there is a crisis rather than looking around and asking, so I think that trickles down nicely. (Team G)

Some teams identified that having a manager with good listening skills and who is approachable was also beneficial.

'I think it is very useful to have a manager who is willing to listen to you and understand and take your views on how you can mould the service and isn't the one that's putting you under pressure.' (Team M)

Having confidence that the manager will steer the service in the right direction was also considered important.

'Decisions will be made at a higher level about that, but wherever possible, you are not just expected to jump when someone a lot higher up makes a decision that impacts massively on a front line service, you have got a manager who will say 'well yes, we can do that but this will suffer', we are not expected to pick it all up, where I think that does happen in a lot of services.' (Team M)

Several teams discussed the importance of regular team meetings, where managers are present, to access management support and provide management with feedback from the front line.

Support workers

The inclusion of support workers in the staffing mix, in particular those who were skilled across several professions, was positively viewed as a way to increase the team's capacity and the intensity of therapy delivered to clients as demonstrated in this statement:

'…we are not just looking at the need for qualified staff for seeing the people, the patients, because it is not the assessment that makes them better, it is the rehabilitation process and that, in our case is done by the rehab assistants. So we are looking at training of someone in rapid response, because they are the people that go in 2 – 3 times a week, do the exercises until the person is

competent to do them. They are the ones that are actually doing the work aren't they' (Team G)

Their input was also perceived as beneficial to patients in that therapy could be delivered in the absence of qualified therapy staff:

F I think the principle of the rehab assistant being a generic worker is a good principle in the sense that they are providing the nursing care that's needed but they're very much a therapy and enabling role which I think for a rehab unit –

F Is a good thing.

F Because it means that when the therapists aren't there they're still getting therapy overview, they're still getting –

F It's an ongoing 24-hour thing rather than just when therapists are there, even though they can't do specific things at specific times, or the times that there aren't therapists there they can continue with that rehabilitation. (Team M)

It was clear that the success of the support worker role depended largely on the ability of support workers to access qualified professionals easily and for clear communication channels to be open to them to voice any concerns or feedback information about a particular client's progress. As discussed above, regular supervision and training from qualified staff was also considered imperative for the role to function as was being located in the same office and being part of a cohesive team atmosphere.

Patient benefits

There was a common theme across all interviewed teams that the multidisciplinary structure of teams provided patients with a superior service by ensuring responsiveness and continuity of care:

'I*t's a quick response to a client as well, isn't it? It's not that you're not chasing phone calls and people and letters and chasing and meanwhile the client is still sat there, waiting for whatever it is that needs to be done. It can be done, dealt with, sorted, and then you're delivering fairly quickly*.' (Team B)

6.4.3 Disadvantages of staffing models - what doesn't work

Skills shortages

Where teams lacked a full compliment of staff or where particular professional groups were missing, it was felt patient needs could not be adequately addressed, as expressed by this team member:

'Now you have got this whole range of care that we know we can manage in community but we haven't got the resources to fulfil all the different categories that there are. I think it works really, really well when you have got multi-

disciplines involved in looking at patients from different aspects of need. Recently we have had a patient who I was involved with from hospital who was a COPD chap who was very, very ill in hospital, recovered from his acute phase but still needed 24 hour nursing input. We managed to get him a place in a nursing home, which is not common practice in our area because there isn't a pot of money to do that, but with this chap we did, and he needed lots of specialist input from the respiratory team, he then was transferred to IC at home and he did really well but there were areas like he wasn't eating, he needed somebody to monitor his nutrition state, he had got breathing difficulties and other complex problems that needed monitoring by somebody.' (Team N)

Some professional groups were mentioned frequently, who would be valuable to teams but were not present within the teams or easily accessible. These included:

- Social workers
- Mental health nurses
- Psychologists
- Dieticians
- Speech and Language Therapists
- Pharmacists
- GP with special interest in IC
- Administrators

The absence of these staff was felt to negatively impact on the ability of teams to deliver a high quality service. It was perceived that where particular staff were missing, the remaining staff skills were not being used appropriately and time was being taken away from patient care to make up for these shortfalls.

'It is inappropriate of somebody's skills isn't it? Your area is therapy but you are managing an area that could be managed by somebody else that don't need the skills that you have got to do that.' (Team N)

In particular the lack of specific staff groups and the subsequent need for other professional groups to pick up the role was perceived as a risk to patients as demonstrated in this exchange:

I So the shortage of OTs means people double up on roles as you were saying, you would be doing your physio role and part of an OT role.

F And that's OK to do providing there's been a proper risk assessment beforehand but if it's being done without that being done, which invariably I think is what (name omitted) is saying is the case, then you could suggest that that's an unsafe way of working. (Team A)

Staff shortages

The added pressure of staff shortages aroused feelings of frustration across many of the teams with a dominant theme of being over stretched. One team member put it simply:

'I just think it would be nice if there were more of us because it is quite hard work to get the work done in the time restrictions that you've got.' (Team E)

Some teams conceded that the nature of the work and the clientele meant that the capacity of teams to see clients was restricted, adding to the 'stretch' regardless of how short staffed they may be:

'18 GP practices, you have travelling time, you have the fact that you are dealing with an elderly population so anything that you do takes potentially twice as long as say a 20 minute slot that you might be given in hospital to assess a patient, a patient assessment can take 2 hours easily, because it is very hard sometimes to focus older people into what the issue is and we have to hear everything else, whether we like it or not, you have to really very much adopt the holistic approach with the patients, if you want them to engage with you and you want to see in your intervention, you have to respect the fact that an older person takes a lot longer to get to the bottom of, so your caseload, you can't manage as many people in a day. You have also got the geography and you have also got the fact that when there aren't enough staff to cover the fact that you have got annual leave and study leave and everything else, then realistically how can so few people be expected to cover all that. I am not just saying we need more staff, which everybody will say, it just does not equate on paper does it?' (Team M)

A feeling of applying one's skills to other areas of practice simply because of a lack of staff was expressed as detrimental to professional practice and an impediment to the rewards that come from utilising professional knowledge:

'I think everybody is trying to do so much and so many other things at their visits that actually quality time you get to do your own professional assessment and role, you know, everybody feels it because we're actually covering for everyone … Particularly as OTs there's an awful lot you could do, much more scope with all of our roles in the home but actually we don't get to do an awful lot of that because we're so tied up in doing all the other stuff.' (Team A)

Generic working and working flexibly

Following on from this, although IC relies on the flexibility offered by the way staff are organised, there are also drawbacks when work is duplicated or some sections of staff feel their professional, educational or developmental boundaries are being transgressed. There were perceptions for example that generic working could lead to 'de-skilling' or dilution of professional roles. This team member summed it up:

'Yeah so I think that kind of dilutes your role a little bit because you have to, you can't walk away from a place and say "well that's not my job, I'm off" you have to at least try to start to resolve some of their issues and then get the most appropriate person in after.' (Team G)

Similarly by this physiotherapist:

'I think working in a team like ours where you see a little bit of everything is always going to have a downfall for keeping up to date with every area, and I think especially from a physio point of view you are at risk of losing some skills and becoming deskilled because you become a jack of all trades, master of nought.' (Team J)

This exchange between the interviewer and a team member demonstrates a further consequence of generic working where staffing and skill mix are not adequate:

I So what would your wish list be?

F …to have staff that were at the right level for what we're wanting them to do to free up the people that have got these specialist skills to do things so that they don't become de-skilled because personally in my role, I think that if I continue down that line I've got a very big risk of becoming de-skilled because I'm doing things that I don't need to do because if I don't do them they don't get done. (Team M)

Flexibility is offered as a plus of IC services. And yet flexibility can be taken beyond the point where patient care and treatment benefit. The grey area between flexibility and being over-stretched can be hard to identify. Staff in focus groups referred to this in terms of risk, for example an occupational therapist said:

'We are so short of OT hours that the caseload is becoming dangerous I think'.

And although working flexibly is part of IC, this team member acknowledges it is quite often not by choice:

'We are forced into being flexible by their absolute rigidity. They will not move from protocol, they will not move from absolute – that their referral system has to be obeyed.' (Team J)

A further disadvantage of generic working mentioned by some of the teams was the inability of patients to differentiate between different professional groups. For example:

'F But then they can't distinguish who we are.

F No, who's a qualified or who's an OT from a physio.

F I mean some of them, they don't know do they? They call you all doctors, you know, if you've got a red t-shirt –

F Or you're all a nurse or a physio.

F But then in a way, you know, you sometimes get 'oh I don't know, dear, you're all the same to me anyway' and in a way sometimes you think it would be nice to have the different teams recognised. But it's something that goes round and round and round.' (Team E)

Furthermore in some cases, although humorous, this problem may restrict the professional's ability to impart their expertise:

F I always remember going to a patient and the number of times I said I was a speech therapist but I always had to look at her feet because she thought I was the chiropodist, and still to this day! (Team E)

Efforts to develop a multi-skilled work force where knowledge and skills are to a degree inter-changeable can on occasion threaten the status quo. This situation is not restricted solely to professional groups. Support workers from one team, for example, complained about learning skills through dedicated training only to be denied the opportunity for these to be used when more suitably qualified staff were involved.

F 'Well I take blood, the support workers are a very mixed group, we all have our areas, but I very rarely get to do it and they will put nurses in the same day as I go in to take a blood, it's quite.. and we've all got skills that perhaps we could use a little bit more.

I So you've been trained to take bloods but you don't take bloods?

F Well I do when I initiate going in to do it myself, but if I didn't make the move forward.... all the support workers have got skills in different areas that perhaps aren't used as much as they could be'.

This illustrates the overlap that exists between different groups where training one set of workers to perform certain tasks can influence the practices of another group. In this instance however there has been a clear move to draw a line between the two.

Training and supervision of support staff

Several teams expressed concern over the need to find time to train, supervise and manage support staff and the implications of not having access to time to comprehensively undertake these activities.

'...so suddenly we went from just doing the therapy care to managing the health care support workers, managing their one to one supervision, managing their off duty and being responsible for their shift allocation and everything like that, which is an enormous – I think it was a real strain at first because I certainly didn't come into the job expecting to be doing that'. (Team G)

As one team member summarises below, the employment of support workers to increase service capacity has to be balanced by additional support for qualified staff to deliver training:

'It is the old problem where you have to hit the ground running, so you employ people into the posts but they might have the basic level – you need a comprehensive programme of training to get them to the point where they are appropriate to do the job. It takes a lot of time, it doesn't happen over night …' (Team M)

This is compounded by the fact that a handful of teams did not have access to external training for support staff:

'On a Physio tech side point of view, we've been offered NVQ, but there's nobody to do it, so we can't progress to get an NVQ because there's nobody around to give us the training and the qualification.' (Team B)

Flat career structure

A perceived disadvantage of the generic working model and multidisciplinary structure of intermediate care teams was the lack of senior or specialist positions, limiting career progression opportunities. This was a common theme across most of the interviewed teams, particularly amongst qualified staff:

'There is very little career progression, there is no career progression in IC. You can go for the next band if one comes up and that's it. There are not specialisms to go for, it is a specialism in itself, you can argue that, but that's not being reflected for any of us under agenda for change. So as a career move it is not a very good one. So that's how I see it.' (Team A)

It was also perceived that the acute hospital system may offer qualified staff more career advancement opportunities than IC:

'Once you have fallen out of the hospital system where you can progress your career, it is not easy to go back.' (Team A)

There was a strong feeling that these grievances were reinforced by the way Agenda for Change had impacted on IC.

'Some people have come in on higher grades and are disease specific whereas we're expected to know every disease under the sun at a lesser grade. It's a bit of a touchy subject that, isn't it?' (Team L)

Lack of professional supervision and senior leadership

Several of the teams identified the need for professional leadership. Lack of leadership at a professional level was equated with not having a champion to advocate for them as expressed here:

'And I think that also comes back to the fact that professional leadership wise that you touched on earlier, we don't even have anyone in the PCT to wave our flag and say well actually this is really not fair and actually most professionals will have some kind of clinical leads to go to and that doesn't even happen.' (Team A)

Another staff member identified that a professional lead may help ease the problems associated with the professional isolation that is often felt working in multidisciplinary teams in the community, in particular those staff who are 'one of a kind' in the team.

Disjointed management

About one third of the teams commented that management structures were disjointed and unstable which affected how they functioned as a team, in particular not knowing who their direct manager was, how to access management support and feeling unable to respond to management expectations. Here, one staff professional summarises this notion by illustrating her experience of private and public sector management:

'I am a newly qualified therapist and it has come as a bit of a shock after working for the NHS - I was working in a private company for 10 years, where I had been used to having computers and money and management that you knew who they were and you could go to them and they knew what was happening all the time. But here there are myriad layers of management where I just think people have no idea, because they have got so many staff and so many layers of management that I think the ones at the top really lose track of what's going on every day. Just things like resources, things that we consider useful, like cups - we end up scrabbling around and trying to get them from charities or saying to the patient 'well here is the information, I have printed it off the Internet, you go and order it and pay for it yourself' which is just ridiculous, or you end up spending hours of admin time, trying to fiddle around, trying to get them - so that kind of thing is irritating.' (Team C)

Uncertainty

There was a distinct theme across all participants that a great deal of uncertainty existed across all aspects of their working environment. Whether uncertainty derived from management change, service or wider PCT restructuring or even their immediate team re-configuration this, as expressed by one team member, has an impact on morale and ultimately patient care:

M I personally think I always try to keep my motivation as high as I can, but when things take a long time and things are in limbo.

I It is the uncertainty for the length of time is it?

M It starts to affect you, it will have a knock on affect on your patients. (Team N)

6.4.4 Other important issues to staff

Agenda for Change

This research coincided with the implementation of the NHS Knowledge and Skills Framework which informed the Agenda for Change. This created some controversy in all services, irrespective of the professional background, grades or roles of the staff groups involved. This is apparent in the frequent references to the Agenda for Change within the interview transcripts.

All teams reported that Agenda for Change had a disruptive effect, leading to potential divisions between staff and with a knock-on effect on staff morale, as illustrated by the following example:

I So it [AFC] could create tensions.

F Mmm.

F Mmm.

I Does it create tensions?

(laughing)

F We still love one another! (Team N)

As well as tensions that had been created, Agenda for Change was recognised as a contributing factor to difficulties recruiting and retaining IC staff. Team G was clear on this point.

'A lot of it is to do with Agenda for Change and we cannot recruit the staff that we need.' (Team G)

Inconsistencies with staff gradings frustrated staff in some teams:

'There is inconsistencies in the grades of Physios and OTs particularly, at band 6 and 7 and 8 - across the Trust...and there is inconsistencies throughout really, so that makes it quite difficult and I think people haven't mentioned it because they have got over the anger of it all, but it is still a big problem in terms of recruiting..' (Team C)

Again Agenda for Change is implicated when teams discuss retention of staff:

F I mean our physio's just leaving..

I And why is that?

F Because she was a senior 2 and got band 5, she was actually doing 3 jobs, she was based in the hospital, she was based in the resource centre and 2 afternoons at the COPD clinic that she'd done for 12 months, and over an hour a day travelling to work and the same going back was a little bit much for her, applied for a job in Leeds and she's got a band 7, senior 1.

I So from a 5 to a 7?

F Yes. And if she'd have stayed with us she'd have got nowhere, she'd have stayed on 5. (Team G)

The implications for staff morale are made clear in this revealing piece.

'Yes, because I mean from my point of view I came in as a grade H and I was the most senior in the team as the manager. I'm actually banded at 6 along with all the rest and with all my physios and OTs so where do I stand in the structure now? I have nowhere to go really from a management point of view but I – technically I'm managing all my band 6s but I'm a band 6 as well, but I've been told that's OK, that's how the Agenda for Change works. It doesn't necessarily mean you're going to get a higher – even though technically financially I've been dropped.' (Team A)

As this discussion concedes however, although Agenda for Change has been unsettling, it has not necessarily translated into poorer patient care:

F I think we're all professionals at the end of the day and I think we focus on the patients.

M I think we all know we're in the same boat as well. [Team L]

Recruitment and retention

A separate issue, albeit partially reinforced by Agenda for Change, was the notion that community working amongst professionals was not as attractive as acute sector positions which has translated into difficulties attracting senior staff to IC.

The acute side of hospitals did a lot better than we did out in the community. I think it's reflected in how the community in some respects is seeing community working. (Team A)

This is also reflected in the high staff turnover seen in some teams as expressed here:

'… I think in one year I went through 10 OTs and I got this feeling that "am I saying something wrong" you know, and you just have to have an open mind, and whoever comes through the door you say "oh good morning" and carry on from there.' (Team M)

Administration

The burden of administration was a common complaint by participants. This affected their performance when they had too much paperwork of their own and attracted comments like:

'It is very frustrating when you try and get out and do your job and you got the process of filling a form in, photocopying it, putting in the (red cars) walking across, waiting for somebody to go and get it, coming back.' (Team M)

And as one focus group member summed up:

…because what's the point of having professionals sat in an office doing admin, when they should be out there providing care? (Team G)

In addition, with some services having to cover geographically large areas there were some complaints that the combination of travel and administrative duties could account for up to half of the working day.

'Well you can have a day where you feel non-stop and you look back and what you have done, you haven't seen a single patient, you haven't stopped for five minutes, and you have still had a frustrating day.' (Team D)

Social service 'blockages'

A further factor acknowledged by teams as a hindrance to delivering care and ultimately changing their role as deliverers of rehabilitation, was the knock on effect of social services delays:

'…we've got about five or six different social workers allocated to different services and consequently they're in and out, in and out and it tends to be the therapy team who end up chasing social workers for discharge planning and we become the discharge planners but the social workers are meant to be the discharge planners. We are the ones who are doing the chasing and that again is very time consuming.' (Team M)

The lack of access to social services meant that many support staff felt their role involved the delivery of personal care, which was not seen as their remit:

'I think from a staff happiness point of view as well is that our support workers tend to want to focus on rehabilitation. They don't want to focus on personal care and having to pass that on. They want to feel that they're actually enabling somebody to become independent.' (Team A)

6.4.5 What is the likely future shape of services?

To conclude the interviews the participants were asked to describe their vision for the future of the team. One unifying theme to emerge from this was the changing nature of services. IC can be seen as a microcosm for the modernisation agenda operating within the NHS. And while the staff groups are not outwardly resistant to change they were uncertain of the future.

'I don't know, with all the changes in the next year or so it makes you feel a little bit unnerved and wondering about all the team.' (Team B)

Visions of the future tended to be determined by experiences from the past. To ask staff therefore how they see IC services developing can be an unfair question. Many of them had been co-opted into IC from other areas on a rotational basis. Even veterans tended to have no more than five years experience in the setting. When talking about a 'wish list' the teams we spoke to were clear on the importance of the 'social' aspects of care that they felt

they needed to focus on. This team member knew what they wanted for Christmas.

' [A] designated social worker for the team that works solely for the patients off our books and into social care because that's our only reason for breeching the 6 weeks targets is usually because of the wait for social care.' (Team N)

That there is a gap between hospital care and care that occurs in the 'community' was also obvious. What is perhaps less obvious is what it might take to reduce the gap.

F Every one is waiting for Social Care, from hospitals, from there, from us, we are all waiting for that.

M What I particularly think would be an excellent addition to the service would be a Social Worker attached to the team. (Team N)

Team A were thinking along similar lines with their wish list. Their desires have already been mentioned in other contexts but are no less real here.

'I think if we had a full complement of staff and the staff that we wanted then we'd be a lot happier.' (Team A)

'In a year's time I'd love to have a full complement of staff. I've never actually had that yet and it would be wonderful to know what it felt like to actually know that I can come in and I've got a full complement of staff.' (Team A)

Team M probably sum it up when they ask for more resources. Again, not a new appeal but it is worth repeating.

F I'd like to see our rehab assistants certainly on our bedded unit more involved in the therapy angle and with the time and the resources to do it so that they're not feeling over stretched and like they ought to be in three places.

F It comes down to resources for everything, for any wish list. It comes down to resources. (Team M)

And finally one staff member clearly summarises a consistent theme across all teams:

'I think if would could just start to settle down a little bit, it would be nice. Have a clear direction, yes, a bit of stability for a while would be good.'

6.5 Discussion

It was clear from the interview data that Intermediate Care is elastic in its structure, processes and application. Regardless of this elasticity, there are clear messages across the board about the impact of particular aspects of intermediate care on staff, service and patient outcomes and indeed the definitions and organisation of IC itself.

IC is characterised by multidisciplinary team working and sharing of professional roles. Qualified practitioner roles include undertaking assessment of needs and forming care plans or interventions. Delivery of care is generally the remit of health and social care support workers. In terms of clientele, it was generally felt that IC teams are catering for very dependent, frail and older people (>85yrs).

It was established that on the whole, IC teams aim to deliver their services with a view to preventing hospital or long term care admissions and or facilitating discharge from hospital. Although there were no dominant systems of management or team leadership evident from the interview data, there was an acknowledged difference between the responsibilities of team management, team leadership and professional leadership. Training, supervision and ongoing professional education of staff are largely 'in-house' and with respect to support workers, provided by qualified staff. There was a perception that joint and multidisciplinary working facilitated skill and knowledge acquisition.

Teams identified several organisational aspects of IC that were beneficial to themselves, their service and patients. Above all generic working and sharing of professional skills within a multidisciplinary team was perceived to positively influence team cohesiveness, responsiveness to patient needs and morale. Good communication, team working and co-location were in turn identified as key components to successful generic working and utilisation of support staff. Support workers were viewed positively as a means to deliver a greater intensity of rehabilitative care to clients and assist the team to provide continuity of care. As such, generic health and social care support staff were considered pivotal to service delivery and team functioning by having the dual responsibility of delivering interventions prescribed by multiple disciplines and advocating patient reactions to care by feeding back to the multidisciplinary forum.

There were however many factors that in the eyes of IC staff, hindered the effectiveness of their service. For the most part, staff and skills shortages introduced an element of risk and compromise to patient care and saw practitioners' skills being used inappropriately. Generic working was thus viewed negatively when staff were required to deliver care outside their usual remit to make up for staff or skill shortfalls. Where this was consistently the case, staff felt their professional skills were being eroded. The inherent nature of multidisciplinary working and the sharing of professional roles also reinforced this notion of 'de-skilling' whereby the ability to impart professional expertise was perceptively dampened. This was also reflected in and in part reinforced by the flat career structure that is evident across IC teams. A consequence of which was a perception that opportunities for clinical career progression were lacking and would have to take place within the acute sector. These issues are reinforced by Agenda for Change.

There is no doubt that morale has been heavily damaged by inconsistency of application of the skills and knowledge framework and overall outcomes of the

Agenda for Change process. The impact of this has been felt across all areas, disciplines and grades. It seems that Agenda for Change and the Knowledge Skills Framework have exposed already fragile industrial relations and professional hierarchies and as such this very policy, created to overcome these issues, has failed this group of staff by not realistically accommodating staff contributions in a way that adequately reflects their performance (McClimens, Nancarrow et al. 2010).

This is further compounded by the absence of or lack of access to formal training and professional development opportunities. Either there is no funding, no NVQ assessors, no time, not enough staff, or the training is not appropriate. There is also a general lack of profession specific supervision available to qualified staff.

Over and above these factors however it was the competing demands placed on staff that had the greatest impact on morale and the service by limiting their capacity to deliver interventions. Out of this, feelings grew that skills are not used appropriately and that time is instead spent assisting external supporting services (such as social services), dealing with administrative duties and poor IT systems or negotiating equipment orders. In general it was felt that the system as it stands creates inefficiencies rather than preventing them which in turn impacts on the performance of the team and eventually patient care.

Uncomfortably situated on this fault line the staff can feel that the sheer diversity of skills they must offer can lead to dilemmas and stress. This is evident from comments made by some staff who feel that they are occasionally operating under some duress. In particular, although it is well known that care should be patient-focused and seamless, this however can only be achieved where staff and systems are integrated. The tension between these two states is articulated throughout the interview data and compounded by the constant rearranging of services and turmoil generated by the continuous overhaul of the NHS which has led in some cases to a great deal of instability and job insecurity.

Yet despite the above shortfalls, the staff we spoke to seem determinedly happy. We can posit that this may be due to the inherently satisfying nature of care work. But against this we must also consider that the staff largely rely on each other for support. Team work is then not just a model of care favoured in IC but is a necessary component of keeping up morale. The camaraderie and solidarity felt in the teams comes from a feeling that what they do is inherently useful and worthwhile.

6.5.1 Limitations of the study

We worked with teams to ensure that as many staff as possible were able to participate in their team focus group. However, it was not possible to ensure complete staff coverage due to staff rosters, and the need for the team to

deliver their service, hence some staff views may be missing. The missing responses are likely to be random, rather than systematic, and the consistency of responses between teams indicates that the major themes are likely to have been covered.

Engaging with 'natural' groups, such as a team that works together, brings with it the internal dynamics that operate within the group on a daily basis. As a result, it is possible that because of internal tensions or hierarchies, some participants may have participated less or been more outspoken than others. The only way to counteract this effect would be to undertake individual interviews with team members, which was not feasible within the time or resource available. Again, we hope that capturing the views of multiple teams will ensure that we have captured the breadth and depth of the key issues. Additionally, we have used other methods of capturing individual staff perspectives, which will be used to triangulate the overall findings in this study.

In opting to generate data via a focus group approach the intra-group consensus may be contentious but the inter-group consensus is, in this instance at least, undeniable. The consistency of the questions is constantly mirrored in the responses, where despite differences caused by local fluctuations in professional alignment or managerial make up, there remains a high degree of consistency.

The dynamic is premised on the interaction within the group that will produce data and perspectives on experience that would otherwise be unavailable. Here they are used as part of a menu of methods and act as a form of triangulation.

7 Patient preferences for models of care: discrete choice experiment

7.1 Introduction

Older people are subject to a range of policy drivers that dictate the location of their care provision and the types of care they receive. The purpose of this section of the study was to ascertain the preferences of service users regarding the characteristics of their care using a Discrete Choice Experiment (DCE) methodology with 77 service users from one large urban intermediate care team.

7.2 Objectives

To gain a greater understanding of patients' preferences with respect to their care in intermediate and community care teams. In particular:

- To generate information on patients preferred choices of models of care (including staffing, setting and intensity of care) in the intermediate and community care setting
- To investigate whether patient characteristics as assessed by their required level of care, TOMS and EQ-5D influence the patient's preferences with respect to their care

7.3 Methods

The study uses a discrete choice experiment (DCE) approach (also known as conjoint analysis) to examine patients' preferences. The DCE approach has been used widely in health services research to investigate a range of service issues (Ryan and Farrar 2000). Preferences are determined by asking respondents to choose their preferred option between two different service configurations. This process is repeated with further pairs describing different service configurations. With sufficient data, it is possible to specify regression models that estimate the impact that a specific characteristic of the service has on the probability that a service configuration will be preferred. This regression model (or 'utility function'), therefore, measures the relative importance of different service characteristics.

Prior to the interviews and analysis, three design issues needed to be considered. Firstly, the important service characteristics are identified. Three service characteristics were identified for this study based on a review of policy documents and research related to skills mix issues in intermediate care undertaken by the research team for the 'parent project'. These were: location of care, frequency of care, and principal care giver. The degree of

multidisciplinary working was also considered as another service characteristic that would be of interest to this research area, however, this was not added as we failed to develop a meaningful way of describing this characteristic within the confines of the DCE.

Secondly, levels are assigned to the characteristics so that they can be described in terms relevant to the patient population and the policy question. The levels used in this study are 'home', 'hospital', 'outpatients' and 'nursing home', for location of care; 'once per week', '3 times per week', '7 times per week' and '15 times per week', for frequency of care; and, 'support worker', 'nurse', 'therapist' and 'doctor', for the principal carer.

Thirdly, a subset of different service configurations are identified and paired up, to make a set of choices; an example of one possible choice is given below. The subset of service configurations to be valued was identified using a published algorithm which adopted the 'minimal overlap' approach to produce 16 choice sets (Street et al. 2005). Giving answers to all sixteen choice sets was considered to be too taxing for some patients in the proposed sample, and so the set of choices was split into two sets of 8 choices. An example of the choices are shown in figure 9. The full range of choices are available in Appendix 14.

Figure 9. One possible choice of service configurations*

Type of care A	**OR**	**Type of care B**
Care own home, with		Care in hospital, with
Contact once per week, and		Contact 15 times per week, and
A support worker delivering most of your care		A doctor delivering most of your care

Note: Each card contains three components relating to place of care, frequency of care and the practitioner who provides the care. For each card shown, participants must pick whether the prefer type A or type B or 'don't know'.

There was a slight differences in the wording when outpatients was the location of care as specifying the number of contacts is redundant – the outpatient attendance is the contact. In such circumstances, the first and second attributes were in the following style; 'Care at outpatients/Once per week'.

7.3.1 The interview schedule

The DCE was undertaken as part of a patient survey administered by trained interviewers. The interview started with the following questions about patient characteristics and their use of services:

- Demographics questions (year of birth and gender)
- Information regarding the patient's normal living arrangements (one question)
- Information regarding level of care required by patient (one question)
- Therapy Outcome Measures Scale
- EQ-5D

Then, just prior to the choice sets a series of questions are asked to ensure the patient understood each component of care that makes up the choice sets. Firstly, patients were asked a question to determine whether they understand that it is possible to receive their care in a variety of different settings (e.g. at home, outpatient visits, in hospital, or in a stay in a nursing home). Similarly, the next question relates to the patients understanding that care can be provided by a variety of different practitioners.

Three questions then asked the respondent how important to them are the three dimensions of care that are to investigated using the DCE; location of care, frequency of care and type of health care worker. Answers are given on a four point response scale ranging from "very important" to "not important". As well as acting as a further warming up exercise before the more difficult choice-based questions, this information is of value in its own right. It also provides a useful contrast to the results of the DCE; whilst rating questions are widely used to assess patient preferences/satisfaction, they do not give us information on the relative importance of the three dimensions of care (Ratcliffe and Buxton 1999).

Finally, patients are asked which type of therapist they would prefer from a choice of physiotherapist, dietician, podiatrist, speech and language therapist, social worker or other. From this information, the interviewer personalises the patient's preferred choice of therapist in the pairwise choices.

Following the discrete choice experiment, two further questions are asked to determine whether the experiment was pitched at the right level for the target audience. These questions are "how difficult did you find it to answer the choice of questions" and "did the descriptions of care seem sensible". Both the questions are answered on a likert-type scale. Finally, the participant will be asked "did they miss out any aspects of your care that you feel important? If yes, what are they?" These three questions would inform whether any change in protocol is required should this study be replicated in the future with the same target audience.

Two versions of the interview schedule were produced, each with eight separate choice sets. These two versions were randomly allocated to patients.

The allocation of Version 'A' and 'B' interview schedules was be undertaken by applying a block randomization schedule to 200 sequentially numbered interview packs that were sealed in opaque envelopes.

7.3.2 Participants

Patients were current patients of a Community and Intermediate Care Service (CAICS) within a large city. Due to the target population of the study, it was possible that many potential participants had some degree of cognitive impairment. We aimed to include as many of this group of people as possible. Patients with a severe cognitive impairment would be unable to complete the survey. However, patients with a mild or moderate impairment should be able to participate. The cognitive ability was assessed by the patients' ability to complete informed consent. Patients who were able to complete this satisfactorily were included in the study. If at the point of carrying out the Discrete Choice Experiment, the patient was found to be unable to complete the task then the experiment will be marked as "did not complete".

7.3.3 Recruitment

Practitioners within the Sheffield CAICS informed existing patients that a study relating to patients' preferences on models of care was taking place. They asked the patient whether they would be interested in being contacted by a researcher who would provide further information on the study.

For interested patients, the researcher sent a letter and information sheet detailing the study to these patients. Approximately one week later, the patient was contacted by telephone to further discuss the study and to provide the patient with an opportunity to ask questions. Patients were then asked whether they are interested in taking part in the study. A meeting was then arranged between the researcher and the patient. This meeting allowed the study to be further discussed and informed consent to take place. After informed consent has taken place, the researcher will arrange an appropriate time for a repeat visit when the questionnaires (as listed above) will be administered.

7.3.4 Sample Size

A target of 200 patients to be recruited to the study was set. Sample size calculations based on anticipated effect sizes, or any other rules, have not been produced by previous applications of conjoint analysis. Samples have instead been determined by the available patient population, and the sizes used in previous successful applications (where success is determined by the ability to identify statistically significant relationships between attribute levels and preferences).

A review of recent studies shows that sample sizes for interview-based studies are generally in the range or 50-300 respondents (Ross, Avery et al. 2003),

(Bishop, Marteau et al. 2004; Johansson, Stallberg et al. 2004; Sassi, McDaid et al. 2005). Larger studies have been untaken, but these tend to happen when postal questionnaires are the source of data and when more scenarios need to be evaluated (Bech, Sorensen et al. 2005). The sample size of 200 is therefore larger than some previous studies, but was thought necessary given likely missing data rates in the patient population and the need for sub-group analyses

7.3.5 Analysis

The data from the DCE exercise were analysed using a probit model within STATA, which estimates the impact of each attribute on the probability of 'B' being chosen. The estimated coefficients and their statistical significance (or otherwise) indicate the importance of the different attributes on individual preferences. In general, the greater the size of the coefficient, the greater the importance of the attribute in determining overall utility or satisfaction. A positive sign on a coefficient indicates that as the level of the attribute increases so does the utility derived, and the converse applies for a negative sign on a coefficient. As a secondary analysis, differences in the preferences between patient sub-groups were tested. Sub-groups were examined for level of care, health (as measured by the EQ-5D) and care needs (as measured by the TOMs).

7.4 Results

Only 77 interviews were undertaken, which falls well short of the target of 200 interviews. The principal reasons for this was a delay in ethics/governance approval, a lack of patients being referred through to the study from some of the teams, and a block on undertaking interviews within day care facilities (for quite legitimate reasons). However, all patients answered at least one question and only 31 out of a total of 616 choices produced missing data in the form of 'don't knows', which represents a lower than expect loss of data.

The socio-demographic characteristics of the sample are described in Table 56. The vast majority of the sample were over the age of 70, with a small majority over the age of 80, and 62% were female. The sample had generally poor health as measured by the EQ-5D, with only four patients scoring over 0.8 (where one is full health and zero represents a health state considered by the general population to be equally preferable to being dead). Seven patients had negative scores, which represent health state considered by the general population to be worse than death.

Table 56. Socio-demographic characteristics of the sample

Characteristic	Type	Proportion (%)
Gender	Male	37.7
Age	<70	9.1
	70-79	37.7
	80-89	48.0
	90+	5.2
EQ-5D	<0	9.1
	0-0.39	13.0
	0.4-0.69	54.5
	0.7-1	23.4

Current care requirements of the sample are described in Table 57. The most common level of care category suggested that the client only needed prevention and or maintenance (49%). The next most common category of patient were those requiring regular rehabilitation (29%). Very few patients had very specific needs of complex care (levels of care 5-8). The majority of patients currently received their care at outpatient or day hospital visits, with only 1 receiving their care at a nursing home, and none at hospital. Only 42% of patients received care more than once per week through contacts with health professionals, although 10% received more than 14 contacts per week. Therapists were the principal carer for around two thirds of the sample, with support workers being the principal carer for a quarter, and less than 10% of patients receiving the bulk of their care from either nurses or doctors.

Table 57. Current care received by the sample

Characteristic	Type	Proportion (%)
Level of care	Client does not need any intervention	6.5
	Client needs prevention/maintenance	49.4
	Client needs convalescence/respite	1.3
	Client needs slow stream rehabilitation	1.3
	Client needs regular rehabilitation	28.6
	Client needs intensive rehabilitation	2.6
	Client needs specific treatment for individual acute disability	7.8
	Client needs medical care and rehabilitation	1.3
	Client needs rehabilitation for complex disabling condition	1.3
Place of care	At home	23.4
	Outpatient visits/day hospital	75.3
	Nursing home	1.3
Frequency of care	0-1 contacts per week	58.4
	1.1-7 contacts per week	24.7
	7.1-14 contacts per week	6.5
	>14 contacts per week	10.4
Principal carer	Support worker	23.4
	Nurse	5.2
	Therapist	67.5
	Doctor	2.6

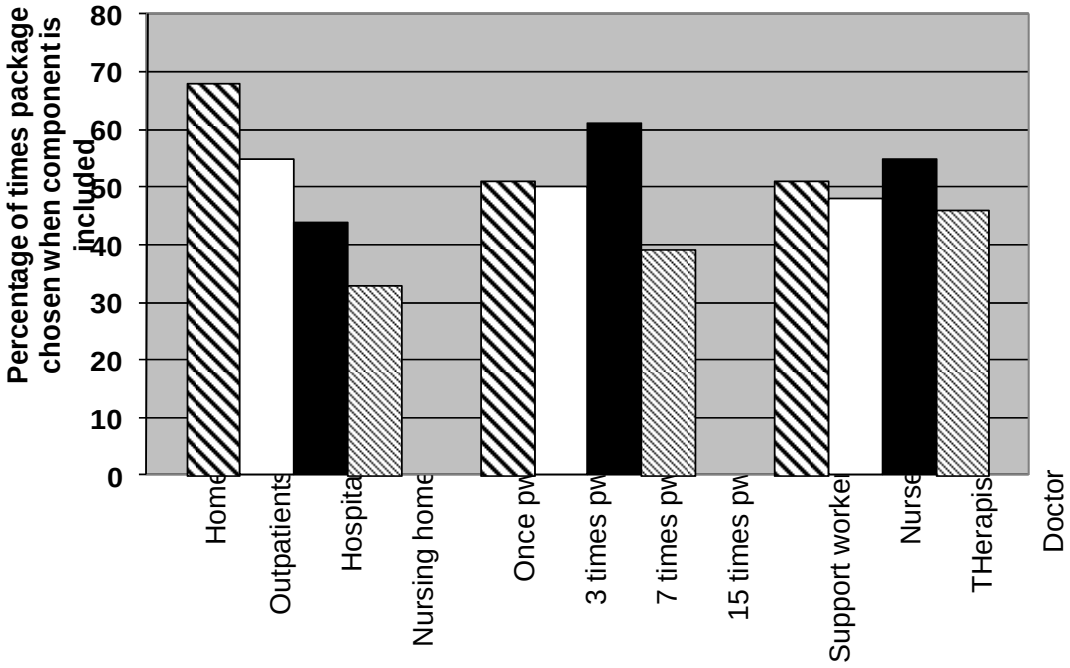
When asked to rate the importance of the different aspects of care that were the focus of the DCE (Table 58), it appears that location of care is the most important. Frequency of care and type of carer appears less important, although still 80-90% of patients rated this as quite or very important.

Table 58. Importance of different aspects of care

Aspect of care	Very important	Quite important	Little importance	Not important
Location	72.7	24.7	1.3	1.3
Frequency	58.4	31.2	7.8	2.6
Type of carer	58.4	20.8	18.2	2.6

Prior to the multivariate analysis of the choice data which forms the central part of a DCE, we undertook a simple univariate analysis by identifying the proportion of times that a choice favoured an individual characteristic of a service regardless of the other characteristics. Figure 10 shows that for location of care, home appears to be clearly favoured, with hospital and residential care preferred least. For the other aspects of care, there is a less clear pattern. So, for frequency of care we can not say that in general more frequent (or less frequent) care is preferred. Likewise, type of carer is appears that no particular type of carer is generally favoured over any other across the sample interviewed.

Figure 10. Impact of service component on patients' choices



The probit regression analysis shows a clearer picture (Table 59). For the full sample, home care is the most preferred as all other locations (which are measured relative to home care) have negative and statistically significant coefficients. Hospital and residential care have the largest impact on patient preference, and have p-values < 0.001. The most intensive form of therapy, with 15 contacts per week, is least preferred and this is statistically significant. All other aspects of care do not have a statistically significant effect on preference.

Table 59. Regression results of the pairwise comparisons

	All respondents	EQ-5D>0.5		EQ-5D<0.5		Any TOMS<3		All TOMS≥3		LoC<2		LoC>1	
Outpatients	-0.39 **	-0.24		-1.00	**	-0.30		-0.69	***	-0.42	*	-0.35	
Hospital	-0.77 ***	-0.64	***	-1.18	**	-0.32		-1.27	***	-1.02	***	-0.48	*
Residential home	-0.95 ***	-0.80	***	-1.72	***	-0.73	***	-1.35	***	-1.01	***	-0.91	***
3 contacts pw	0.02	-0.1		0.14		0.01		-0.06		0.09		-0.06	
7 contacts pw	0.03	-0.6		0.61		0.18		-0.14		0.09		-0.02	
15 contacts pw	-0.28*	-0.34	***	0.02		-0.16		-0.48	**	-0.14		-0.42	*
Nurse	0.22	0.08		1.06	*	0.33		0.10		0.24		0.19	
Therapist	0.27	0.20		0.65		0.43		0.02		0.51		-0.02	
Doctor	0.08	-0.01		0.42		0.28		-0.23		0.25		-0.12	

Notes: All parameters are relative to a baseline package of care at home, once per week and with the principal carer being a support worker. * = p<0.05, ** = p<0.01. *** = p<0.001.

Negative coefficients suggest that the variable is less preferred than relevant component of the baseline package, and positive coefficient suggest that the variable is more preferred.

The sub-group analyses are generally supportive of these results, but with a few noticeable alterations. For healthier patients (identified as having EQ-5D scores greater than 0.5), the use of outpatients/day care does not have a statistically significant negative impact on utility. Also, for all frequencies of care greater than once per week have a negative impact on utility, although only for the most intensive therapy is this statistically significant. These findings are generally repeated for patients requiring low levels of care and having low care needs, although more frequent contact appears to be preferred with only the most intensive care having a negative (and statistically significant) coefficient. Finally, for patients with poor health (identified as having EQ-5D scores less than 0.5), having a nurse as the principal carer appears to be preferred compared to other professions ($p<0.05$).

The design of the DCE is such that the predicted dependent variable is interpreted as respondent utility. The term utility in its economic sense refers to the degree of satisfaction or well-being. Using the estimated regression equations, we calculated the average utility of the sample for each combination of care characteristics. With four levels for each of the three care characteristics, 64 possible care packages can be defined. A selected set of care packages are listed in Table 60 in rank order.

Table 60. Rankings of care packages

Location	Frequency*	Principal carer	Rank**
Home	7 pw	Therapist	1
Home	3 pw	Support worker	11
Outpatients	7 pw	Therapist	15
Outpatients	1 pw	Nurse	20
Home	15 pw	Doctor	21
Outpatients	15 pw	Doctor	37
Residential home	1 pw	Therapist	43
Hospital	15 pw	Nurse	52
Residential home	15 pw	Doctor	60
Hospital	15 pw	Support worker	64

* pw = per week

** 1=best, 64 =worst

This shows that whilst there was a strong preference for care at home, respondents were willing to trade this off if other aspects of care were available

at other locations. For example, daily outpatient therapy from a therapist was preferable to twice daily contact with a doctor being the principal carer (rankings 15 and 20, respectively). However, when the full list of 64 care packages are examined, the top 14 include 'home' as the location of care (out of a possible 16 that include 'home'). Clearly, this is the dominant aspect of care.

At the end of the interview, patients were asked to assess their difficulty in answering the questions. 5%, 22%, 26%, 29% and 18% found the questions to be 'very hard', 'hard', 'okay', 'easy' and 'very easy', respectively. Likewise, when asked whether the descriptions of care seemed sensible, 18%, 29%, 34%, 15% and 4% thought them to be 'very sensible', 'moderately sensible', 'okay', 'not sensible' and 'made 'no sense'.

7.5 Discussion

The DCE shows that whilst all aspects of care impact on the preferences of intermediate care clients, evidence is strongest with regard to location of care; care at home is most preferred, with residential home and hospital care least preferred. There is also not an overwhelming desire to have frequent contacts, particularly among the healthier patients who appear to want contact with health professionals no more than once per week. There was strong evidence that intensive therapy (>15 contacts per week) was not well liked.

Perhaps the greatest strength of the DCE approach is reflected in Table 60, which illustrates how preferences for care packages are not all-or-nothing. Patients are willing to give up one aspect of care, in exchange for improvements in other aspects of care. From a service providers point of view, this is important, as it shows how that even with constraints on some aspects of the service, e.g. the staffing of home care, patient satisfaction could potentially be maintained by providing a different type of care in an alternative setting.

7.5.1 Problems

One surprise was the lack of any clear pattern relating to the professional group of the principal carer. Only in the sub-group of sick clients (EQ-5D<0.5) was there a statistically significant relationship with preference, which in this group, was to have nursing care. This possibly reflects the diverse mix of needs and preferences among the respondents, even when sub-groups were examined. Several patients commented that their care depended on its timing within the care episode, indicating that rapidly changing needs will make any assessment very context specific.

Two other reasons for the lack of a clearer picture should also be considered. It is also clear that a sizeable proportion of respondents found the questions to be hard (26%), or not sensible (20%). These problems can manifest themselves in two ways; missing data and arbitrary responses. Given the low rates of missing data, it is possible therefore that many responses were arbitrary. Whilst this does not bias the results, it does reduce our ability to identify 'real' preferences amongst the 'noise'. It is difficult to see how this can be reduced within this client population; interviews were undertaken to improve the quality of response, and the scenarios were kept simple. It is possible that we

oversimplified scenarios such that they were no longer 'sensible', however, it is likely that greater complexity would have increased the number of patients considering the questions to be hard.

The other potential reason for the lack of a clear picture with regard to some of the aspects of care is the sample size. Whilst we had hoped to recruit 200 patients, only 77 were eventually included in the study. This has a direct effect on the power of the study to detect relationships within the data.

Whilst we highlight that the findings are useful when considering about service provision, it is clear that the scenarios are simplifications. Consequently, service configurations will include aspects of care that were not considered here, but that patients may have strong views on. For example, within our broader study we have raise the importance of multidisciplinary working, yet we were unable to capture this within the DCE. Comments from respondents within the DCE interviews did, however, identify continuity of care as an important aspect of service.

7.5.2 Generalisability

The study was undertaken within a single PCT, and within this Trust, the majority of patients were referred from a single team (out of a possible six). Clearly, this will not produce generalisable findings beyond the city, or even that team. However, given the diversity of intermediate care provision, any study of this type that tries to generate generalisable findings will need to include other dimensions of care so that the full range of care models are described. As we discussed earlier, this will automatically produce more complex pairwise choices which will have the potential to make the interview too difficult for many respondents.

7.6 Conclusions

The DCE interview captured data on a wide range of patients, with varying health and care needs. Whilst some patients found the choice questions to be hard, all patients were able to answer some, and overall missing data rates were low. The results show that location of care is the most important aspect of care, and home care in particular is preferred. Some variations are seen among sub-groups, with healthier patients preferring less intensive care or support. There is little evidence for one type of principal carer over another.

8 Discussion and conclusions

8.1 Introduction

The purpose of this chapter is to synthesise the findings from the range of research activities performed within this project to address the research questions. The original research questions form the organising framework for the discussion, which is presented under the headings of the key conclusions; implications for policy makers; implications for services (including managers); and the implications for further research. The methodological limitations of each of the approaches used within this study have been discussed within the respective chapters and are not revisited here.

The research aimed to address five questions;

- How do workforce change policies impact on the workforce responsible for delivering services for older people?
- How do variations in workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) impact on patient, staff and service outcomes (including costs)?
- What is the impact of different service organization and management approaches (team structures, setting of care, supervision and accountability) on patient, staff and service outcomes (including costs)?
- How do different organisational and management structures impact on the workforce configuration?
- How does specialization, through the employment of extended scope practitioners, GPs with special interests and geriatricians, impact on the team and service users?

In addition, the research aimed to:

- Develop a model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.
- Develop a framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.

8.2 Overview of findings

The mixed methods study consisted of several different components which examined the context of care delivery, staffing models, the organisation of the services, and service user perspectives. Specifically;

1. A policy and literature review to identify the context and previous relevant research in this field.
2. A re-analysis of data arising from a previous study of intermediate care services which had captured staffing and outcomes data to explore whether there is a relationship between skill mix and patient outcomes.

3. A service audit which explored, in depth, the organisational structures of older peoples' community based rehabilitation and intermediate care teams in England to determine whether patterns of staffing are related to organisational structure.

4. A prospective study of 20 intermediate care teams to explore the relationship between staffing models and organisational structures and patient and staff outcomes.

    a. In order to understand the cost implications of different staffing models, we analysed the relationship between skill mix and costs, and performed a cost effectiveness study to examine the relationship between costs and patient outcomes.

    b. Eleven of the teams that participated in the prospective study participated in focus groups and interviews to provide an in-depth, qualitative perspective on the importance and influence of staffing models.

5. A separate study to ascertain patient preferences for different models of care using a methodology called Discrete Choice Experiment (DCE). We asked patients to express a preference for the type of health service provider, the location and the intensity of their care.

The key findings from each of these studies is summarised below.

1. Literature and policy review

The policy analysis identified six priority areas for the health care workforce which are outlined in section 8.2.1 below. More detail is provided in Chapter 2.

The literature review demonstrated that workforce research is still a relatively new field, particularly with respect to exploring the impact of workforce change in community based, multidisciplinary settings. In particular we assessed the relationship between staffing models and patient, staff and service outcomes. There was no similar workforce research arising from intermediate care settings, and the heterogeneity of the literature means that only broad themes can be elicited however there were some themes that were relevant to our study.

Patient outcomes

There is a suggestion that patient satisfaction is improved by having well trained staff and is negatively influenced by workforce shortages and recruitment difficulties (Anderson, Wiener et al. 2006). Better functional outcomes for patients may be associated with a staff spending a higher proportion of their time providing rehabilitation or direct patient care as opposed to staff spending their time on administrative duties (De Wit, Putman et al. 2007). This may also be more a cost effective use of time by more highly trained staff (Jones, Wilson et al. 1999).

In a UK based study of service user perceptions of the quality of providers of home care (Netten, Jones et al. 2007), higher perceived service quality was associated with having a stable workforce and no recruitment difficulties, older staff (>50 years old) who have been in employment for more than 5 years, having a higher proportion of part time staff, allowing sufficient travel time

between patients and having higher wage rates relative to local wages. Surprisingly, lower perceived quality was associated with having a higher proportion of staff with NVQ qualifications.

Staff outcomes

There was a paucity of relevant literature on staff outcomes. One qualitative study found that staff satisfaction was high in intermediate care teams, and this was attributed to the enabling philosophy of care, high levels of autonomy, providing care in the community, and positive experiences of team working (Nancarrow 2007). Other studies have suggested a relationship between larger team size and higher levels of staff turnover (Castle and Engberg 2006).

Service outcomes (costs and length of stay)

There is limited evidence that having a greater proportion of nursing staff trained in rehabilitation can reduce patient length of stay (Nelson, Powell-Cope et al. 2007), however the same study showed that increasing RN years of experience increased the length of stay. This study only examined the impact of nurses, and not a multidisciplinary team.

Having highly trained staff involved in administration rather than clinical service delivery is seen as being a less cost effective mode of service delivery, however more evidence is required to support this hypothesis (Jones, Wilson et al. 1999).

There were several gaps in the literature, particularly with respect to the relationship between multidisciplinary staff input and outcomes for patients, staff and services.

2. Service Audit

The service audit showed that staffing models of older peoples' CAICS vary widely between teams, however there are some common features. Overall, more than 60% of all teams included in our study employ an occupational therapist, physiotherapist, at least one support worker, nurse and an administrator. Social workers and speech and language therapists are employed by around half of all CAICS teams. Fewer than 20% of the teams directly employ a medical practitioner, psychologist, mental health practitioner, pharmacist or podiatrist. CAICS are most likely to be led by a nurse, physiotherapist or occupational therapist.

There were some variations in staffing models according to the location of care. Home based services employ the highest proportion of support workers, physiotherapists and occupational therapists. Inpatient services employ the highest proportion of nurses and also had the highest ratio of support workers to qualified staff. Outpatient services employed the highest number of medically trained staff.

There were large variations in team sizes (mean 18.2 WTE, SD 14.1, range 1.4 - 80) and in the ratios of support workers to qualified staff (mean 0.7, SD 0.8, range 0 - 5.6). Additionally, the ratio of the total number of staff to the total referral showed large variations (mean 66.9, SD 70.3, range 2.9 - 385.4).

These findings suggested that there is currently too much heterogeneity within CAICS to develop an organising framework for staffing and skill mix, and that

further evidence is required to link staffing models to patient and service outcomes.

3. Re-analysis of existing data

The reanalysis of data arising from the National Evaluation of Intermediate Care (Barton, Bryan et al. 2005) showed the following;

- There was no relationship between skill mix and patient outcomes as measured by the Barthel index.
- There was weak evidence (p=0.079) that a higher ratio of support staff to qualified staff is associated with greater improvements in EQ-5D scores.
- There was no relationship between staffing and length of stay.
- There was a relationship between costs, the number of different types of staff and team size. The data suggest that cost per case increases initially as the size of the team grows but then begins to fall. The data suggest that cost per case begins to fall at around 12 WTE staff (p<0.01). There was evidence that having a greater number of different types of staff is associated with lower costs (p<0.05).

The primary purpose of this study was not to examine relationships between staffing and outcomes, therefore the data were not specifically collected for this reason. However, the data that were available showed some meaningful relationships between staffing and outcomes, indicating that there is some value in further researching these parameters.

4. Prospective study

a. Costs and outcomes

Several patient characteristics were related to patient outcomes. Younger, female patients with higher levels of dependency at admission to the service showed the greatest potential for improvement. Patients with a higher 'level of care need' (ie requiring medical input as opposed to rehabilitation) had a shorter length of stay.

Better patient outcomes were associated with a higher proportion of treatment by support workers (change in TOMS impairment score: coefficient 0.164 (95%CI 0.001-0.330,p=0.052). Patients also benefitted from more face to face contact with staff(log scale) 0.159(0.100-0.219,p<0.001). However, involving a higher proportion of support workers was associated with *increased* service costs (p<0.001). Additionally, larger teams resulted in higher service costs per patient (P<0.001) and the cost per patient increased as the number of different types of practitioners treating the patient increases (p<0.001). Patients were slightly more satisfied when treated by larger teams 0.08(0.03-0.14,p=0.004) but staff from larger teams were less satisfied -0.24(-0.44to-0.04,p=0.02).

These findings are explored in more detail later in this chapter.

b. Prospective study: qualitative findings

The qualitative findings from the prospective study showed that the staffing models adopted by older peoples' CAICS have evolved and adapted to local conditions and staffing availability.

Staff are largely highly satisfied working in CAICS, with high levels of support for generic working, co-location of teams, and valuing of good team-working. Support workers are seen as a valuable addition to the skill mix. However, staff cited staff shortages, a lack of career progression and inconsistent access to training as negatives. The recent introduction of Agenda for Change appears to disadvantage staff working in non-hierarchical career settings (McClimens, Nancarrow et al. 2010).

5. Patient perspectives: Discrete choice experiment (DCE)

This study showed that staffing, location and frequency of care provision all have some effect on the preferences of intermediate care clients. The strongest evidence emerged with respect to the location of care, with clients preferring care at home over residential or outpatient care. Healthier clients prefer less frequent contacts with their health service providers, and all participants disliked intensive therapy (>15 contacts per week). Preferences for particular types of staff were less strong. Patients with poorer health (EQ5D score less than 0.5) prefer to have a nurse as a principal carer, but no strong preferences emerged across the entire study sample.

8.3 Overall conclusions

This section specifically addresses each of the research questions, drawing on supporting evidence from each of the relevant chapters.

8.3.1 How do workforce change policies impact on the workforce responsible for delivering services to older people?

The primary goals of the key workforce policies can be summarised under the following six headings;

- *Increasing staffing numbers* through increasing undergraduate training places, international recruitment strategies, attracting new staff into the NHS and encouraging return to practice non-practicing staff (Department of Health 2000; Department of Health 2002; Department of Health 2004);
- *Improving staff retention* through new career pathways, pay systems and the working lives standard(Department of Health 2000; Department of Health 2001; Department of Health 2001; Department of Health 2004; Department of Health 2004);
- *Introducing new roles* such as assistant practitioners, consultant therapists and support workers in intermediate care through the changing workforce programme, accelerated development programme and the national practitioner programme (NHS Modernisation Agency ; Department of Health 2000; Department of Health 2000; NHS Modernisation Agency 2004);

- Developing *new ways of working* such as role sharing and blurring of professional boundaries (Department of Health 2000; Department of Health 2000; NHS Modernisation Agency 2004; Department of Health 2005);
- Improving the *quality of the workforce* through greater access to training, education & continuing professional development, introducing more rigorous clinical governance and professional regulation (NHS Employers ; Department of Health 1998; Department of Health 2000; Department of Health 2000; Department of Health 2000; Department of Health 2000; Department of Health 2001; Department of Health 2001; Department of Health 2002; Department of Health 2004; Department of Health 2004; Department of Health 2006).
- Improving *workforce planning* through communication with education bodies, introduction of workforce confederations and workforce care group teams (Department of Health 1999; Department of Health 2000; Department of Health 2000; Department of Health 2001; Department of Health 2002; Department of Health 2004; Department of Health 2006).

Where possible, we have assessed the impact of these policies both qualitatively and quantitatively, and address each one below. It was not possible, nor the goal of this research, to address point 6 (Improving workforce planning).

- Increasing staffing numbers

The lack of a clear intermediate care 'population' means that measuring the changes in crude staff numbers over time is not possible, thus we are unable to determine whether intermediate care staff numbers have increased overall. There are indicators, however, that the workforce responsible for delivering older peoples' community rehabilitation and intermediate care services has changed over the past decade, and that recruitment and retention difficulties have become less of a focus for teams during this time.

Early research into the intermediate care workforce identified recruitment and retention as a major barrier to the delivery of effective services (Nancarrow 2004; Regen, Martin et al. 2008). While not an issue for all teams, staff shortages and recruitment and retention difficulties were still a concern.

The introduction of Agenda for Change (AfC) was seen as a barrier to recruiting staff within intermediate care services due to the perceived inequities in grades between the hospital and community setting. Some staff felt that the grades awarded to intermediate care staff did not recognise the levels of expertise required in their roles.

- Improving staff retention

The policy directives aimed to improve staff retention through the introduction of new career pathways, pay systems and the working lives standard (Department of Health 2000; Department of Health 2001; Department of Health 2001; Department of Health 2004; Department of Health 2004).

The results of this study indicate that, despite the finding that recruitment and retention difficulties are now not the prime focus of intermediate care services, career pathways are limited within this context, and staff retention is an area for

potential concern. The most extreme illustration of this was one team that reported that they went through ten occupational therapists in a year.

The main indicator of staff retention was the 'intention to leave' question asked in the Workforce Dynamics Questionnaire (prospective study only). Asking a staff member about their intention to leave their job in the next twelve months has been found to be a strong predictor of actual staff behaviour in terms of resignation from their post (Blau and Boal 1989). Intention to leave is also positively correlated with job satisfaction ($r = 0.453$, $p<0.001$). Both findings suggest that overall, the majority of staff are satisfied, and do not intend to leave their jobs. The mean score for question "I am intending to leave my employer in the next 12 months" was 73.8. However, it is concerning to note that 20% of participants gave a score of less than 50% on this domain and 10% of staff gave a score of less than 10, indicating a strong intention to leave (on a 0 – 100 scale, where a higher score indicates a better service / individual outcome). Factors associated with higher intention to leave scores include being part of a larger team ($p=0.02$), greater seniority ($p=0.06$), and older age ($p=0.09$).

The 'intention to leave' question was only asked in the final circulation of the WDQ, so we are unable to examine whether there has been any changes in intention to leave over time.

Staff also reported a lack of access to appropriate training and career development opportunities within intermediate care services. This finding is reinforced by the staffing profiles of the teams, which are predominantly clustered around AfC grades 3 and 6. It was also a recurrent theme within the qualitative data, and illustrated by the WDQ score for "training and career development opportunities". The average score for this domain on the WDQ was 56 (on a 0 – 100 scale, where a higher score indicates a better service / individual outcome) and 40% of participants scored less than 50 on this domain, indicating a highly unsatisfactory result overall. Better access to training and career development opportunities were associated with higher staff satisfaction and lower intention to leave (employer).

The case study data illustrates that where new roles had been introduced; including roles that were classed as being 'specialist' within their team, those members of staff were not recognized through a higher grade. In some cases, even the team managers were at the same levels as the other senior team members.

The application of the Knowledge and Skills Framework is clearly seen in action in intermediate care services, where more highly qualified staff are delegating tasks to support workers / assistant practitioners who receive on the job training, and competency based training.

Previous literature on the intermediate care workforce has found that career development opportunities for staff are limited, and that this impacts on staff satisfaction. This is largely believed to be due to the non-hierarchical organisational structures within intermediate care services, and the small team sizes. In this study, and previous literature (Nancarrow 2007), several senior staff expressed that they would need to leave their current job if they wanted to progress their career.

- Introducing new roles

  The accelerated development programme for support workers in intermediate care was instrumental in introducing new support worker roles into intermediate care (Nancarrow, Shuttleworth et al. 2005; Ottley, Tongue et al. 2005). This is supported by the findings reported in the cross sectional study which shows, the proportion of teams that employ support workers increased by nearly 20% in the first five years of this decade.

  There were a few examples of professionally qualified staff taking on new or novel roles, such as discharge liaison practitioners which tended to be interdisciplinary roles involved in the assessment and development of care plans for patients. These staff were not rewarded for their 'new or novel' roles in terms of career advancement or additional pay, and training and support for these roles were lacking.

  We did not specifically explore the implementation of the Improving Working Lives Standard. The only routinely collected indicator of its implementation was the flexibility of working practices, which in this case was relatively high. Only 55% of staff were employed on a full time basis, the remainder working a range of part time and flexible working hours.

- Developing new ways of working

  This study, and previous literature (Regen, Martin et al. 2008), have shown that intermediate care promotes close interprofessional working, role sharing, and the blurring of professional boundaries. However, one point which was more strongly emphasized in this study was the clear focus of the roles of professionally qualified staff on assessment and care management roles, with the delegation of a large proportion of their clinical and 'hands on' work to support staff.

  The concepts underpinning the new ways of working, such as role sharing and blurring of professional boundaries was measured in the WDQ "role flexibility" domain of the prospective study. The average score for "role flexibility" was 78.9 out of 100, and 90% of staff scored over 60 on this domain. High scores were seen across all professional groups with the exception of secretarial / administrative staff.

- Improving the quality of the workforce

  As mentioned above, data from the focus group, case study interviews and the WDQ findings suggest that formal training opportunities for qualified professionals, clinical specialists and support workers alike is lacking. This has impacted negatively on career progression opportunities and staff satisfaction.

  In addition, support workers receive the majority of their training informally from qualified professionals, however little consideration is made of the resource requirements of the qualified professionals to support or provide this training.

This is confounded by the lack of access to formal training opportunities for support staff.

Outside formal training opportunities, practitioners in teams learn skills from one another through team working, joint working and professional visits. This sharing of skills is enhanced by working as a co-located team. Work experience was the other main avenue for skill and knowledge acquisition.

Summary

It appears that the intermediate care environment is conducive to the implementation of policies around joint working and shared roles. However the price for these initiatives, within the intermediate care setting at least, is a lack of clear career progression opportunities, particularly for higher grade staff, who also reported the 'highest intention to leave their employer' scores. This is compounded by the lack of training and development opportunities available in several teams. Additionally, it appears that AfC does not reward genericism, which is in direct conflict with the flexible working practices illustrated in intermediate care teams.

8.3.2 What is the relationship between workforce configuration (skill mix; training; delegation, substitution and specialization, role overlap) and patient, staff and service outcomes (including costs)?

Several aspects of workforce configuration are associated with outcomes for patients, staff and the service.

Patient outcomes:

Patient outcomes (TOMS and EQ-5D) were positively and significantly associated with five key staffing variables:

- Having care delivered by a higher proportion of support workers (coefficient 0.164 (95%CI 0.001 - 0.330, p=0.052)
- Being treated by staff from a team which has fewer senior staff
- Being treated by fewer different types of practitioners during the episode of care
- Being treated by staff who belong to a larger team, and
- Increasing total amount of face to face contact time with the patient (log scale 0.159(0.100-0.219, p>0.001).

Having care delivered by a higher proportion of support staff is associated with greater improvements in patient outcomes as measured by the EQ5D and TOMS impairment, activity and participation scores. These findings were found in both the secondary analysis study and the prospective study (Chapters 4 and 5). Similarly (and closely related to the previous point), having fewer senior staff in

the team is associated with greater improvements in TOMs activity and impairment scores.

Patients who see fewer different types of practitioners show greater improvements in TOMs impairment and activity scores.

A larger team is weakly associated with better patient satisfaction (an increase in 10 staff is associated with a 0.8% increase in patient satisfaction) (correlation 0.08(0.03-0.14, p=0.004), however no other workforce (or other) variables were associated with patient satisfaction.

Larger team size is also positively associated with improvements in the EQ5D and the TOMs participation and activity scales. However, team size is not necessarily a proxy for an increased likelihood of the team employing support workers. The prospective study found no relationship between team size and the likelihood of employing a support worker. The cross sectional study showed that there was a linear relationship between the numbers of support workers and qualified staff employed within a team. In other words, the ratio of qualified to support staff does not necessarily increase with increasing team size).

Increasing the total amount of face to face contact time with the patient was associated with greater improvements in all TOMs domains.

Staff outcomes:

The workforce configurations associated with staff outcomes were staff grade, specialism and staff age. Specifically, higher grade staff (AfC bands 5-8 vs 1-4) are have a higher intention to leave their current employer, but have a lower intention to leave their profession than lower grade staff. Younger staff reported a lower intention to leave their employer (there was no correlation between age and grade).

In terms of specialism, social workers, social care workers and support workers were more likely to report an intention to leave their employer and their profession in the next 12 months.

There were few examples of true 'specialisation' within the teams investigated within our study, so we were unable to examine whether the introduction of specialist roles impacts on outcomes.

Service outcomes (costs and length of stay):

The workforce configurations associated with service outcomes were;

- The proportion of skilled staff
- The number of different types of practitioners and
- The total number of staff in the team.

Overall, having a higher proportion of skilled staff is associated with *decreasing* costs per patient, and costs are minimised when around 63% of the contacts are from skilled staff. After this point, costs start to increase again.

Cost per patient increases as the number of different types of practitioners treating the patient increases. The rate of increase in cost with each additional practitioner is steep at first but then declines.

The total number of staff in the team is directly associated with higher service costs (ie, the larger the team, the greater the costs).

No staffing variables were found to be associated with length of stay in either the prospective or secondary analysis studies (Chapters 3 and 5).

8.3.3 What is the relationship between different service organization and management approaches (team structures, setting of care, supervision and accountability) and patient, staff and service outcomes?

Organisational and management approaches were associated with changes in staffing and service outcomes, but we did not find any relationships with patient outcomes

Staff outcomes:

The following organisational and management structures were associated with staff outcomes;

- A smaller overall team size was associated with greater staff satisfaction and lower intention to leave the employer.
- Staff who reported higher levels of integration with their peers and colleagues were more satisfied and reported a lower intention to leave their employer or their profession.
- Better team working and management scores were associated with greater staff satisfaction and lower intention to leave the employer.
- Having a specific line manager, rather than a split style of management is associated with greater staff satisfaction.
- Staff who felt that their teams delivered high quality care were more satisfied and showed less intention to leave their employer.
- Staff who were more autonomous were less likely to leave their profession.
- Staff in teams that hold meetings at least weekly are more satisfied than those where meetings are held less frequently.

Service outcomes

- Better staff integration with their peers and colleagues was associated with lower overall costs of care delivery.
- Teams that reported that they delivered higher quality care also had marginally higher service costs.
- Better access to technology and equipment was associated with a reduced length of stay. This finding was supported by the qualitative data, with staff reporting that delays in ordering and accessing equipment delayed discharge.

8.3.4 Patient attributes associated with outcomes

Whilst not the focus of this study, it is important to consider the patient level factors found to be associated with outcomes;

- Patient age was found to be positively associated with an increased cost of service delivery, with every 1 year increase in age increasing costs by 3%.
- Female patients showed a greater improvement in TOMs impairment, participation and wellbeing scores than men.
- Patients who had higher dependency scores at admission (as measured by the EQ-5D and all TOMs domains) showed greater potential to improve across all domains.
- The patient 'level of care need' at admission was associated with the potential for improvement, with patients judged as needing levels of care need 2 - 5 showing the greatest improvements in outcomes overall.
- The secondary analysis (Chapter 4) also found that younger patients had greater potential to improve.

8.3.5 What is the relationship between different organisational and management structures and the workforce configuration?

Intermediate care services are largely heterogeneous, and despite the number of teams surveyed for this study, few clear patterns have emerged that explain the workforce configurations adopted by each team.

The qualitative data suggests that many teams have either evolved from existing service models, or formed in response to perceived local community needs.

Data provided by the teams within their service proforma shows that several were established to 'reduce admissions to care' or 'facilitate early discharge from hospital', thus it seems likely that their current shape has been influenced directly by government policy.

The service audit provided some evidence of variations in staffing according to the primary setting of care provision. Teams providing home based care provision had higher numbers of support workers, physiotherapists and occupational therapists but fewer medical staff, including general practitioners and geriatricians than inpatient or outpatient services ($p<0.05$). Inpatient services were likely to report higher numbers of nurses and a higher ratio of support workers to qualified staff. Outpatient services reported the highest numbers of medical staff and geriatricians.

There was evidence to suggest that as referrals per year increased, so did the number of Whole Time Equivalent staff (WTE) (excluding administrative staff). Equally the number of WTE support workers increased as the number of WTE qualified staff increased.

We did not find any trends in workforce configuration according to the host organisations (eg PCT or Social Services), geographic location, nor according to the primary level of care need identified by the teams.

8.3.6 How does specialization, through the employment of extended scope practitioners, GPs with special interests and geriatricians, impact on the team and service users?

Surprisingly, within this study, we found very few examples of the use of specialist staff involved in the direct delivery of intermediate care services. The new or novel roles that did exist were support worker roles who may have had extended tasks. There were a few examples of professionally qualified staff taking on new or novel roles, such as discharge liaison practitioners which tended to be interdisciplinary roles involved in the assessment and development of care plans for patients. These staff were not rewarded for their 'new or novel' roles in terms of career advancement or additional pay.

Additionally, with only one exception, the new or 'extended' roles seen in the intermediate care services in our study were generic roles, rather than discipline specific. This created difficulties for staff wanting to progress within the new AfC framework. The 'extended' generic practitioners were grade 6 staff, so in fact, there was no remunerative advantage in their extended role. Similarly, support staff, of whom several had undertaken National Vocational Qualifications, and even foundation degrees, felt unable to progress up a clear career hierarchy.

This illustrates a contradiction between the policy goal of increasing role flexibility and the introduction of the AfC pay gradings. AfC only appears to rewards specialisms and narrowing of tasks, rather than providing a framework for increasing generic expertise. By nature, this means that more generic staff will be left at the bottom of the career pyramid, and only those with specific expertise will be able to progress. This is a particular problem in intermediate care services, where the majority of patients require multidisciplinary input, and few require the ongoing input of specialist skills (or, by definition, they probably would not be receiving intermediate care). However, the findings have shown that the generic staff need access to a wider range of skilled staff to increase their own breadth of skills, and resultant patient outcomes. There is little incentive for more highly skilled staff to stay in an environment in which their skills will be 'genericised', there are few career development opportunities, and few avenues for specialisms. The services need to consider the structures of their staffing to both ensure that they have access to appropriate expertise to provide input where necessary to patients, and to mentor and train the more generic staff.

In theory, the movement of services out of hospitals into the community will necessitate the provision of expertise within community based services, however, the services that we have examined have not embraced this in a way that creates more specialist opportunities for staff.

Further reinforcing the generic nature of the new roles in intermediate care services is the lack of access to training for staff. Where new roles did exist, they had largely received on the job training. There were no formal career structures to which these workers could connect, including access to specific training. Other staff within the team were limited in their career progression opportunities by an overwhelming lack of access to training, due in part to lack of access to resources.

8.3.7 Develop a model that describes older peoples' community and intermediate care services, given the complexity of the services and interventions.

The heterogeneity of the services we encountered, and the lack of a clear definition of intermediate care services within the UK context led us to explore, in detail, the components or contextual features that go together to make up a service. The process for developing this 'service proforma' is described in detail in (Nancarrow, Moran et al, 2006) and summarised in Chapter 2. The service proforma provides a way to compare services without 'pigeon holing' them into pre-existing taxonomies, which appear to have little value in guiding service development. As such, we have not developed a taxonomy for describing older peoples' community and intermediate care service, but have developed a framework from which the services can be compared.

The six domains used to describe intermediate care services are;

- Context
- Reason for the service
- Service users
- Access to the service
- Service structure
- The organisation of care

Based on the findings from both the cross sectional and prospective studies, as well as the qualitative data we can develop a general picture which describes intermediate care services as a whole. However the details within each of the domains tends to vary quite widely. The key themes emerging under each of these subheadings is summarised below.

Context

The cross sectional and prospective study data indicate that older peoples' community and intermediate care teams are generally hosted by a PCT with very few being hosted by social services facilities and only 13% by both. Yet information from the teams who participated in the prospective study indicated funding was generally provided by both PCTs and social services.

These teams served all geographic areas (urban, suburban and rural). The size of populations served by the teams varies enormously from 50,000 to over 400,000.

Reason for the service

The cross sectional and prospective data suggests the majority of services were set up to facilitate early discharges from or reduce admission to care (hospital or residential). However the data also demonstrate that many services have been established for longer than the current policy directives have been in place which initially directed intermediate care to serve these functions. The qualitative information suggests there is a large historical component to the establishment

of these teams which includes amongst other reasons, closure of acute hospitals and lack of particular services in the area.

Service users

The client profiles taken from the cross sectional and prospective data indicates clients who utilise older peoples' community and intermediate care services are more likely to be female, white and over 60. The case mix of presenting services consist a variety of stroke, falls, medical, orthopaedic and/or neurological conditions. These findings are consistent with the Birmingham Leicester National Evaluation of Intermediate Care Services (Barton, Bryan et al. 2005).

While the cross sectional data indicates teams generally cater for clients who require 'Intensive rehabilitation' (Level 5 Level of Care), the patient level data collected during the prospective study found that 25% of service users require 'Regular rehabilitation' (Level 4 Level of Care), followed by level 3 (16%), level 1 (13%) and level 5 (11%).

Teams were asked to specify their target population in the service proforma. Few specifically targeted patients over the age of 65, and if age was specified, it was generally over 18 years. The health needs were broad, incorporating any health need with rehabilitation potential to prevent admission. Some teams were more specific, such as community stroke teams.

Access to the service

Referrals to the teams were made through several avenues. Generally referrals came from health care practitioners, hospitals or social workers. The prospective study showed that the majority of referrals were from allied health practitioners (20%) followed by GPs and acute hospital wards (both 17%), then social workers (9%). Very few services accept patient self referrals.

The points of entry to the team included a single point of contact, assessment by team member or referral from practitioner directly to team.

Eligibility criteria generally included the criteria that the patient was medically stable, had rehabilitation potential, and sufficient cognitive ability to follow rehabilitation programme.

The most common exclusion criterion to teams was patients with mental health conditions as a primary presenting condition.

Service structure

Staffing: Over half of all teams had at least one WTE physiotherapist, occupational therapist, support worker, administrator and nurse. Social workers were present in 40% of teams and medical practitioners in 20%.

Location of care: The majority of teams (83%) provide services in more than one location, however predominantly care is provided in client's own home. Most had a common team base

Management structures: Teams generally have a specific team manager or split management (team leader for team issues/ professional heads for clinical issues).

The organisation of care

The types of interventions provided by teams included: assessment and enablement functions; multidisciplinary assessment; therapy; personal and social care; 'social rehabilitation'; referral onto other agencies; triage; advocacy; and equipment provision.

The duration of input varied across services, and according to level of care needs. Many services set the upper limits of care at the 6 weeks. Few services provided ongoing input.

There was quite a large variation in operational hours of service with some teams providing 24 hour, 7 day care, and others 9 – 5 care for 5 days.

8.3.8 Develop a framework to describe the workforce variations across the different approaches to older peoples' community and intermediate care services.

As mentioned above, the lack of a clear and consistent taxonomy around intermediate care services means that there is not an established basis for comparison between teams.

To address this objective, we have employed Enderby and Stevensons' "Eight Levels of Care" model, which identifies eight packages of patient care based on the levels of patient care need (Enderby and Stevenson 2000). This appears to be a useful basis for discriminating between patients with different levels of dependency (as measured by the TOMs and EQ5D), length of stay, as well as a potential predictor of service costs. We have collected sufficient data within this study to compare staffing variations across the 8 levels of care domain.

Most teams have a casemix covering a wide spectrum of the levels of care need, although nearly a quarter of all patients included in the prospective study were deemed to be level 4 (needs a regular rehabilitation programme).

As Table 62 illustrates, patients in levels 4, 5 and 8 have the longest length of stay, and subsequently, the highest overall staff costs.

Whilst further research is necessary to verify these findings, it serves as a potentially useful benchmark for service planning. With the move to practice based commissioning, also provides a basis for both measuring, and realistically predicting expected changes in outcomes across different patient groups. As Table 63 shows, the levels of care need with the greatest potential for improvement are levels 4 and 5, whereas levels 0 and 1 show little potential for change (as would be expected).

It is beyond the scope of this study to develop an intermediate care benchmarking tool, and other rehabilitation based casemix based tools are available (eg the "Australian National Sub-Acute and Non-Acute Patient Casemix Classification System" (AN-SNAP), and the Northwick Park Care Needs Assessment tool), however with further development, it may be possible to utilise the model below to inform casemix decisions, resource planning (including staffing and costs), and outcomes.

Table 61. Summary of patient attributes, length of stay and costs by level of care need.

Level of Care Need	n	Number of face to face contacts	Total contact time, mins	Length of episode, days	Staff costs, £s
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
0 Does not need any intervention	109	2 (2)	182 (247)	5 (17)	70 (98)
1 Prevention / maintenance programme	248	8 (11)	761 (1265)	28 (35)	283 (473)
2 Convalescence/respite	43	9 (10)	828 (1068)	27 (28)	304 (385)
3 Slow stream rehabilitation	315	13 (17)	1032 (1410)	38 (36)	352 (457)
4 Regular rehabilitation programme	488	22 (28)	1755 (2342)	41 (30)	610 (841)
5 Intensive rehabilitation	220	25 (23)	1880 (2120)	50 (44)	661(782)
6 Specific treatment for individual acute disability	99	8 (10)	668 (837)	29 (32)	251 (296)
7 Medical care and rehabilitation	83	19 (35)	1565 (2743)	22 (26)	512 (753)
8 Rehabilitation for complex disabling condition	27	20 (29)	2148 (3986)	51 (48)	760 (1465)

Table 62. Dependency scores on admission

	EQ-5D Mean (SD)		TOMs scores (SD)			
	n	n	Impairment	Activity	Participation	Wellbeing
0 Client does not need any intervention	46	0.60 (0.35)	83	3.54 (1.32)	3.54 (1.39)	3.49 (1.51)	4.02 (1.32)
1 Client needs prevention/maintenance programme	196	0.43 (0.34)	228	3.53 (0.89)	3.49 (0.89)	3.43 (1.06)	3.92 (0.96)
2 Client needs convalescence/respite	27	0.36 (0.39)	40	3.17 (0.94)	3.11 (1.14)	3.06 (1.30)	3.61 (1.25)
3 Client needs slow stream rehabilitation	267	0.40 (0.30)	304	3.23 (0.75)	3.13 (0.89)	3.22 (1.03)	3.73 (0.97)
4 Client needs regular rehabilitation programme	439	0.43 (0.31)	472	3.25 (0.73)	3.20 (0.84)	3.28 (0.96)	3.80 (0.91)
5 Client needs intensive rehabilitation	196	0.33 (0.34)	212	2.81 (0.78)	2.75 (0.91)	2.80 (0.97)	3.41 (1.08)
6 Client needs specific treatment for individual acute disability	84	0.37 (0.36)	91	2.52 (1.19)	3.05 (1.16)	3.31 (1.22)	3.73 (1.04)
7 Client needs medical care and rehabilitation	61	0.29 (0.38)	72	2.49 (1.12)	2.33 (1.12)	2.56 (1.16)	3.14 (1.26)
8 Client needs rehabilitation for complex disabling condition	19	0.34 (0.42)	27	2.22 (0.71)	2.00 (1.07)	2.22 (1.10)	2.91 (1.26)

*Higher scores indicate less dependency on all scales.

Table 63. Change in dependency scores

		EQ-5D Mean (SD)		TOMs scores mean (SD)			
	n		n	Impairment	Activity	Participation	Wellbeing
0 Client does not need any intervention	34	0.07 (0.17)	62	0.02 (0.17)	0.03 (0.20)	0.07 (0.25)	0.04 (0.23)
1 Client needs prevention/maintenance programme	151	0.10 (0.29)	207	0.10 (0.66)	0.18 (0.73)	0.17 (0.75)	0.07 (0.78)
2 Client needs convalescence/respite	24	0.21 (0.32)	29	0.28 (0.88)	0.43 (0.55)	0.47 (0.73)	0.26 (0.76)
3 Client needs slow stream rehabilitation	217	0.17 (0.28)	271	0.37 (0.74)	0.46 (0.71)	0.39 (0.78)	0.28 (0.66)
4 Client needs regular rehabilitation programme	354	0.21 (0.30)	410	0.54 (0.83)	0.61 (0.93)	0.51 (0.94)	0.36 (0.86)
5 Client needs intensive rehabilitation	156	0.25 (0.33)	172	0.67 (0.93)	0.72 (0.95)	0.62 (1.00)	0.45 (1.06)
6 Client needs specific treatment for individual acute disability	60	0.13 (0.26)	81	0.33 (0.76)	0.29 (0.57)	0.17 (0.53)	0.15 (0.67)
7 Client needs medical care and rehabilitation	41	0.23 (0.34)	60	0.40 (1.08)	0.52 (10.8)	0.21 (1.03)	0.20 (0.95)
8 Client needs rehabilitation for complex disabling condition	16	0.10 (0.34)	22	0.32 (1.03)	0.45 (0.94)	0.50 (0.83)	0.07 (1.03)

Table 64. Workforce profile for each level of care.

Level of Care Need	Proportion of total time spent with qualified staff	Proportion of total time spent with support staff
0 Client does not need any intervention	0.80	0.20
1 Client needs prevention/maintenance programme	0.65	0.35
2 Client needs convalescence/respite	0.64	0.36
3 Client needs slow stream rehabilitation	0.57	0.43
4 Client needs regular rehabilitation programme	0.52	0.48
5 Client needs intensive rehabilitation	0.63	0.37
6 Client needs specific treatment for individual acute disability	0.65	0.35
7 Client needs medical care and rehabilitation	0.40	0.60
8 Client needs rehabilitation for complex disabling condition	0.52	0.48

8.4 Implications for policy

Workforce policies

Overall, workforce change policies have been effective at introducing new roles in intermediate care services, particularly in the form of support workers. The career frameworks have been clearly implemented, although within this setting, there is little opportunity for staff to climb the career ladder as hoped. This appears to be, in part, because of the non-hierarchical organisational structures of the services provided, and the predominant need for generic, rather than specialist skills in the intermediate care setting. However, the lack of access to appropriate training for staff also limits their career development opportunities. Access to training is limited, in part, by team resources, but several respondents also felt that there was limited appropriate training available. Training that was available was criticised for being too generalised, with the most valuable skills learnt 'on the job'. Further training was often not directly linked to advancement on the AfC pay scales, and there was generally not a clear training trajectory to follow.

There needs to be some reconciliation of the apparently contradictory policy requirements for flexible, interdisciplinary working and the blurring of role boundaries and the reward structures within AfC which currently appear to be based on specialist hierarchies. There is also anecdotal evidence that support staff are being used as lower cost substitutes for more highly qualified staff. The lack of clear definitions and boundaries around what can and cannot be delegated or substituted between staff with different levels and types of training, means that there is great potential to use support level staff to undertake a large proportion of the work involved in delivering the type of care required in older peoples' community and intermediate care services. Because we do not really have a clear understanding of the nature of expertise, or the risk implications of using less qualified staff, it is difficult to determine the implications of this shift on patient and service outcomes.

This raises the dilemma of regulating support staff. Without regulation, support workers represent a highly flexible and responsive workforce, able to take on a wide range of tasks, assuming that appropriate training is available. However, the lack of regulation may create risks for patients through the extension of practitioners outside their expertise. The introduction of regulation is likely to unify this workforce, and set them on a more traditional professional trajectory, with the nature of the risks much more clearly articulated. However, this is likely to come at the cost of having a truly flexible and responsive workforce.

Integrated working

The need for 'joined up' resources, focussed around the needs of patients rather than those of the service is the basis of several policies (eg Department of Health, 2000). There was evidence of integrated working at different levels across several of the teams involved in this study. This was particularly evident in teams which were jointly hosted by health and social

care, and teams which shared staff across both settings. However, poor integration was still cited as one of the major barriers to the delivery of efficient and effective older peoples' intermediate care services.

The barriers were seen at several levels:

- Inaccessibility of social workers to facilitate discharge from intermediate care settings;
- The lack of integration of information technology infrastructure across health and social care settings resulting in duplication of records from one system to another;
- Delays in accessing social services packages of care to streamline the care of the patient home;
- Different working conditions and philosophies for staff within each setting, creating ambiguity about the focus of their roles either as caring or rehabilitation.

These issues clearly need to be tackled at both the service and policy levels. From a staffing perspective, the development of different employment frameworks for health and social service providers is likely to further polarise the staff attempting to work in an integrated way.

The adoption of uniform, single model of data collection for patients would help to streamline the infrastructure issues. Several models are available, however none appear to have been uniformly adopted.

Patient choice and care closer to home

Patient choice is a strong focus of current policies (Department of Health 2006). This study provides evidence that patients do want care provided at home, or as close to home as possible.

The patient satisfaction survey in the prospective study (Chapter 5) highlighted that overall patients are satisfied with their intermediate care episode. However the area in which patients were least satisfied was the timing of their discharge. The qualitative findings reinforced the sometimes artificial limits placed on patients using older peoples' community and intermediate care services, and the fact that this can compromise the quality of care for older people. An aspect of patient choice that is clearly not taken into account is the timing of the discharge from the service.

Practice based commissioning

Practice Based Commissioning aims to ensure that resources follow the patient. As this study has shown, older age increases the costs of service delivery to people in older peoples' community and intermediate care settings, and therefore the resources need to follow the patients to reflect this.

8.5 Implications for services

This study has particularly important implications for services.

Staffing structures

It appears that an effective model of service delivery involves input from a wide range of qualified staff from different backgrounds, with the majority of 'hands on' care provided by support staff. Having a higher proportion of support staff involved in the delivery of care is associated with better patient outcomes. However this needs to be carefully balanced against the team size and the costs of service delivery. Utilising a higher proportion of support staff in the delivery of patient care is associated with higher service costs. From the qualitative data, we surmise that this is likely to be due to the relatively high proportion of time that support staff spend with the patient in comparison with qualified staff. Costs are reduced when the proportion of total contacts by qualified staff increases to around 63% of all patient contacts, however the impact of this ratio of staff input on outcomes is unclear.

Additionally, there are the conflicting findings of larger teams improving patient outcomes, but having a negative effect on staff satisfaction.

The high proportion of staff time spent in administration may be an area for potential efficiency savings. As illustrated in Chapter 5, the main staff groups involved in the delivery of care to older peoples' services spend between 25 and 45% of their time undertaking administrative duties. The high administrative burden and inefficiencies imposed on staff was raised as an area of complaint by staff in the qualitative study. It may be possible to move some of the administrative burden onto administrators within teams, freeing up clinical time for more direct care delivery.

Team working and management

Team working, management and staff integration have an important impact on staff and service outcomes.

Staff outcomes are optimised in teams that have a single, dedicated team manager and in teams that meet at least weekly. Similarly, staff that report positive team working and management scores are more satisfied and less likely to leave their team.

Additionally, teams in which staff feel that they are integrated with their peers and colleagues have slightly lower service costs.

Working from a single base, where teams are co-located, was seen to benefit team communication and interactions, although this findings was only captured qualitatively.

Teams in which staff perceived that they delivered high quality care had more satisfied staff, but were also more expensive to deliver.

Better access to technology and equipment can improve length of stay.

Service and resource planning

There are currently few approaches to help community based rehabilitation services accurately plan their resource needs. The existing service taxonomies, and other models that do exist (eg Northwick Park Nursing Dependency Scale, and the AN-SNAP case mix tool) are limited in their ability to predict staffing utilisation and / or length of stay.

To date, it has been difficult to accurately determine the patient casemix of the types of services examined in this study. It appears that the patient levels of care tool may be one approach to identify overall care need, with the potential to predict resource requirements according to the patient level of need. Further research is required to determine this, however the adoption of a uniform, minimum dataset by all older peoples' community based services would facilitate the development of a larger evidence base to help identify and predict resource needs.

Training and career development opportunities

Overall, there appeared to be an underinvestment in training and development for staff involved in the delivery of older peoples' community and intermediate care services. Staff perceived this to be due, in part to a lack of resources. However the failure to invest in staff development appears to be a false economy. Staff with better training and career development opportunities report higher job satisfaction and are less likely to report an intention to leave their employer in the next twelve months.

8.6 Implications for further research

Despite answering several questions, this research has uncovered many more areas that would benefit from further research;

- This study has shown, generally, that having a wider variety of different types of staff leads to better patient outcomes. However this is based on the data available drawn from the existing staffing models and team types. Further research into the impact and potential input of different types of staff would help to further clarify important issues about the optimal types of skill mix for older peoples' services.
- Further evidence is required to understand the factors associated with staff satisfaction in this setting.
- The evidence is still limited regarding the factors affecting patient satisfaction in older peoples' services, particularly with relation to staffing and service organisation.
- The length of stay is often raised as an important outcome measure, and the target of most services appears to be to minimise the length of stay. However, there is little evidence of the effect of reduced length of stay on patient and staff outcomes.
- The factors associated with team organisation and structure, such as the nature of multidisciplinary team meetings, is an area which would benefit from more research. For instance, further evidence is required about the

optimum frequency of team meetings and case conferences, and the management structures of the teams.

- The impact of staff training and experience on outcomes was a recurrent theme in the literature, however this was less evident in our findings. It is an area which would benefit from more targeted research to identify the importance of the nature of the training, and those staff which reap the greatest benefits.
- Further research is needed to examine the factors associated with staff satisfaction in the community based rehabilitation setting.
- There is a need for more empirical research into the impact of integrated working on the outcomes for patients, staff and the service.
- This study has found that a higher proportion of support workers is associated with better patient outcomes, however we have not examined the impact of the risks and quality issues associated with role substitution and utilising a high proportion of unregulated staff.
- A further issue requiring exploration, related to the growth of support workers is the impact of the more managerial role adopted increasingly by orthodox professionals / specialists.

8.7 Conclusion

To our knowledge, this is the first study that has systematically explored the staffing models and their implications in a community based, multidisciplinary team setting.

The research has achieved its overall goal of developing a comprehensive picture of the range, configuration and staffing of older peoples' community and intermediate care services in the UK, and providing some understanding of the impact of workforce variables on the costs and outcomes of older peoples' services.

While the results of this study can be informative for local providers, purchasers, commissioners and other stakeholders in rehabilitation for older people, local decisions will need to be made in the context of the service delivery infrastructure and development needs. Therefore in deciding about the workforce requirements of older peoples' community based intermediate care and rehabilitation services, stakeholders will need to consider their patient casemix, the local population, and the specific goals of the service. This study has endeavoured to provide a suite of practical tools to support this approach.

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List of Appendices

***The original versions of these appendices were in PDF and they have been reformatted into word for inclusion within the appendices. Whilst the content is identical to the original versions of the documents used within the study, the formatting does not necessarily reflect the presentation of the documents viewed / used by research participants.**

Appendix 1 Service Proforma

For managers / team leaders to complete

Team ID

1. *What is the name of your team or service?*	
2. *How long has your service existed?*	
3. *What is your role within your service?*	

Reason for the service

4. Why was your service set up? e.g. unmet needs in the community, acute ward closure	
5. What is the primary goal of your service? e.g. prevent admissions to hospital	

Access to your service

6. Who refers into your service? (circle all that apply)	01. GP 02. Self / informal / friend / family 03. Community nurse 04. Social worker 05. Accident and Emergency 06. Ward in acute hospital 07. Community hospital 99. Other 1 (please specify) ……. 99. Other 2 (please specify) …….
7. How do clients access your service? e.g. single point of entry, telephone triage, discharge liaison nurse, assessment by team member	
8. What are the eligibility criteria for your service? e.g. medically stable, rehabilitation potential	
9. Are there any explicit exclusion criteria for your service? e.g. mental health status, age	

Service structure and organisation

10. What is the *main* location of your service provision? (circle one only)	01. The client's home 02. Hospital – inpatient 03. Hospital – outpatient 04. Accident and emergency 05. Nursing home 06. Resource centre 07. General practice 08. Community hospital 09. Community health service 99. Other (please specify) ……
11. If services are provided in more than one location, please specify the other locations (circle all that apply)	01. The client's home 02. Hospital – inpatient 03. Hospital – outpatient 04. Accident and emergency 05. Nursing home 06. Resource centre 07. General practice 08. Community hospital 09. Community health service 99. Other (please specify) ……
12. How would you describe your service? e.g. step-down facility, nurse-led unit	
13. What facilities are available? e.g. gym, office, kitchen, equipment	
14. How many referrals does your service take per year?	
15. What is the *average* duration of an episode of care for interventions provided by your service?	
16. What is the *maximum* duration of an episode of care for interventions provided by your service?	
17. What are the hours of operation of your service? e.g. 7 days a week, 24 hour support, on-call support, 9am-5pm, weekdays only	
18. What agencies do you work with? e.g. voluntary services, mental health services/teams	
19. Do clients pay for your service?	01. Yes 02. No 03. Sometimes
20. What is the professional background of the team leader?	
21. Is a single client file / client record used by all providers?	01. Yes 02. No
22. Do social services have a separate file / client record to health?	01. Yes 02. No
23. Do different professions have separate files / client records?	01. Yes 02. No

24. Is there a common physical base for the team?	01. Yes 02. No
25. How often does the whole team meet for operational meetings?	
26. How often does the whole team meet for case conferencing?	

27. What is the management structure in your service? (circle one only)

01. Split management
Team leader is responsible for team management; service / professional heads responsible for clinical issues
02. Specific team manager
Single person responsible for both clinical and management issues
03. Individual profession management
Each individual is managed by their service/professional head
04. Distant management
Team is responsible to a manager in the organisation but the manager does not participate in the team actively
05. Other (please specify) ……

Please list the numbers (WTE) and types of staff that are part of your team

Staff member	**Number in team? (WTE)**	**Casual / session only staff (please tick ✓)**	**Agency that finances this staff member e.g. PCT, social services**
28. **Clinical staff**			
01 Physiotherapist			
02 Occupational therapist			
03 Social worker			
04 Podiatrist			
05 Speech and language therapist			
06 Nurse			
07 Dietician			
08 Psychologist			
09 Doctor			

Staff member	**Number in team?** **(WTE)**	**Casual / session only staff** **(please tick)**	**Agency that finances this staff member** **e.g. PCT, social services**
10 Geriatrician / consultant			
11 Counsellor			
99 Other (please specify)			
29. **Clinical support staff** e.g. assistants, technical instructors, home care staff (please specify)			
30. **Management staff**			
01 Manager			
02 Team leader			
03 Community care officer			
99 Other (please specify)			
31. **Non clinical support staff** (please specify)			
01 Administration / secretary			
99 Other (please specify)			
32. **Domiciliary support staff** e.g. cleaners, cooks etc. (please specify)			
33. **Other staff** (please specify)			

Context

34. What is the *size* of the population you serve?	
35. What *type* of population do you serve? (circle one only)	01. Urban 02. Rural 03. Sub-urban 04. Mixed
36. What proportion of the population in your area are over 65 years old?	
37. What is the nature of your funding? e.g. recurrent	
38. Who funds your service? e.g. PCT, voluntary sector, independent sector	
39. What is your annual budget?	
40. Who makes decisions about the direction of the service?	
41. Do you have an operational plan / strategy	01. Yes 02. No
42. What is the organisational setting or host institution for the service? (select all that apply)	01. Primary Care Trust 02. Acute Trust 03. Mental Health Trust 04. Social Services 05. Care Trust 06. Other (please specify)……

Service users

43. What are the casemix / diagnostic groupings of those utilising your service? e.g. stroke, falls, orthopaedic	
44. What is the demographic profile of your service users? e.g. age, sex, ethnicity	
45. What is your service's target population? e.g. over 65's, stroke	

46. What is the most common level of care your clients/patients require?

Please rank from 1-8, with 1 being the most common level of care required

Rank	Level of care required	Aim of this level of care
	Level 1 : Patient needs prevention / maintenance programme	• Prevent physical and psychological deterioration • Prevent loss of independence • Promote psychological well-being • Encourage healthy living • Promote positive attitude to independence
	Level 2: Patient needs convalescence	• Encourage improvement and/or maintenance of independence • Improve recuperation • Wait for aids adaptations • Wait for family adjustment support • Adjust to new circumstances
	Level 3: Patient needs slow stream rehabilitation	• Provide watchful waiting • Provide assessment/observation • Provide non-intensive rehabilitation/mobilisation • Provide confidence • Actively encourage, extend and facilitate increased speed of recovery • Provide support programme which is being carried out by patient and carers
	Level 4: Patient needs regular rehabilitation programme	• Provide rehabilitation to maintain steady and measurable progress. • Improve expected recovery trajectory.
	Level 5: Patient needs intensive rehabilitation	• Change from dependent to independence • Reduce level of dependency on carers • Achieve maximum level of function • Resolve acute disabling conditions
	Level 6: Patient needs specific treatment for individual acute disabling condition	• Target specific treatment by one profession. • Alleviate or reduce specific Impairment/Activity.
	Level 7: Patient needs medical care and rehabilitation	• Actively treat medical condition in order to prevent/modify deterioration or secondary sequelae whilst enabling patient to improve/maintain independence. • Appropriately manage medical condition whilst patient undergoing multidisciplinary rehabilitation
	Level 8: Patient needs rehabilitation for complex profound disabling condition	• Provide rehabilitation as part of long term management of condition. • Maximise level of function, prevent secondary disabling condition. and improve quality of life. • Provide particular provision of services related to those with low incidence specialised cognitive and physical disorders.

Appendix 2 Literature search terms (2008)

Intermediate care	Older People
Intermediate adj care	Older adj people
Intermediate-care.de. Or intermediate-care.de.	Older-people#.de.
Early near discharge	Old adj people
Patient-early-discharge.de.	Old$ adj person$
Earlier near discharge	Elderly adj people
Facilitat$ near discharge	Elderly adj person
Support$ near discharge	Older adj generation
Expedit$ near discharge	Elderly adj generation
Hospital adj home	Pensioner
Hospital-at-home.de.	Geriatric$
Hospital next home	
Hospital adj nursing adj home	
Hospital near nursing adj home	
Hospital near hospice	
Home adj hospital	
Home next hospital	
Home adj care adj services	
Home-care#.de. Or home-care-of-patient#.de.	
Home next care next services	
Rehabilitation adj centres	
Rehabilitation near centre	
Rehabilitat$ near cent$	
Community-care#.de. Or community-health-care#.de.	
Community adj care adj centre$	
Patient$ adj hotel adj bed$	
Patient-hotels.de.	
Halfway adj home$	
Transitional adj car$	
Patient$ adj hotel$	

Appendix 3 Workforce Dynamics Questionnaire– For Staff

This survey is to be completed by each team member

This survey examines a range of issues around your experiences of working in your current job, including your job satisfaction, team working, and role overlap with other practitioners.

Please answer every question.

I.	To which team do you belong?	…….
II.	What is your professional group or discipline?	1. Dietician 2. General practitioner 3. Geriatrician 4. Nurse 5. Occupational therapist 6. Physiotherapist 7. Podiatrist 8. Psychologist 9. Secretary / admin 10. Social worker 11. Speech and language therapist 12. Support worker 13. Social care worker 14. Other ……..
III.	What is your current grade / designation (eg Agenda for Change grading)?*	
IV.	Are you in a team leader / management role?	*0 No* *1 Yes*
V.	What is the nature of your work (circle all that apply)	*1. Full time* 2. Part time 3. Annualised hours 4. Set shifts each week 5. Locum 6. Other (please specify)……..

VI.	Gender	*0 Female* 1 Male
VII.	What is your year of birth?	*19…*
VIII.	How many hours are you contracted to work each week in your current job?	……Hours per week
IX.	How long have you worked in your current job?	*…….Months*

*only asked in prospective study

Role overlap

This question relates to the amount of role overlap you have with other practitioners. In column B, indicate how closely you work with the listed practitioners (even if they are not a regular part of your team). In column C, indicate *how much* your role overlaps with the selected workers by circling the number that corresponds with your estimate of the amount of role overlap. For instance, a score of '5' would indicate complete overlap of roles, whereas a score of '1' indicates no overlap of roles. If you work with a practitioner that is not listed, please write their profession into the 'other' box and complete as above.

Column A	*Column B*						*Column C*					
	How closely do you work with the following practitioners?						*How much do your roles overlap*					
Type of worker	*Do not work at all*					I work closely with	No overlap at all					A great deal of overlap
Dietician	0	1	2	3	4	5	0	1	2	3	4	5
Geriatrician	0	1	2	3	4	5	0	1	2	3	4	5
General practitioner	0	1	2	3	4	5	0	1	2	3	4	5
Nurse	0	1	2	3	4	5	0	1	2	3	4	5
Occupational therapist	0	1	2	3	4	5	0	1	2	3	4	5
Physiotherapist	0	1	2	3	4	5	0	1	2	3	4	5
Podiatrist	0	1	2	3	4	5	0	1	2	3	4	5
Psychologist	0	1	2	3	4	5	0	1	2	3	4	5
Social worker	0	1	2	3	4	5	0	1	2	3	4	5
Speech and language therapist	0	1	2	3	4	5	0	1	2	3	4	5
Secretary / admin	0	1	2	3	4	5	0	1	2	3	4	5
Support worker	0	1	2	3	4	5	0	1	2	3	4	5
Other 1…	0	1	2	3	4	5	0	1	2	3	4	5
Other 2…	0	1	2	3	4	5	0	1	2	3	4	5

*support worker can include therapy assistant, generic worker etc

**include any practitioner that you work with whether or not they are a core member of your team

Please circle the most correct answer

Overall satisfaction											
		Extremely dissatisfied									Extremely satisfied
1. Overall, how satisfied are you with your current job?		1	2	3	4	5	6	7	8	9	10
n/a = not applicable		Strongly disagree									Strongly agree
Autonomy and role perception											
2. Most of my work involves following instructions given by other people	n/a	1	2	3	4	5	6	7	8	9	10
3. I am responsible for delegating work to my colleagues	n/a	1	2	3	4	5	6	7	8	9	10
4. I am responsible for deciding what care the patient needs	n/a	1	2	3	4	5	6	7	8	9	10
5. I make important decisions that influence the direction of my team	n/a	1	2	3	4	5	6	7	8	9	10
6. I am often placed in a position of having to do things that are against my professional judgement	n/a	1	2	3	4	5	6	7	8	9	10
7. I am proud of my profession / discipline	n/a	1	2	3	4	5	6	7	8	9	10
8. My profession is well understood by the people I work with	n/a	1	2	3	4	5	6	7	8	9	10
9. My profession is well understood by the general public	n/a	1	2	3	4	5	6	7	8	9	10
10. My role is valued as highly as that of the other members of my team	n/a	1	2	3	4	5	6	7	8	9	10
11. If I could, I would change my profession	n/a	1	2	3	4	5	6	7	8	9	10
Role overlap											
12. I am confident in my own role in my current job	n/a	1	2	3	4	5	6	7	8	9	10
13. I sometimes feel threatened by the amount that other's roles overlaps with mine	n/a	1	2	3	4	5	6	7	8	9	10
14. I have learnt a lot about the roles of other staff by working in this team	n/a	1	2	3	4	5	6	7	8	9	10
15. I undertake joint patient visits with other members of my team	n/a	1	2	3	4	5	6	7	8	9	10
16. I have learnt a lot of new skills working in my current job	n/a	1	2	3	4	5	6	7	8	9	10
17. I am at risk of losing skills by working in my current job	n/a	1	2	3	4	5	6	7	8	9	10
18. My job requires that I am flexible in my role	n/a	1	2	3	4	5	6	7	8	9	10

Uncertainty

19. I am unclear about the future direction of my team	n/a	1	2	3	4	5	6	7	8	9	10
20. I am clear of my role within the team	n/a	1	2	3	4	5	6	7	8	9	10
21. I have a clear idea of how my team will look one year from now.	n/a	1	2	3	4	5	6	7	8	9	10
22. I feel secure in my current job	n/a	1	2	3	4	5	6	7	8	9	10

Workload

23. The workload in my current job is too high	n/a	1	2	3	4	5	6	7	8	9	10
24. I am satisfied with the hours I am required to work (eg shift work etc)	n/a	1	2	3	4	5	6	7	8	9	10
25. I would like to have more flexibility in my hours	n/a	1	2	3	4	5	6	7	8	9	10
26. I am not paid enough to reflect the level of experience and responsibility my job requires	n/a	1	2	3	4	5	6	7	8	9	10

Innovation

27. Much of my work is governed by care protocols or clinical pathways	n/a	1	2	3	4	5	6	7	8	9	10
28. I have to be innovative to work in my current job	n/a	1	2	3	4	5	6	7	8	9	10
29. My current job enables me to be innovative in my role	n/a	1	2	3	4	5	6	7	8	9	10

Integration with peers and colleagues

30. I have access to peer support from members of my own profession	n/a	1	2	3	4	5	6	7	8	9	10
31. I have formal management support from a member of my own profession	n/a	1	2	3	4	5	6	7	8	9	10
32. I am professionally isolated	n/a	1	2	3	4	5	6	7	8	9	10
33. My team members have a clear understanding of my role	n/a	1	2	3	4	5	6	7	8	9	10
34. Team members make appropriate referrals to me	n/a	1	2	3	4	5	6	7	8	9	10
35. My contribution is listened to in team meetings	n/a	1	2	3	4	5	6	7	8	9	10
36. My team works well together	n/a	1	2	3	4	5	6	7	8	9	10

Team working

37. My team has shared goals	n/a	1	2	3	4	5	6	7	8	9	10
38. My team often disagrees on the treatment of a patient / client	n/a	1	2	3	4	5	6	7	8	9	10
39. Team members can negotiate differences to reach a common understanding	n/a	1	2	3	4	5	6	7	8	9	10
40. There is not much conflict within my team	n/a	1	2	3	4	5	6	7	8	9	10

41. I get on well with my team members	n/a	1	2	3	4	5	6	7	8	9	10
42. My team has a clear and common focus	n/a	1	2	3	4	5	6	7	8	9	10
43. I am a valued member of my team	n/a	1	2	3	4	5	6	7	8	9	10
44. I feel confident to voice my opinion in my team	n/a	1	2	3	4	5	6	7	8	9	10
Management structures and styles											
45. I have a clearly defined line manager	n/a	1	2	3	4	5	6	7	8	9	10
46. I am satisfied with the management of my team	n/a	1	2	3	4	5	6	7	8	9	10
47. I can voice my concerns to my manager	n/a	1	2	3	4	5	6	7	8	9	10
48. My manager is accessible	n/a	1	2	3	4	5	6	7	8	9	10
49. My manager understands my role	n/a	1	2	3	4	5	6	7	8	9	10
Access to technology and equipment											
50. I have access to the *type* of equipment I need to do my job (eg equipment, aides)	n/a	1	2	3	4	5	6	7	8	9	10
51. I can access appropriate equipment *when* I need it	n/a	1	2	3	4	5	6	7	8	9	10
52. I have access to administrative support when I need it	n/a	1	2	3	4	5	6	7	8	9	10
53. I have access to a computer at work	n/a	1	2	3	4	5	6	7	8	9	10
Training and career progression opportunities											
54. I have clear career opportunities in my current job	n/a	1	2	3	4	5	6	7	8	9	10
55. I have access to training if I need it	n/a	1	2	3	4	5	6	7	8	9	10
56. I am satisfied with the career development opportunities offered by my current job	n/a	1	2	3	4	5	6	7	8	9	10
57. I am more satisfied working in my current job than in other places I have worked	n/a	1	2	3	4	5	6	7	8	9	10
58. If I want to progress professionally, I will have to leave my current job	n/a	1	2	3	4	5	6	7	8	9	10
59. I cannot see a clear direction for my future in my current job	n/a	1	2	3	4	5	6	7	8	9	10
60. I can take time off work for training if I need to	n/a	1	2	3	4	5	6	7	8	9	10
61. I have the opportunity to specialise in my current job	n/a	1	2	3	4	5	6	7	8	9	10
Feeling prepared and trained for the role											
62. I have the skills necessary to do my job	n/a	1	2	3	4	5	6	7	8	9	10
63. If I am uncertain about an aspect of patient / client care, I can always access someone who can help me	n/a	1	2	3	4	5	6	7	8	9	10
64. The quality of the care provided where I work is	n/a	1	2	3	4	5	6	7	8	9	10

good

65. My service benefits the patients / clients	n/a	1	2	3	4	5	6	7	8	9	10
66. My team has clear systems for resolving disputes or workplace problems	n/a	1	2	3	4	5	6	7	8	9	10

*The version of the WDQ used for the prospective study included two additional questions (which were inserted after Q61 in the version above)

67. I am planning to leave my current employer in the next twelve months	n/a	1	2	3	4	5	6	7	8	9	10
68. I am planning to change my profession in the next twelve months	n/a	1	2	3	4	5	6	7	8	9	10

Any other comments

Appendix 4 Patient Record Pack

CONFIDENTIAL

The COOP Study
The impact of workforce flexibility on the costs and outcomes of older peoples' services.

CLIENT / SERVICE USER RECORD PACK

[SERVICE NUMBER]

- **Please use this pack to record information about the client / service user at entry to the service and discharge / end of service provision.**

- **Do not separate pages from each other unless absolutely necessary; if it is necessary to do so, copy the client number clearly onto any detached sheets.**

- **Where indicated, give the whole pack to the client / service user to complete the EQ-5D (quality of life measure) under supervision.**

- **Please ensure that the information recorded in this pack cannot identify the client in any way.**

Many thanks for your help

Client number

Record of staff contact

01 Please indicate the type of staff involved in delivering this client's care by placing ticks in the appropriate boxes.

	Tick ✓	
Nurse		01
Occupational Therapist		02
Physiotherapist		03
Social Worker		04
Speech & language therapist		05
Podiatrist		06
Dietitian		07
Pharmacist		08
Psychologist		09
Support worker*		10
Geriatrician / consultant		11
General Practitioner		12
Administrative personnel		13
Other (please specify type below)		99

* Support worker = therapy assistant, social care assistant, generic worker etc.

Record of staff contact

Date of contact	Practitioner e.g. OT, PT, support worker	Approximate minutes

Record of staff contact (cont.)

Date of contact	Practitioner e.g. OT, PT, support worker	Approximate minutes

DETAILS OF *ADMISSION*

Client number

02 Year of birth

03 Sex Male 01 Female 02

04 Date of admission / start date of service provision

---

05 Reason for referral (and diagnosis if applicable)

---

06 Who made the referral? (Please tick one)

- GP 01
- Self/informal carer/friend/family 02
- Community nurse 03
- Social worker 04
- Allied Health Professional 05
- Accident and Emergency 06
- Ward in acute hospital 07
- Community hospital 08
- Patient recruited from ward by scheme staff 09

Other (please specify below) | | 99

07 What are the patient/user's normal living arrangements? (Please tick one)

Lives alone in own home (owned or rented)	01
Lives with other(s) in own home (owned or rented)	02
Lives in relative's home	03
Lives in residential/nursing home	04
Lives in sheltered housing	05
Other (please specify below)	99

08 Where is the patient receiving their care/input from your service?

(Please tick one)

Own home	01
Relative's home	02
Residential/nursing home	03
Sheltered housing	04
Acute hospital	05
Accident and emergency	06
Intermediate care facility	07
Day hospital	08
Resource centre	09
Community hospital	10
Other (please specify below)	99

DETAILS OF *ADMISSION*

Client number

Level of Care: Please tick the level that best describes the client's needs **(tick only one)**

09	**0** Client does not need any intervention		00
	1 Client needs prevention / maintenance programme		01
	2 Client needs convalescence / respite		02
	3 Client needs slow stream rehabilitation		03
	4 Client needs regular rehabilitation programme		04
	5 Client needs intensive rehabilitation		05
	6 Client needs specific treatment for individual acute disabling condition		06
	7 Client needs medical care and rehabilitation		07
	8 Client needs rehabilitation for complex disabling condition		08

Enderby P & Stevenson J (2000). What is Intermediate Care? Looking at Needs. Managing Community Care 8(6): 35-40

TOMs: Please enter a score from 0 – 5 for each category in the box to the right (you may use half points if necessary)

10	Impairment	
11	Activity	
12	Participation	
13	Wellbeing	

Enderby P, John A, Petherham B (1998). Therapy Outcomes Measures for Physiotherapists, Occupational Therapists & Rehabilitation Nurses. Singular Publications, London.

EQ-5D HEALTH SURVEY

Please give the patient / service user the booklet and ask them to complete the next two pages themselves.

If they are unable to complete the questions, please read out questions and possible answers and fill in the responses they give.

EQ-5D HEALTH SURVEY (ADMISSION)

We are interested in how well you feel and how your health affects the way you carry out your daily activities. We would be grateful if you could answer these questions.

Place a tick in one box in each group below to indicate which statement best describes your own health state today.

Mobility Please tick one

I have no problems in walking about ☐ 14 01

I have some problems in walking about ☐ 14 02

I am confined to bed ☐ 14 03

Self-care Please tick one

I have no problems with self-care ☐ 15 01

I have some problems washing or dressing myself ☐ 15 02

I am unable to wash or dress myself ☐ 15 03

Usual activities (e.g. work, study, housework, family or leisure) Please tick one

I have no problems with performing my usual activities ☐ 16 01

I have some problems with performing my usual activities ☐ 16 02

I am unable to perform my usual activities ☐ 16 03

SDO project (08/1519/95

EQ-5D HEALTH SURVEY (ADMISSION)

Pain / discomfort

Please tick one

I have no pain or discomfort	☐	17 01
I have moderate pain or discomfort	☐	17 02
I have extreme pain or discomfort	☐	17 03

Anxiety / depression

Please tick one

I am not anxious or depressed	☐	18 01
I am moderately anxious or depressed	☐	18 02
I am extremely anxious or depressed	☐	18 03

Remember, these questions are about how you feel **TODAY**.

Thank you for your help in this survey. Please hand this booklet back to the member of staff who gave it to you.

For completion by staff:

19 *Date of completion of EuroQoL health survey* ☐

20 *If not completed, please indicate why*

Patient/user refused	☐ 01
Not possible (e.g. patient/user incapacitated)	☐ 02
Other (please specify)	99

☐

DETAILS OF *DISCHARGE*

Client number

21 *Date of discharge or end of service provision*

22 Outcome for **this** episode of care: please complete **either** A, B, C **or** D

A ***Episode of care completed on scheme:***

Where is client to live or where was he/she discharged to?

- Own home 01
- Relative's home 02
- Temporary residential or nursing home care 03
- Permanent residential or nursing home care 04
- Other (please specify below) 97

B Transferred before end of episode of care:

- Transferred to acute hospital 05
- Transferred to community hospital 06
- Transferred to other intermediate care setting 07
- Transferred to temporary residential/nursing home care 08
- Transferred to another setting (please specify below) 98

Please record why transferred

C ☐ **Patient/user died:** 09

Date of death

Cause of death (if known)

D ☐ **Other outcome not covered above** (e.g. user withdrew from service): 99

Please give detail

---

23 Support services in place if client to live at home (or relative's home).

Indicate whether visits are per day or per week

Home care		visits per		01
District nurse		visits per		02
Domiciliary therapy		visits per		03
Meals-on-Wheels		visits per		04
Other (please specify)		visits per		99

None 05

Don't know 77

DETAILS OF *DISCHARGE*

Client number

Level of Care: Please tick the level that best describes the client's needs **(tick only one)**

24	**0**	Client does not need any intervention		00
	1	Client needs prevention / maintenance programme		01
	2	Client needs convalescence / respite		02
	3	Client needs slow stream rehabilitation		03
	4	Client needs regular rehabilitation programme		04
	5	Client needs intensive rehabilitation		05
	6	Client needs specific treatment for individual acute disabling condition		06
	7	Client needs medical care and rehabilitation		07
	8	Client needs rehabilitation for complex disabling condition		08

Enderby P & Stevenson J (2000). What is Intermediate Care? Looking at Needs. Managing Community Care 8(6): 35-40

TOMs: Please enter a score from 0 – 5 for each category in the box to the right (you may use half points if necessary)

25	**Impairment**	
26	**Activity**	
27	**Participation**	

28 **Wellbeing**	

Enderby P, John A, Petherham B (1998). Therapy Outcomes Measures for Physiotherapists, Occupational Therapists & Rehabilitation Nurses. Singular Publications, London.

EQ-5D HEALTH SURVEY

Please give the patient / service user the booklet and ask them to complete the next two pages *themselves*.

If they are unable to complete the questions, please read out questions and possible answers and fill in the responses they give

HEALTH SURVEY (DISCHARGE)

We are interested in how well you feel and how your health affects the way you carry out your daily activities. We would be grateful if you could answer these questions.

Place a tick in ***one box*** in each group below to indicate which statement best describes your own health state ***today***.

Mobility	Please tick one	
I have no problems in walking about	☐	29 01
I have some problems in walking about	☐	29 02
I am confined to bed	☐	29 03

Self-care	Please tick one	
I have no problems with self-care	☐	30 01
I have some problems washing or dressing myself	☐	30 02
I am unable to wash or dress myself	☐	30 03

Usual activities (e.g. work, study, housework, family or leisure)	Please tick one	
I have no problems with performing my usual activities	☐	31 01
I have some problems with performing my usual activities	☐	31 02
I am unable to perform my usual activities	☐	31 03

SDO project (08/1519/95

HEALTH SURVEY (DISCHARGE)

Pain / discomfort

Please tick one

I have no pain or discomfort	☐	32 01
I have moderate pain or discomfort	☐	32 02
I have extreme pain or discomfort	☐	32 03

Anxiety / depression

Please tick one

I am not anxious or depressed	☐	33 01
I am moderately anxious or depressed	☐	33 02
I am extremely anxious or depressed	☐	33 03

Remember, these questions are about how you feel **TODAY**.

Thank you for your help in this survey. Please hand this booklet back to the member of staff who gave it to you.

For completion by staff:

34 *Date of completion of EuroQoL health survey* ☐

35 *If not completed, please indicate why*

Patient/user refused	☐ 01
Not possible (e.g. patient/user incapacitated)	☐ 02
Other (please specify)	99

SATISFACTION QUESTIONNAIRE

Please give the patient &/or carer a satisfaction questionnaire and ask them to complete it as soon as possible and to return it in the prepaid envelope. Please stress that **no-one on the scheme will see the completed questionnaire**.

MANY THANKS FOR YOUR HELP & TIME IN COMPLETING THIS INFORMATION

Please address any queries regarding the administration of this record pack to:

Cathy Bounekhla	C.Bounekhla@sheffield.ac.uk	0114 222 8364	or
Pam Enderby	P.M.Enderby@sheffield.ac.uk	0114 222 0858	

Freepost address:

Dr Susan Nancarrow
ScHARR
FREEPOST SF 1314

Sheffield

S1 1AY

Appendix 5 Patient Satisfaction Survey

Patient/service user questionnaire

Thank you for agreeing to take part in this review of community and intermediate care services.

The findings of this survey will help us to know what people like you think of the service and how it can be improved. Your answers are of course strictly confidential.

Once you have completed the questionnaire, please return it in the addressed, postage paid envelope.

Thank you.

Service manager

If you have misplaced the envelope, please return the survey to this **freepost** address:

Dr Susan Nancarrow
ScHARR
FREEPOST SF 1314

Sheffield S1 1AY

Patient/service user Questionnaire

	Please tick (✓) whether you strongly agree, agree, disagree or strongly disagree with each of the following statements. If you can't answer or have no opinion, please respond 'unsure'.	
1	**My admission to the service was very efficient**	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
2	**The staff were very careful to check everything when I was admitted to their care / the service**	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
3	**The admission fitted in with my home arrangements**	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
4	**The team gave me all the information I wanted <u>about my condition</u>**	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
5	***The team gave me all the information I wanted <u>about the care I was receiving</u>***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐

6	***While on the scheme I received care whenever I needed it***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
7	***I had problems getting pain relief when I needed it***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐ **Not applicable** ☐
8	***While on the scheme I received care from a doctor whenever I needed it***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
9	***I had all the facilities necessary to care for me***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
10	***I felt as safe receiving treatment at home/the residential home as in hospital***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
11	***The team did their best to help me become more independent***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐

12	***I felt able to talk to the team about any problems or worries I had***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
13	***Sometimes visits from the team disrupted my home arrangements***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
14	***The staff always had time for me***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
15	***I have been treated with kindness, respect and dignity by the staff from the service***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
16	***The staff worked together and knew what each other was doing***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
17	***I was well prepared for my discharge from the service***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐

18	***My discharge from the service was too early***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
19	***The care I received after discharge was well co-ordinated***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
20	***The team did everything that they could to make me well again***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
21	***The care I received on the scheme was just about perfect***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
22	***There are some things the team could have done better***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐
23	***I'm happy with the amount of recovery I made while on the service***	**Strongly disagree** ☐ **Disagree** ☐ **Unsure** ☐ **Agree** ☐ **Strongly agree** ☐

DO YOU HAVE ANY OTHER COMMENTS ABOUT THE SERVICE?

THANK YOU FOR TAKING THE TIME TO ANSWER THIS QUESTIONNAIRE -

Please return it in the addressed, postage paid envelope.

Appendix 6: Unit costs

Resource	Unit cost (£2006/7)	Source	AfC Grade
Nurse	30	UCHSC 2007, Community nurse	6
Occupational Therapist	24	UCHSC 2007, NHS community occupational therapist	5
Physiotherapist	24	UCHSC 2007, Community physiotherapist	5
Social Worker	26	UCHSC 2007, Social worker	-
SLT	24	UCHSC 2007, Community speech and language therapist (SLT)	5
Podiatrist	18	UCHSC 2007, Community podiatrist	4
Dietician	24	UCHSC 2007, Dietician	5
Pharmacist	40	UCHSC 2007, Community pharmacist	-
Psychologist	30	UCHSC 2007, Clinical psychologist	7
Support Worker	13	UCHSC 2007, Clinical support worker	2
Geriatrician/Consultant	132	UCHSC 2007, Consultant (medical)	-
General Practitioner	99	UCHSC 2007, General practitioner GMS activity	-
Administrative staff	13	UCHSC 2007, Clinical support worker	2
Discharge liaison professional	30	UCHSC 2007, Community nurse	6
Case Manager	28	UCHSC 2007, Intensive case management for older people	-
Manager, team leader	34	Derived from UCHSC 2007, Community nurse, using AfC7	7
Student Health Care Professional	16	Derived from UCHSC 2007, Chiropodist, using AfC3	3
Mental Health Nurse / CPN	25	UCHSC 2007, Nurse (mental health)	5
Dr (other than consultant or GP)	41	UCHSC 2007, registrar (medical)	-
Family/visitor/carer	0	Outside the analytical perspective	-
Social care practitioner	19	UCHSC 2007, social work assistant	-

MDT - All staff	26	Assumed the same as social worker	-
Other	27	Assumed the same as social worker	-

Appendix 7 Team Details

TEAM DETAILS	A	B	C
Length of time the service has existed	16 years (hospital at home); 4 years as current	9 years	It has been in various formats with different names for over 10 years
What is your role within your service	Service Manager	Team manager	Team leader and occupational therapist
REASON FOR THE SERVICE			
Why was your service set up?	To facilitate early hospital discharge. To reduce admission to resident/nursing homes	To provide a multi-disciplinary team for a rehab service in the community	The pilot projects were set up to look at stroke needs and other neuro needs. We joined together as one combined team in 2001
What is the primary goal of your service?	Admission prevention	Preventing the need for long term care	Provide rehab to clients in sutton and merton who have neurological conditions (adults)
ACCESS TO THE SERVICE			
Who refers into your service?			
GP	✓	✓	✓
Self / informal / friend / family			✓
Community nurse	✓	✓	✓
Social worker	✓	✓	✓
Accident and Emergency	✓		
Ward in acute hospital	✓	✓	✓
Community hospital	✓	✓	
Other	PT, OT	Therapists	Consultants, Outpatient therapists
How do clients access your service?	Single point of access	Referred by any health or social professional	
Eligibility criteria	Medically stable, rehab potential, sufficient cognitive ability to follow rehabilitation programme, Over 18	Medically stable and potential for rehab. Needs two disciplines	Medically stable, rehab potential and have ideas for golas, require 2 or more disciplines, confirmed diagnosis, GP in PCT area
Exclusion criteria	Under 16, Primary problem mental health - if there are rehab needs will take	Try to be inclusive	Under 16 years, GP out of area, No ideas for goals
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	Client's home	Client's home	Client's home
Other locations			
	Nursing home	Nursing home	Nursing home
	Safe haven: beds and residential home	Rehab flats and victory unit	Community resources e.g. gym, swimming pool, shops

Description of service	Rapid response and community rehabilitation service	multi-disciplinary rehab team	Therapy led enabling service for community
Facilities available	Four safe haven beds, access to aids and equipment	sub store of OT and physio equipment. Kitchens for assessment.	Office space. This is limited with hot desking and limited computer access
Referrals taken per year		310	398
Average duration of an episode of care	17 days	Perhaps 4/ 5mths	12 weeks
Maximum duration of an episode of care	42-60 days	No time limit, if still potential to improve	Indefinite if MND (44 weeks = rent max)
Hours of operation	0800-2200 seven days a week	monday thursday: 8.30-5, friday 8.30-4.30	5 days pers week 8.30-4.30
Agencies worked with	Social services, voluntary sector, Independent sector, local authority, community mental health, other primary care	We link with many local agencies: other council departments, OPMH, Therapies, Salvation Army etc.	Social services, voluntary services, rehab centres
Do clients pay for your service?	No	No	No
Professional background of the team leader	Nurse and AHP	Social worker	Occupational therapisyt
Single client file / client record used by all providers (Y/N)	No	Yes	No
Separate file / client record for social services (Y/N)	Yes	Yes	Yes
Separate files / client records for professionals (Y/N)	No	Yes	No
Common physical base (Y/N)	Yes	Yes	Yes
Frequency of operational meetings	weekly	once a week	once every six weeks
Frequency of case conferences	as required	as needed	once a week
Management structure	Specific team manager	Split management	Individual profession management
CONTEXT			
Size of the population served	250000	186701	390000
Type of population served (geographic)	Mixed	Urban	Urban
Proportion of population in area over 65 years old	37,000	28751	?
Nature of funding	recurrent	recurrent	recurrent
Funding body	PCT, local authority	Social services + PCT	PCT
Annual budget	1600000	.	.
Who makes decisions about the direction of the service?	Director of provider services & service mger	manager and team	Team leader and acute and neuro therapies manager
Operational plan or strategy (Y/N)	Yes	Yes	Yes
Organisational setting / host institution	Primary Care Trust	Social Services	Primary Care Trust
SERVICE USERS			
Casemix / diagnostic groupings	Stroke, falls, medicine, orthopaedic, neuro	Falls, stroke, orthopaedics	40% CVA, 15% Parkinsons, 17% MS, 2% HI, 6% MND, 2 Other neuro
Demographic profile	Anyone over 18. Average age 83. Minimal ethnic minority, 70% female.	this would have to be manually counted	50-50 sex, 57% over 60, 30% 40-60 years, 13% 140years
Target population	Adults over 18 with any condition requiring intensive multi-disciplinary rehab	as intermediate case therefore preventing need for long term care asnd preventing admission to hospital, and allowing timely discharges	All neuro community clients

Most common level of care required	5 Client needs intensive rehabilitation	4 Client needs regular rehabilitation programme	4 Client needs regular rehabilitation programme
TEAM DETAILS	**E**	**F**	**G**
Length of time the service has existed		Enablement since september 2003, rehab beds -2000/2001	4 years
What is your role within your service	Team Leader	Senior care manager	Service Lead
REASON FOR THE SERVICE			
Why was your service set up?	Initial pilot run over two years showed unmet needs in the community	Enablement - unmet needs in the community, rehab beds - hopsital discharge and hospital avoidance/social admissions	Unmet needs in community
What is the primary goal of your service?	Prevent admissions to hospital and facilitate early discharge from hospital at home	Facilitate hospital discharge	Prevention of admission and facilitation of discharge
ACCESS TO THE SERVICE			
Who refers into your service?			
GP	✓	✓	✓
Self / informal / friend / family	✓	✓	
Community nurse	✓	✓	✓
Social worker	✓	✓	✓
Accident and Emergency		✓	✓
Ward in acute hospital	✓		✓
Community hospital	✓	✓	
Other	RRT	OT, PT	
How do clients access your service?	Assessmnet by team nurses	Assessment by team member	Single point of entry
Eligibility criteria	Rehab potential plus requirement of at least 2 disciplines from the multi-disciplinary team	Medically stable, potential to improve function, motivated. Willing to participate in programme. Resident of Bradford	1) medically stable. 2) Registered with EWPCT GP. 3) Rehabilitation potential. 4) 18 years +
Exclusion criteria	dementia	Residential rehab - not registered for under 55 or severe mental health	None
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	Client's home	Resource Centre	Client's home
Other locations			
	Hospital - inpatient	Client's home	Accident and Emergency
	Hospital - outpatient		Nursing home
	Community Hospital		Resource Centre
Description of service	Step-up and step down multi-disciplinary team	Multi-disciplinary rehabilitation	Community therapy

Facilities available	Use of the gym in the community hospital	on residential unit - there is a gym and kitchen	equipment, resource centre
Referrals taken per year	320	183	
Average duration of an episode of care	45 days	Enablement - 4.7 wks, resid unit - 4.3 wks	2-3 weeks
Maximum duration of an episode of care	12 weeks approx	Enablement 9 wks, resid unit - 10 wks	6 wks for IC, 12 wks for community rehab
Hours of operation	9-5pm weekdays, min cover bank holiday and saturday a.m. - community hospit al	Enablement 7 days a week 7.30-8.30. Residential unit 24 hour support	8am - 6pm monday to friday, 8am - 12pm saturday
Agencies worked with	Social services, voluntary agencies, rapid response teams, domicilary physio	Voluntary services, mental health, district nurses, housing	Social services, voluntary services, mental health, nursing teams, case management.
Do clients pay for your service?	Yes	No	No
Professional background of the team leader	dietietics	social worker	Physiotherapist
Single client file / client record used by all providers (Y/N)	No	No	Yes
Separate file / client record for social services (Y/N)	Yes	Yes	Yes
Separate files / client records for professionals (Y/N)	No	Yes	No
Common physical base (Y/N)	Yes	Yes	Yes
Frequency of operational meetings	once a week	Every 2 months	weekly
Frequency of case conferences	once a week	weekly	weekly
Management structure	Specific team manager	Split management	Specific team manager
CONTEXT			
Size of the population served	48500	360166	190000
Type of population served (geographic)	Rural	Mixed	Sub-urban
Proportion of population in area over 65 years old	10600	68303	?
Nature of funding	recurrent	recurrent	contract-yearly
Funding body	PCT	Social services amd PCT (support staff)	PCT
Annual budget	200000	474391	750000
Who makes decisions about the direction of the service?		Social services/health	PCT
Operational plan or strategy (Y/N)	No	No	Yes
Organisational setting / host institution	Primary Care Trust	Social Services	Primary Care Trust
SERVICE USERS			
Casemix / diagnostic groupings	Very mixed, stroke, falls, neuro, orthopaedic	Stroke falls, casemix, orthopaedic, operations, sden illness	Fallers, neuro, orthopaedic, frail elderly, sur gil, respiratory
Demographic profile	White, caucasian, male and female age 20-100	sex: mainly female, ethnicity: mainly white Brish	65+
Target population		Over 65s	none
Most common level of care required	1 Patient needs prevention / maintenance programme	4 Client needs regular rehabilitation programme	1 Patient needs prevention / maintenance programme

TEAM DETAILS	J	L	M
Length of time the service has existed	4 years	2 years 3 months	2 years
What is your role within your service	Service Manager	Lead Case Manager	Service manager
REASON FOR THE SERVICE			
Why was your service set up?	Facilitate A + E targets, admission avoidance	To facilitate discharges from hosptial and to support people with long term conditions - reduce hospital admissions	Unmet needs in the community
What is the primary goal of your service?	Prevention of unnecessary hospital admissions	Prevent hospital admissions and to suport people at home with long term conditions	Domicilary therapy provision - admission avoidance
ACCESS TO THE SERVICE			
Who refers into your service?			
GP		✓	✓
Self / informal / friend / family		✓	
Community nurse		✓	✓
Social worker		✓	✓
Accident and Emergency	✓	✓	✓
Ward in acute hospital		✓	✓
Community hospital			✓
Other			
How do clients access your service?	Single point of contact telephone referral service	Via single point of contact/Parr tool	Single point of contact - telephone referral. Rapid response team (further ther
Eligibility criteria	Aged 18+ years, medically stable, rehabilitation potential, acute health need, Wakefield GP registered	Chronic disease, medications, 2 or more hospital admissions, 2 or more A & E attendances, high resource utilisation patients	Medically stable, rehab potential (goals met within 6 weeks), Registered with wakefield West GP
Exclusion criteria	Mental health need is prodominant problem, aged under 18, not registered with WSDPCT GP, No rehab potential	-	Primarily mental health problems
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	Accident and Emergency	Client's home	Client's home
Other locations			Nursing home
Description of service	Urgent provision of unscheduled healthcare	Support to patients who live at home with a long term condition	Domicilary therapy provision
Facilities available	N/A	-	Hand portable equipment

Referrals taken per year	777	unknown	
Average duration of an episode of care	2.5 hours	Ongoing - very rare we discharge	6-8 weeks
Maximum duration of an episode of care	4 hrs	-	6 weeks unless extenuating ci rcstances
Hours of operation	8am-5pm monday to friday	monday-friday 9-5pm	8am-6pm monday to friday, 8am - 2pm saturday
Agencies worked with	Voluntary service - age concern, social services, mental health team	Voluntary, statutory, acute, mental health, all members of PHCT	Voluntary services, social services, mental health teams, acute hospitals, Wakefield District Housing, Council
Do clients pay for your service?	No	No	No
Professional background of the team leader	Nursing	RGN DN	Nursing
Single client file / client record used by all providers (Y/N)	No	Yes	No
Separate file / client record for social services (Y/N)	Yes	Yes	Yes
Separate files / client records for professionals (Y/N)	No	Yes	No
Common physical base (Y/N)	Yes	Yes	Yes
Frequency of operational meetings	weekly	weekly	weekly
Frequency of case conferences	weekly	as required	weekly
Management structure	Split management	Specific team manager	Split management
CONTEXT			
Size of the population served	157000	346233	157000
Type of population served (geographic)	Urban	Mixed	Urban
Proportion of population in area over 65 years old	23349	unknown	23349
Nature of funding	recurrent	recurrent	recurrent
Funding body	PCT & social services	PCT	PCT
Annual budget	537000	.	313000
Who makes decisions about the direction of the service?	Service manager, assistant director/commisioning	PCT	Service manager, AD adult services commisioning
Operational plan or strategy (Y/N)	Yes	Yes	Yes
Organisational setting / host institution	Acute Trust	Primary Care Trust	Primary Care Trust
SERVICE USERS			
Casemix / diagnostic groupings	elderly fallers, fractures, urinary tract infec tis, chest infections, acute OA	Urinary tract infections, chest infections, acu te pain leading to reduced mobility and not coping at home	Stroke, falls, orthopaedics, mobility issues, p ulnary rehab, respiratory
Demographic profile	18 years and over. Male 1/3, female 2/3. N o ethnicity info available	adults	1/3 male, 2/3 female. 18+ over, no ethnicit yfo available
Target population	Over 18 years, any acute health need with rehab potential to prevent admission	high intensity users of service	Over 18 years, rehab potential, prevention of acute admission
Most common level of care required	7 Client needs medical care and rehabilitation	1 Patient needs prevention / maintenance programme	4 Client needs regular rehabilitation programme

TEAM DETAILS	N	PA	PB
Length of time the service has existed	4 years		8 years
What is your role within your service		Team leader	Matron
REASON FOR THE SERVICE			
Why was your service set up?	Unmet needs in the community, admission avoidance		Reduce acute hospital admissions, set up following research project looking at nursing/res home admissions from hospital
What is the primary goal of your service?	Prevention of unnecessary hospital admissions	Provide stroke rehabilitation in the community	Facilitatie discharge from hospital and prevent acute admissions
ACCESS TO THE SERVICE			
Who refers into your service?			
GP	✓	✓	
Self / informal / friend / family			
Community nurse	✓		✓
Social worker	✓		
Accident and Emergency	✓		
Ward in acute hospital	✓	✓	✓
Community hospital	✓	✓	
Other	Ambulance service, Voluntary agencies	Consultants	
How do clients access your service?	Single point of contact, telephone referral service	Single Assessment Process referral form	Single point via intermediate care coordinator
Eligibility criteria	Aged 18+ years, medically stable, rehabilitation potential, acute health need, Wakefield GP registered	REhabilitation potential, had a stroke, over 18	Medically stable with a rehab need
Exclusion criteria	Mental health need is prodominant problem, aged under 18, not registered with WSDPCT GP, No rehab potential	Severe dementia, under 18	None
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	Client's home	Client's home	Community Hospital
Other locations			
	Accident and Emergency	Hospital - outpatient	
Description of service	Urgent provision of unscheduled healthcare`	community multidiciplinary team	Nurse led step down/step up facility
Facilities available	N/A		single rooms, 6 bed bay, therapy kitchen, physio/OT facilities and rooms
Referrals taken per year	728	approx 400	166
Average duration of an episode of care	16 days		40 days

Maximum duration of an episode of care	14 days (delayed discharges s kefigures)		10 months due to care pkages unavailable
Hours of operation	24/7 for 365 days	8am-430pm mon-fri	24 hrs per day 7 days per week
Agencies worked with	Voluntary service - age concern, social services, mental health team	Acute trust	Acute trust, voluntary esp red cross, local authority, mental health trust
Do clients pay for your service?	No	No	No
Professional background of the team leader	Nursing	Nurse	Nurse
Single client file / client record used by all providers (Y/N)	No	Yes	Yes
Separate file / client record for social services (Y/N)	Yes	Yes	Yes
Separate files / client records for professionals (Y/N)	No	No	Yes
Common physical base (Y/N)	Yes	Yes	Yes
Frequency of operational meetings	weekly	MOnthly	Weekly
Frequency of case conferences	weekly	weekly	As required
Management structure	Split management	Individual profession management	Split management
CONTEXT			
Size of the population served	157000	290400	289000
Type of population served (geographic)	Urban	.	Mixed
Proportion of population in area over 65 years old	23349	unsure	63300
Nature of funding	recurrent	recurrent	recurrent
Funding body	PCT	PCT, Social services	PCT
Annual budget	537000	142540	1417420
Who makes decisions about the direction of the service?	Service manager, assistant director/commissioning	PCT commissions service, Team involved in change/setting up PPI	Service planning process via bottom up, also based on government dir econ
Operational plan or strategy (Y/N)	Yes	Yes	Yes
Organisational setting / host institution	Primary Care Trust	Primary Care Trust	Primary Care Trust
SERVICE USERS			
Casemix / diagnostic groupings	reduced mobility and generally not coping at home	Stroke	Orthopaedic, falls, post op, medical
Demographic profile	18 years and over. Male 1/3, female 2/3. No ethnicity info available	any over 18	Mainly female, 75+ years, white biritsh
Target population	Over 18 years, any acute health need with rehab potential to prevent admission	over 18 who have had stroke	those requiring intermediate care
Most common level of care required	7 Client needs medical care and rehabilitation	4 Client needs regular rehabilitation programme	4 Client needs regular rehabilitation programme

TEAM DETAILS	Q	SA	SB
Length of time the service has existed	since 2000	1995 - 13 yrs	started 2001 (but many changes since)
What is your role within your service	service manager	Service manager	Service manager (nurse)
REASON FOR THE SERVICE			
Why was your service set up?	To provide proactive discharge and seamless therapeutic reablement service	Closure of stroke wards in secondary care to fund and facilitate support of stroke patients in community	A sister service to Adult intermediate care service based in A&E; Unmet needs in community
What is the primary goal of your service?	to prevent admissions to care/hospital settings where appropriate. To facilitate early discharge/avoid delays to discharge	Facilitate early discharge of stroke patients in hospital	Prevent avoidable hospital admissions
ACCESS TO THE SERVICE			
Who refers into your service?			
GP	✓	✓	✓
Self / informal / friend / family	✓		
Community nurse	✓		✓
Social worker	✓		
Accident and Emergency			
Ward in acute hospital	✓	✓	✓
Community hospital	✓		
Other			Emergency care practitioners
How do clients access your service?	assessment by team members	Single point of entry	Referred by a clinican
Eligibility criteria	medically stable, fit for discharge, can benefit from service provided, agrees to service	Patients have experienced a recent acute stroke and been assessed by specialist services as medically stable and would benefit from rehabilitation	At risk of imminent hospital admission, medically stable
Exclusion criteria	a few only: if felt not therapeutically beneficial/at risk of harm/injury, if expectations are not realistic/safe	Must have rehabilitation potential	Not at risk of admission to hospital
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	Client's home	Client's home	Client's home
Other locations			
	reablement unit	Nursing home	Nursing home
	sheltered flat	Resource Centre	Resource Centre
Description of service	primarily stepped down, social services assessment, coordination	Step down facility	Multi-disciplinary team accessed from the community to prevent avoidable hospita
Facilities available	own home, kitchen and lounge in reablement residential unit and flat	Equipment, adaptations	Office base for community staff

Referrals taken per year	460	365		2000
Average duration of an episode of care	49 days		62	4 weeks
Maximum duration of an episode of care	recently 206 days (rehousing ises)	12 weeks		6 weeks
Hours of operation	7 a.m.-10 p.m. direct care staff (seven days), 8:30 a.m.-5 p.m. office staf fi	9-5 weekdays		7 days per week, 8am-8pm weekdays, 8am-4pnm weekends and bank holidays
Agencies worked with	independent domiciliary care, in-house domiciliary care, social services, PCT, acute trust teams 18 up, voluntary sector support worker employees	Social services, voluntary groups		Neighbourhoods ad community care social work teams, home care, resource centres, community nursing service
Do clients pay for your service?	No	No		No
Professional background of the team leader	social work	Vacant post		Not stipulated (vacant)
Single client file / client record used by all providers (Y/N)	Yes	Yes		No
Separate file / client record for social services (Y/N)	Yes	Yes		Yes
Separate files / client records for professionals (Y/N)	No	No		No
Common physical base (Y/N)	Yes	Yes		Yes
Frequency of operational meetings	fortnightly (usually!)	Weekly		varied
Frequency of case conferences	ad hoc			weekly
Management structure	Split management	Specific team manager		Split management
CONTEXT				
Size of the population served	120000	.		.
Type of population served (geographic)	Mixed	.		Sub-urban
Proportion of population in area over 65 years old				
Nature of funding	specific grants and recurrent			recurrent
Funding body	social services departments/PCT			PCT
Annual budget	.	.		.
Who makes decisions about the direction of the service?	PCT/social services local leads, CICT Board			PCT
Operational plan or strategy (Y/N)	Yes	.		Yes
Organisational setting / host institution	Social Services			Primary Care Trust
SERVICE USERS				
Casemix / diagnostic groupings	generic, MH (EMI), falls, orthopaedic, confidence building,			Falls, UTIs, Chest infections, General medical
Demographic profile	predominantly over 65, female, white British (reflects moorlands op population)			Predominantly older adults, white british
Target population	primarily over 65, generic (social care)			Older adults
Most common level of care required	4 Client needs regular rehabilitation programme	8 Client needs rehabilitation for complex profound disabling condition		5 Client needs intensive rehabilitation

TEAM DETAILS	SG	T	TA
Length of time the service has existed	more than 25 years	4 years	7 years
What is your role within your service	team manager	network lead manager	Manager of health side of team
REASON FOR THE SERVICE			
Why was your service set up?	the service was set up years ago as the day hospital for older people supporting rehabilitation needs of patients being discharged from hospital to home, and maintaining people in the community	to provide rehabilitation in the community. To prevent the avoidable acute hospital at missions. To prevent avoidable admissions to LTC.	to facilitate early discharge
What is the primary goal of your service?	prevent hospital admission, support hospital discharge, support people with ongoing rehabilitation needs	prevent avoidable acute hospital admission. Prevent avoidable admissions into LTC	Admission avoidance
ACCESS TO THE SERVICE			
Who refers into your service?			
GP	✓	✓	✓
Self / informal / friend / family		✓	
Community nurse	✓	✓	✓
Social worker	✓	✓	✓
Accident and Emergency		✓	✓
Ward in acute hospital	✓	✓	✓
Community hospital	✓	✓	✓
Other	Outpatients, Community services		
How do clients access your service?	Referral by any health or social care professional	single point of access. Direct telephone referrals to team.	Telephone or electronic SAP (single assessment process)
Eligibility criteria	medically stable, mainly require multidisciplinary assessment, cognitively able to follow the program of rehabilitation, Sheffield GP	18 years +, medically stable, support of GP, support from at least two nurses of the North East team, not fit the time limited intervention.	Registered with chesterfield GP, Over 18, have rehab potential, medically stable
Exclusion criteria	mental health status affecting ability to follow rehabilitation programme, outside catchment area without their own transport	no	under 18, have to be able to comply with rehab plan
SERVICE STRUCTURE AND ORGANISATION			
Main location of service provision	day hospital	Client's home	Client's home
Other locations	Client's home	Community Hospital intermediate care beds	Other residential home
Description of service	multidisciplinary team lead day rehabilitation service	integrated multidisciplinary service providing community short-term rehabilitati	Step-up

Facilities available	gym, daily/dining room, treatment rooms, interview rooms, IT, small group activity room, offices, kitchens, bathrooms, toilets, garden	two offices, 10 intermediate care beds, rapid responses	staff office + assment equipment store. Plus office/meeting room for manager and office for social service staff
Referrals taken per year	approximately 400 and approximately 100 reviews	382	267
Average duration of an episode of care	3-4 months	approximately 4 weeks	7 weeks
Maximum duration of an episode of care	one-year	six weeks	12 weeks
Hours of operation	Monday-Friday (excluding bank holidays)8-5.30p.m.	Monday to Friday 8:30 a.m. to 5 p.m.	Core hours (health) 8.30-4.30 Mon-Friday. Social service enablers: 7 days ae
Agencies worked with	community mental health teams, social services, specialist voluntary support services (e.g. Parkinson's disease Society, stroke Association)	county councils teams, health teams, private sector, voluntary sector, acute	District nurse service, charity groups and volunteers. Mental health teams
Do clients pay for your service?	No	No	No
Professional background of the team leader	nursing	social work	physiotherapist
Single client file / client record used by all providers (Y/N)	Yes	Yes	Yes
Separate file / client record for social services (Y/N)	Yes	No	Yes
Separate files / client records for professionals (Y/N)	No	No	No
Common physical base (Y/N)	Yes	Yes	Yes
Frequency of operational meetings	daily	Two weekly	monthly
Frequency of case conferences	as a when necessary	monthly	weekly
Management structure	Split management	Specific team manager	Other
CONTEXT			
Size of the population served	300000	.	99978
Type of population served (geographic)	Mixed	Mixed	Mixed
Proportion of population in area over 65 years old	59000		17996
Nature of funding	recurrent	recurrent	recurrent
Funding body	PCT	PCT/social services	PCT and social services
Annual budget	478532	.	628588
Who makes decisions about the direction of the service?	service manager	joint strategic management group	directors of service
Operational plan or strategy (Y/N)	.	Yes	Yes
Organisational setting / host institution	Primary Care Trust	Primary Care Trust & social services	
SERVICE USERS			
Casemix / diagnostic groupings	strokes, Parkinson's disease, falls, orthopaedic, arthritis, other neurological	a stroke, falls, orthopaedic, infections, surgical confusion	Neuro - mainly stroke, falls, orthopaedic, acut edical: "gone of legs" i.e. UT
Demographic profile	older adults mainly over 65 years. Male and female. Mainly white British. Fro	white British, +65, the 60% female, 40% male	Ethnicity - majority white population. Sex 70female, 30% male. Age: 1.5%: 18
Target population	/and Parkinson's disease - adult. Other - mainly older adult	anyone over the age of 18+	Over 18s, strples are getting younger year on year
Most common level of care required	1 Patient needs prevention / maintenance	5 Client needs intensive rehabilitation	5 Client needs intensive rehabilitation

programme

TEAM DETAILS	U
Length of time the service has existed	2 Years
What is your role within your service	Team leader
REASON FOR THE SERVICE	
Why was your service set up?	Unmet needs in the community
What is the primary goal of your service?	Prevention of hospital admission
ACCESS TO THE SERVICE	
Who refers into your service?	
GP	✓
Self / informal / friend / family	Community nurse
Community nurse	✓
Social worker	✓
Accident and Emergency	✓
Ward in acute hospital	
Community hospital	✓
Other	
How do clients access your service?	Telephone triage
Eligibility criteria	medical, social or rehabiltiation requried
Exclusion criteria	CVA must be investigated, over 18 only
SERVICE STRUCTURE AND ORGANISATION	
Main location of service provision	Community Hospital
Other locations	Client's home
Description of service	Step-up & nurse led
Facilities available	Office
Referrals taken per year	533
Average duration of an episode of care	11.2 days
Maximum duration of an episode of care	6 weeks
Hours of operation	8am-5pm, 7 days - proposed 8am-10pm
Agencies worked with	Social services, district nurses, community rehabilitation, community matrons, acute hospitals, community hospitals, voluntary sector, age concern, GPs, mental health

Do clients pay for your service?	No
Professional background of the team leader	District nurse
Single client file / client record used by all providers (Y/N)	No
Separate file / client record for social services (Y/N)	Yes
Separate files / client records for professionals (Y/N)	Yes
Common physical base (Y/N)	Yes
Frequency of operational meetings	Daily
Frequency of case conferences	As necessary
Management structure	Specific team manager

CONTEXT

Size of the population served	92242
Type of population served (geographic)	Rural
Proportion of population in area over 65 years old	5906
Nature of funding	recurrent
Funding body	PCT + Older people Partnership Forum
Annual budget	155438
Who makes decisions about the direction of the service?	Team leader and manager
Operational plan or strategy (Y/N)	Yes
Organisational setting / host institution	Primary Care Trust

SERVICE USERS

Casemix / diagnostic groupings	Falls, exacerbation of chronic illness
Demographic profile	white british
Target population	
Most common level of care required	Not given

Appendix 8 Summary of staff characteristics of participating teams

(From WDQ) (n=340)

	n	Age		Total time worked in current job: months		Hours contracted to work per week	
	4	Mean	SD	Mean	SD	Mean	SD
A	33	43.9	11.1	27.5	30.8	31.7	7.7
B	18	40.7	10.0	55.3	47.8	28.4	9.3
C	5	38.6	6.7	47.2	32.3	31.2	10.0
D	6	45.1	8.2	45.7	30.9	23.6	7.3
E	9	48.5	6.4	23.4	16.9	22.4	9.0
F	7	44.7	6.5	70.3	108.3	29.4	7.0
G	13	35.0	8.4	15.3	19.3	35.0	4.4
H	1	50.5	3.5	18.0	.	29.4	15.0
J	10	41.1	9.8	43.7	81.3	37.7	0.6
L	5	46.7	3.4	12.0	12.2	34.3	5.5
M	6	45.0	8.1	24.7	13.4	32.4	6.9
PA	5	37.2	6.8	50.6	29.1	27.6	9.2
PB	16	51.0	2.9	95.9	96.8	33.5	6.4
Q	10	44.8	9.3	40.1	26.2	31.3	6.6
SA	15	43.7	12.1	58.4	44.3	30.2	8.2
SB	44	41.2	10.4	39.7	33.2	30.1	8.7
SD	3	51.7	3.5	10.7	4.2	26.3	9.9
SF	3	43.3	5.0	42.3	18.0	37.5	0.0
SG	13	50.5	10.8	119.2	103.9	28.5	8.0
T	7	38.3	9.3	26.1	18.9	31.4	10.2
TA	17	42.5	8.1	56.4	26.6	29.6	6.9
U	3	49.8	3.7	11.0	6.9	37.5	0.0
W	4	46.3	6.3	19.0	14.8	32.7	7.7
X	5	53.3	9.8	68.2	48.9	35.8	2.9
Z	4	41.0	11.0	36.0	26.7	31.7	6.9

Appendix 9:Patient satisfaction results (all teams)

Question	N	Mean	Median	% complete*
Q1 My admission to the service was very efficient	609	4.3	4	97.4
Q2 The staff were very careful to check everything when I was admitted to the service	611	4.4	4	97.8
Q3 The admission fitted in with my home arrangements	605	4.3	4	96.8
Q4 The team gave me all the information I wanted about my condition	611	4.1	4	97.8
Q5 The team gave me all the information I wanted about the care I was receiving	609	4.3	4	97.4
Q6 While on the scheme I received care whenever I needed it	601	4.2	4	96.2
Q7 I had problems getting pain relief when I needed it	593	3.5	3	94.9
Q8 While on the scheme I received care from a doctor whenever I needed it	554	3.7	4	88.6
Q9 I had all the facilities necessary to care for me	602	4.2	4	96.3
Q10 I felt as a safe receiving treatment at home/the residential home as in hospital	588	4.2	4	94.1
Q11 The team did their best to help me become more independent	612	4.4	4	97.9
Q12 I felt able to talk to the team about any problems or worries I had	606	4.3	4	97
Q13 Sometimes visits from other teams disrupted my home arrangements	589	2	2	94.2
Q14 The staff always had time for me	613	4.4	4	98.1
Q15 I have been treated with kindness, respect and dignity by the staff from the service	618	4.6	5	98.9
Q16 The staff worked together and knew what each other was doing	603	4.2	4	96.5
Q17 I was well prepared for my discharge from the service	586	4	4	93.8
Q18 My discharge from the service was too early	567	2.3	2	90.7
Q19 The care I received after discharge was well co-ordinated	525	3.9	4	84

Q20 The team did everything they could to make me well again	596	4.3	4	95.4
Q21 The care I received on the scheme was just about perfect	603	4.1	4	96.5
Q22 There are some things the team could have done better	585	2.1	2	93.6
Q23 I'm happy with the amount of recovery I made while on the service	592	4.1	4	94.7

Summary patient satisfaction results by domain**	N	Mean	Median	% complete*
Overall satisfaction	613	80.1	78.8	98.1
Affective	612	86.5	86.7	97.9
Cognitive	613	74.7	76	98.1
Co-ordination of discharge	525	78.2	80	84
Timing of discharge	567	54.8	60	90.7
Access to pain relief	593	69.5	60	94.9

** Wilson et al. 2006. Domains calculated as average score if at least 50% of items scored. Answers are rescaled as 0-100; scores for Q7 and Q18 have been reversed.

Appendix 10:Summary of all team outcomes

Team ID	Modal level of care need	EQ-5D change	TOMS Impairment change	TOMS activity change	TOMS wellbeing change	TOMS participation change	Mean LOS	Mean no contacts / patient	Patient satisfaction
	%	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
A	4 (47%)	0.19 (0.29)	0.42 (0.82)	0.54 (0.91)	0.49 (1.01)	0.44 (0.92)	19.7 (17.6)	15.6 (16.8)	81.1 (11.0)
B	3 (23%)	0.10 (0.26)	0.31 (0.99)	0.33 (1.08)	0.30 (0.99)	0.31 (0.89)	69.2 (53.9)	11.5 (15.2)	76.1 (12.7)
C	5 (28%)	0.05 (0.37)	-0.19 (1.17)	0.16 (1.26)	0.03 (0.88)	-0.53 (1.38)	141.4 (53.2)	16.2 (14.9)	74.1 (2.9)
D	4 (51%)	0.13 (0.27)	0.67 (0.81)	0.64 (0.78)	0.45 (0.68)	0.49 (0.61)	52.9 (36.0)	16.9 (19.4)	81.4 (9.4)
E	3 (35%)	0.18 (0.32)	0.17 (0.92)	0.27 (0.88)	-0.06 (0.97)	-0.02 (0.86)	34.2 (31.9)	10.5 (12.3)	78.3 (9.9)
F	4(65%)	0.33 (0.32)	1.00 (0.76)	1.13 (0.85)	0.54 (0.60)	0.57 (0.71)	33.3 (23.3)	37.2 (36.4)	80.6 (10.0)
G	3 (33%)	0.24 (0.29)	0.56 (0.77)	0.63 (0.81)	0.49 (0.66)	0.30 (0.66)	32.0 (23.3)	8.5 (6.6)	80.9 (9.1)
J	1 (33%)	0.03 (0.16)	0.10 (0.32)	0.06 (0.23)	0.06 (0.26)	-0.01 (0.20)	1.1 (7.3)	2.7 (1.7)	81.8 (5.3)
L	6 (55%)	0.09 (0.20)	0.12 (0.42)	0.17 (0.38)	0.09 (0.54)	0.17 (0.54)	46.7 (27.4)	5.7 (4.1)	78.8 (8.4)
M	4 (32%)	0.19 (0.31)	0.24 (0.89)	0.37 (0.84)	0.23 (0.85)	0.11 (0.88)	40.4 (31.9)	10.5 (8.0)	76.2 (11.3)

Team ID	Modal level of care need	EQ-5D change	TOMS Impairment change	TOMS activity change	TOMS wellbeing change	TOMS participation change	Mean LOS	Mean no contacts / patient	Patient satisfaction
	%	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
N	1 (31%)	0.18 (0.33)	0.26 (0.62)	0.42 (0.72)	0.21 (0.79)	0.13 (0.88)	10.5 (23.1)	3.8 (7.3)	82.5 (7.6)
PA	4 (64%)	0.06 (0.43)	-0.44 (1.18)	-0.56 (1.12)	-0.63 (1.71)	-0.75 (1.58)	89.6 (49.0)	12.1 (15.2)	79.5 (8.0)
PB	4 (81%)	0.29 (0.23)	0.63 (0.79)	1.07 (0.75)	0.80 (0.73)	0.77 (0.82)	22.8 (12.0)	64.8 (27.8)	82.0 (7.5)
Q	4 (38%)	0.11 (0.25)	0.45 (0.94)	0.24 (0.89)	0.38 (1.02)	0.27 (0.92)	46.9 (31.0)	59.5 (45.7)	84.1 (7.6)
SA	4 (41%)	0.17 (0.25)	0.45 (0.58)	0.72 (0.57)	0.83 (0.81)	0.47 (0.81)	60.6 (42.6)	26.5 (22.4)	80.3 (12.6)
SB	4 (25%)	0.25 (0.32)	0.50 (0.84)	0.41 (0.80)	0.50 (0.91)	0.22 (0.84)	21.5 (18.8)	9.3 (9.2)	81.0 (7.9)
SG	1 & 5	0.00 (0.25)	0.15 (0.69)	0.03 (0.57)	0.12 (0.46)	-0.01 (0.66)	71.8 (41.2)	14.4 (14.3)	77.4 (9.9)
T	4 & 7 (28%)	0.30 (0.36)	0.52 (1.10)	0.68 (1.10)	0.53 (1.33)	0.30 (1.05)	21.8 (19.5)	37.2 (64.3)	79.2 (8.5)
TA	3 (27%)	0.18 (0.26)	0.46 (0.72)	0.53 (0.70)	0.48 (0.76)	0.35 (0.70)	32.2 (31.1)	9.2 (14.8)	79.0 (8.8)
U	7 (36%)	0.25 (0.37)	0.25 (1.03)	0.47 (1.17)	0.31 (0.96)	0.20 (1.14)	9.1 (12.4)	11.2 (14.5)	82.1 (8.8)
all teams	4 (30%)	0.18 (0.30)	0.40 (0.82)	0.47 (0.84)	0.39 (0.86)	0.27 (0.83)	32.9 (35.5)	14.3 (22.3)	80.1 (9.7)

Appendix 11 WDQ Team Responses

Team ID	n	Age	Access to technology and equipment	Autonomy	Integration with peers and colleagues	Management structures and styles	Quality of care	Role flexibility	Role perception	Team working	Training and career progression opportunities	Uncertainty
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
A	43	43.9 (11.1)	81.0 (16.2)	53.7 (26.0)	73.2 (22.1)	86.6 (12.8)	92.6 (10.4)	82.3 (15.5)	68.7 (15.7)	75.8 (14.4)	58.8 (18.9)	64.4 (15.7)
B	22	40.7 (10.0)	83.0 (15.1)	56.5 (19.1)	81.5 (23.0)	84.6 (13.1)	92.2 (8.2)	84.7 (9.5)	79.7 (10.6)	87.4 (9.6)	62.6 (14.5)	51.1 (19.7)
C	8	38.6 (6.7)	46.2 (25.8)	61.8 (14.5)	65.7 (22.3)	86.1 (19.1)	93.7 (6.3)	82.6 (9.9)	77.0 (17.1)	86.7 (15.5)	55.2 (21.8)	62.2 (26.9)
D	10	45.1 (8.2)	61.4 (28.7)	50.8 (39.6)	71.2 (30.5)	44.3 (29.6)	87.0 (10.0)	81.5 (14.1)	76.0 (10.7)	83.8 (7.1)	51.9 (27.3)	55.9 (12.8)
E	10	48.5 (6.4)	61.9 (21.0)	61.6 (31.2)	77.0 (31.6)	96.7 (7.0)	88.9 (13.4)	83.9 (12.0)	73.3 (8.2)	87.3 (9.4)	45.1 (15.5)	61.1 (11.0)
F	9	44.7 (6.5)	66.6 (22.5)	45.1 (28.0)	85.6 (17.2)	91.4 (15.0)	88.3 (29.1)	80.2 (15.7)	75.3 (9.2)	83.6 (9.8)	73.9 (18.7)	66.6 (18.5)

G	13	35.0 (8.4)	85.9 (11.6)	65.9 (24.2)	87.7 (19.4)	94.4 (9.0)	87.6 (11.1)	83.9 (6.8)	68.6 (14.1)	82.6 (11.7)	64.5 (15.6)	60.5 (21.0)
H*	2	50.5 (3.5)	43.1 (29.5)	34.7 (37.3)	83.3 (7.9)	94.4 (7.9)	88.9 (15.7)	73.5 (3.4)	81.5 (3.5)	77.8 (7.9)	76.4 (9.8)	54.2 (29.5)
J	11	41.1 (9.8)	89.9 (9.2)	63.9 (26.8)	73.3 (26.3)	86.3 (17.4)	87.9 (11.3)	72.0 (17.4)	66.9 (13.9)	75.3 (13.4)	62.8 (19.8)	55.8 (28.9)
L	6	46.7 (3.4)	57.4 (14.1)	53.7 (9.6)	74.7 (23.8)	82.2 (16.6)	93.5 (10.2)	84.6 (9.4)	68.9 (14.7)	85.5 (16.8)	73.9 (16.4)	45.8 (21.5)
M	8	45.0 (8.1)	74.7 (17.8)	65.3 (29.1)	52.8 (22.0)	85.6 (11.6)	79.9 (15.4)	71.8 (6.8)	64.0 (9.2)	62.5 (23.5)	53.1 (9.1)	40.6 (12.1)
PA	5	37.2 (6.8)	86.7 (9.1)	43.9 (30.4)	74.1 (30.5)	82.7 (12.2)	85.6 (10.8)	66.3 (8.6)	64.1 (23.6)	57.6 (29.2)	54.4 (24.9)	49.4 (11.4)
PB	4	51.0 (2.9)	81.7 (20.0)	49.9 (29.7)	82.1 (15.6)	89.8 (11.1)	93.0 (9.2)	68.6 (14.9)	69.7 (11.4)	77.3 (13.8)	60.7 (19.0)	59.2 (16.1)
SA	18	43.7 (12.1)	75.4 (18.4)	64.9 (25.1)	84.0 (22.5)	60.6 (30.7)	92.3 (6.4)	84.5 (10.3)	79.5 (11.3)	84.9 (11.6)	59.3 (14.3)	50.3 (13.7)
SB	52	41.2 (10.4)	69.7 (21.5)	62.6 (20.2)	79.3 (23.1)	62.9 (25.2)	83.9 (15.6)	74.4 (16.3)	67.7 (15.7)	74.4 (16.9)	51.2 (18.4)	48.0 (21.6)
SD*	3	51.7 (3.5)	74.1 (4.2)	67.9 (8.0)	74.7 (31.0)	71.1 (32.9)	75.9 (11.6)	71.6 (15.4)	59.7 (14.9)	80.4 (4.5)	47.1 (22.4)	36.2 (18.4)
SF*	3	43.3 (5.0)	84.3 (10.5)	76.9 (5.8)	75.3 (17.1)	74.8 (24.4)	88.9 (0.0)	63.6 (6.5)	72.0 (8.0)	85.2 (3.2)	32.9 (30.8)	25.0 (32.0)
SG	19	50.5 (10.8)	72.9 (21.6)	50.4 (33.2)	85.4 (16.4)	90.3 (11.8)	93.9 (8.7)	74.9 (15.9)	69.0 (17.6)	84.0 (13.0)	65.7 (17.6)	64.8 (14.0)
T	7	38.3 (9.3)	88.1	58.2	55.6	82.3	91.7	81.1	71.2	87.7	49.4	41.7

			(11.4)	(19.7)	(19.2)	(17.5)	(13.0)	(15.2)	(17.4)	(10.9)	(17.0)	(13.1)
TA	17	42.5 (8.1)	60.4 (19.8)	55.7 (21.1)	84.3 (19.5)	89.5 (13.6)	91.5 (7.9)	81.7 (11.4)	74.0 (8.0)	87.9 (8.0)	60.0 (19.4)	67.9 (12.5)
U	5	49.8 (3.7)	86.1 (18.8)	40.6 (47.0)	97.0 (4.1)	91.1 (10.8)	97.8 (5.0)	83.0 (12.7)	74.1 (13.5)	82.4 (10.1)	53.3 (16.6)	65.5 (10.9)
W**	6	46.3 (6.3)	90.7 (7.6)	59.7 (33.6)	87.4 (7.7)	73.0 (30.2)	74.1 (25.7)	65.4 (23.9)	63.0 (15.3)	66.1 (24.5)	64.6 (24.7)	57.8 (14.1)
X**	6	53.3 (9.8)	70.4 (24.0)	39.4 (38.2)	72.2 (23.6)	95.9 (6.4)	94.4 (9.3)	81.5 (0.0)	67.2 (17.8)	85.6 (8.7)	61.7 (17.8)	55.6 (7.3)
Z**	7	41.0 (11.0)	72.2 (18.6)	47.6 (17.4)	87.5 (11.3)	94.6 (5.7)	90.5 (10.5)	87.0 (9.8)	69.5 (18.7)	89.7 (8.5)	65.9 (23.8)	49.3 (15.8)
Total		43.4 (10.1)	74.7 (20.8)	56.5 (26.1)	78.1 (22.7)	81.0 (21.9)	89.5 (12.7)	78.9 (14.5)	71.0 (14.3)	80.1 (14.9)	56.3 (20.2)	52.7 (20.3)

WDQ Team Responses (Continued)

Team ID	n	Overall satisfaction	Intention to leave (employer)	Intention to leave (profession)
		Mean (SD)	Mean (SD)	Mean (SD)
A	43	71.8 (12.9)	71.0 (31.1)	81.7 (22.9)
B	22	72.2 (14.4)	77.8 (32.2)	83.1 (30.8)
C	8	68.3 (26.8)	79.2 (33.3)	94.4 (11.9)
D	10	71.6 (20.1)	91.4 (17.4)	88.9 (22.2)
E	10	76.5 (11.7)	88.9 (16.6)	94.4 (8.4)
F	9	75.3 (4.9)	86.4 (26.5)	88.9 (25.5)
G	13	64.1 (18.2)	69.2 (32.4)	76.1 (35.4)
H*	2	72.2 (7.9)	100.0)0.0)	100.0 (0.0)
J	11	65.7 (22.5)	71.1 (25.2)	92.2 (9.1)
L	6	72.2 (16.9)	85.2 (24.0)	97.8 (5.0)
M	8	58.3 (11.5)	63.9 (27.1)	73.6 (33.6)
PA	5	66.7 (13.6)	73.3 (33.9)	86.1 (21.0)
PB	4	64.9 (19.7)	71.2 (37.1)	73.9 (37.5)
Q	8	60.0 (19.0)	80.0 (27.6)	82.2 (31.1)
SA	18	65.4 (26.6)	81.0 (28.5)	84.6 (23.5)
SB	52	53.9 (24.5)	66.7 (36.6)	81.1 (32.0)
SD*	3	48.1 (35.7)	18.5 (32.1)	66.7 (29.4)
SF*	3	85.2 (6.4)	88.9 (11.1)	92.6 (6.4)
SG	19	67.3 (17.9)	63.2 (39.7)	80.9 (28.0)
T	7	77.8 (14.3)	98.1 (4.5)	84.4 (34.8)
TA	17	68.0 (18.0)	82.4 (30.7)	87.6 (25.7)
W**	6	66.7 (35.8)	66.7 (39.1)	81.5 (21.8)
X**	6	74.1 (18.1)	62.2 (47.5)	80.6 (38.9)
Z**	7	65.1 (20.7)	75.6 (42.6)	81.5 (40.2)
Total		66.4 (20.2)	73.8 (32.8)	83.0 (27.6)

Key

*	Withdrew from prospective study
**	Participated in WDQ only

Appendix 12 WDQ discipline / speciality results

Professional group or discipline		Access to technology and equipment	Autonomy	Integration with peers and colleagues	Management structures and styles	Quality of care	Role flexibility	Role perception	Team working
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Dietician	n=2	77.8 (7.9)	83.3 (-)	51.9 (57.6)	90.0 (11.0)	94.4 (7.9)	87.0 (2.6)	75.9 (2.6)	86.7 (4.7)
Nurse	n=64	76.2 (19.6)	69.7 (15.5)	73.0 (24.8)	82.6 (20.1)	91.0 (10.5)	79.3 (14.2)	71.7 (14.0)	80.4 (13.3)
Podiatrist	n=1	86.1 (-)	69.4 (-)	92.6 (-)	95.6 (-)	88.9 (-)	92.6 (-)	75.3 (-)	87.8 (-)
Social worker	n=16	82.1 (18.5)	57.8 (19.4)	79.5 (21.7)	85.3 (13.5)	85.1 (21.2)	83.9 (9.2)	70.7 (11.4)	85.3 (9.1)
Social care worker	n=7	92.1 (11.4)	41.7 (28.8)	87.0 (15.7)	87.6 (10.6)	91.3 (10.6)	76.9 (20.0)	65.1 (15.5)	79.4 (19.0)
OT	n=51	69.9 (19.7)	67.9 (14.6)	75.5 (21.2)	73.7 (23.8)	85.4 (13.5)	76.7 (12.7)	64.8 (14.7)	77.3 (13.5)
SLT	n=10	63.1 (20.3)	75.8 (15.3)	87.0 (17.4)	77.7 (23.9)	87.2 (12.6)	85.2 (9.9)	79.7 (10.2)	83.6 (16.2)
Other	n=11	81.1 (20.7)	63.8 (22.0)	83.0 (18.8)	87.5 (17.8)	90.9 (10.6)	83.6 (12.4)	73.7 (79.0)	82.5 (14.9)
Geriatrician	n=1	22.2 (-)	61.1 (-)	77.8 (-)	88.9 (-)	77.8 (-)	75.9 (-)	79.0 (-)	83.3 (-)
PT	n=61	62.2 (20.1)	74.9 (14.7)	77.4 (23.2)	74.4 (24.3)	85.3 (14.3)	79.5 (12.9)	74.2 (14.4)	78.5 (15.5)
Secretary	n=9	75.8 (18.4)	27.4 (18.4)	53.7 (25.5)	86.4 (16.9)	86.4 (18.0)	61.3 (29.3)	69.1 (18.0)	78.6 (18.0)
Support worker	n=86	82.7 (18.3)	27 (18.4)	83.5 (20.5)	85.5 (21.9)	94.6 (8.4)	78.7 (15.0)	70.9 (13.2)	81.3 (16.4)
Total	n=320	74.6 (20.8)	56.5 (26.1)	77.9 (22.8)	80.9 (21.9)	89.4 (12.8)	78.9 (14.5)	71.0 (14.1)	80.2 (14.8)

Professional group or discipline		Training and career progression opportunities	Uncertainty	Overall satisfaction	Intention to leave (employer)	Intention to leave (profession)
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Dietician	n=2	68.0 (11.6)	68.1 (21.6)	77.8 (15.7)	94.4 (7.9)	94.4 (7.9)
Nurse	n=64	58.0 (24.1)	50.8 (25.2)	67.9 (20.8)	72.6 (34.9)	88.2 (19.9)
Podiatrist	n=1	59.7 (-)	88.9 (-)	66.7 (-)	100.0 (-)	100.0 (-)
Social worker	n=16	65.1 (17.5)	52.4 (11.8)	68.1 (15.6)	88.9 (20.6)	89.6 (20.8)
Social care worker	n=7	56.3 (23.3)	57.4 (10.8)	65.1 (20.7)	71.4 (33.9)	74.6 (34.4)
OT	n=51	51.6 (17.8)	52.5 (19.8)	59.6 (22.9)	71.8 (31.0)	87.3 (21.4)
SLT	n=10	56.7 (19.0)	55.3 (14.0)	69.1 (13.4)	87.8 (16.1)	95.6 (10.7)
Other	n=11	65.6 (25.1)	54.5 (16.1)	80.0 (17.2)	67.8 (43.0)	61.1 (42.3)
Geriatrician	n=1	83.3 (-)	75.0 (-)	77.8 (-)	100	100.0 (-)
PT	n=61	50.5 (18.9)	52.4 (17.0)	60.7 (20.8)	75.4 (29.0)	86.0 (24.3)
Secretary	n=9	53.9 (15.0)	52.4 (23.1)	70.8 (19.6)	85.2 (70.4)	91.4 (18.2)
Support worker	n=86	59.0 (18.9)	53.8 (21.3)	69.7 (18.8)	70.4 (36.5)	72.4 (35.6)
Total	n=320	56.4 (20.3)	53.0 (20.3)	66.3 (20.4)	74.2 (32.5)	82.8 (27.8)

Appendix 13 Qualitative and Case Study Interview Schedules

COOP Staff Focus Group Proforma

Focus Group Discussion Checklist

Introductions

- researcher introductions
- purpose of the work
- aims of the focus group
- practicalities/timescale
    - assurance of anonymity/confidentiality within the group
    - ground rules
    - group introductions and roles

1. Can you describe the aims and objectives of the XXXXX IC service as you see them?

- is there a shared vision for the service?

2. Can you describe the way that your team is organised to deliver patient care, considering the roles of different staff members?

- who undertakes referral, assessments
- involvement of support workers
- who can modify the care plan

3. What do you see as being the main benefits of the way your service is staffed?

- for patients and carers? (examples)
- for staff? (examples)
- for the system in your area generally?

4. What do you see as being the main difficulties of the way your service is staffed?

- for patients and carers? (examples)
- for staff? (examples)
- for the system in your area generally?
- Are there any gaps in staffing provision?

5. What do you see as being the main difficulties or challenges in delivering the service?

- resources?
- workforce/capacity?
- culture?
- relationships?

6. How would you describe the working relationships between those of you who provide the XXXXX service?

- any inter-professional tensions
- any issues re: dedicated and non-dedicated staff members?
- relationship between team and managers/co-ordinators?
- any OD to support team working?
- what has helped? What has hindered relationships? (e.g. common team base, team building)

7. Do you have any comments on your own roles and responsibilities as members of the XXXX team?

- any issues re: lack of role clarity?
- role overlap between team members?
- new roles emerging (examples – assistant practitioners)
- sufficient support/training to perform roles?

8. Do you have any reflections on the processes of managing the service?

- nature/frequency of team meetings
- decision making? (service development/management)
- location of service (and issues for management and working practices)
- comments on information systems and information transfer
- security and nature of funding (e.g. joint) and implications

9. What do you see as the key workforce priorities for the XXXX service for the next twelve months?

-organisational/management development?

- planned service development changes?

10. Other issues

- any other points to raise?

Thank you for your participation

11. Post interview comments:

Appendix 14 Discrete Choice Experiment Interview Schedules

The University Of Sheffield.

School Of

Health

And

Related

CONFIDENTIAL

Patient Preferences of Models of Care in Community and Intermediate Care Services

Questionnaire for study-to be completed by interviewer

Patient study ID _____

Interviewer ID _____

Date _____

Time _____

DCE interview schedule (Version B)

Introduction

"I am now going to ask a few questions about the type of care that you would ideally like to receive. To do this we have described your care in term of three things; where it is received, how often, and who is most involved."

"I will give you a choice between two different types of care, and then ask you, which you would prefer to receive."

"You answers will not affect the care you receive, but will help us to plan future care for patients."

"If you feel that you don't want to complete the interview, we can stop at any time"

Explanation

"When we describe the different places where care can be received, I will mention; care at home, care in a hospital while staying there, care during outpatient visits, and care while staying in a nursing home for 2 or 3 days".

1a. "Do you understand the difference between these different places?"

Yes			No	

If 'No', give further detail to the patient.

1b. “Where do you receive your care?”

Free text answer _____

“That is most like …(please select one of the options below)”

At home	
Outpatient visits	
In hospital	
While staying in a nursing home for 1 week	

“When we describe the <u>different numbers of times you have contact with a health care professional</u>, I will mention; once per week, 3 times per week, 7 times per week and 15 times per week”.

2. “How many times a week do you currently have contact with a health care professional?”

Free text answer _____

“When we describe the <u>different people</u> that deliver most of your care, I will mention; a support worker, a nurse, a therapist and a doctor. A support worker is a person who is unable to provide any therapy or medical care, but is highly skilled in helping patients with their everyday lives. A therapist is a person who can not provide medical care, but is trained to provide other types of care such as physiotherapy, or speech and language therapy.”

3a. “Do you understand the difference between these people?”

Yes			No	

If ‘No’, give further detail to the patient.

3b. "Which type of person has delivered most of your care?"

Free text answer _____

"That is most like …(please select one of the options below)"

Support worker	
Nurse	
Therapist (state specific type)	
Doctor	

4a. How important to you is the place where you receive your care?

Very important		Quite important		Little importance		Not important

4b. How important to you is the number of times that you receive care from a health service worker?

Very important		Quite important		Little importance		Not important

4c How important to you is the type of health service worker that delivers most of you care?

Very important		Quite important		Little importance		Not important

Start of the questions

"Firstly, can I ask, what type of therapist would you consider to be of most use to you?"

Physiotherapist	
Dietician	
Podiatrist	
Speech and language therapist	
Social worker	

Other, please specify _____

5. "Can I ask whether you are able to hold and read some cards that I have? They look like these" [show 'Choice 1']

Yes			No	

If 'No', then say "That's okay, I can read out the questions to you".

If 'Yes'

"What I will do, is read the card out. Firstly, reading out the type of care described under 'A'. I will then read out the type of care described under 'B'."

Pass Choice 1 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 1

Type of care A	**OR**	**Type of care B**
Care in your own home, with		Care in your own home, with
Contact 3 times per week with health care workers, and		Contact 7 times per week with health care workers, and
A nurse delivering most of your care		'Their preferred therapist' delivering most of your care

C1. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 2 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 2

Type of care A	**OR**	**Type of care B**
Care at outpatient visits,		Care in a residential home, with
Seven times per week, and		Contact 3 times per week with health care

		workers, and
A support worker delivering most of your care		A support worker delivering most of your care

C2. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 3 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 3

Type of care A	**OR**	**Type of care B**
Care in a residential home, with		Care in hospital, with
Contact 3 times per week with health care workers, and		Contact 7 times per week with health care workers, and
A support worker delivering most of your care		A nurse delivering most of your care

C3. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 4 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 4

Type of care A	**OR**	**Type of care B**
Care at outpatient visits,		Care in hospital, with
Fifteen times per week, and		Contact 3 times per week with health care workers, and
A nurse delivering most of your care		'Their preferred therapist' delivering most of your care

C4. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 5 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 5

Type of care A	OR	Type of care B
Care in hospital, with		Care at outpatient visits,
Contact once per week with health care workers, and		Seven times per week, and
A doctor delivering most of your care		A support worker delivering most of your care

C5. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 6 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 6

Type of care A	OR	Type of care B
Care in your own home, with		Care at outpatient visits
Contact 7 times per week with health care workers, and		Fifteen times per week, and
'Their preferred therapist' delivering most of your care		A nurse delivering most of your care

C6. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 7 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 7

Type of care A	**OR**	**Type of care B**
Care in a residential home, with		Care at outpatient visits
Contact 15 times per week with health care workers, and		Once per week, and
'Their preferred therapist' delivering most of your care		'Their preferred therapist' delivering most of your care

C7. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 8 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 8

Type of care A	**OR**	**Type of care B**
Care in hospital, with		Care in a residential home, with
Contact 3 times per week with health care workers, and		Contact 7 times per week with health care workers, and
'Their preferred therapist' delivering most of your care		A doctor delivering most of your care

C8. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

How difficult did you find it to answer the choice questions?
1. Very hard
2. Hard
3. Okay
4. Easy
5. Very easy

Did the descriptions of care seen sensible?
1. Very sensible
2. Moderately sensible
3. Okay
4. Not sensible
5. Made no sense

If the respondent answers '4' or '5', ask why?

Did they miss out any aspects of your care that you feel are important? If yes, what are they?

"Thank you for your help".

Patient study ID _____

Interviewer ID _____

Date _____

Time _____

DCE interview schedule (Version A)

Introduction

"I am now going to ask a few questions about the type of care that you would ideally like to receive. To do this we have described your care in term of three things; where it is received, how often, and who is most involved."

"I will give you a choice between two different types of care, and then ask you, which you would prefer to receive."

"You answers will not affect the care you receive, but will help us to plan future care for patients."

"If you feel that you don't want to complete the interview, we can stop at any time"

Explanation

"When we describe the different places where care can be received, I will mention; care at home, care in a hospital while staying there, care during outpatient visits, and care while staying in a nursing home for 2 or 3 days".

1a. "Do you understand the difference between these different places?"

Yes			No	

If 'No', give further detail to the patient.

1b. "Where do you receive your care?"

Free text answer _____

"That is most like …(please select one of the options below)"

At home	
Outpatient visits	
In hospital	
While staying in a nursing home for 1 week	

"When we describe the <u>different numbers of times you have contact with a health care professional</u>, I will mention; once per week, 3 times per week, 7 times per week and 15 times per week".

2. "How many times a week do you currently have contact with a health care professional?"

Free text answer _____

"When we describe the <u>different people</u> that deliver most of your care, I will mention; a support worker, a nurse, a therapist and a doctor. A support worker is a person who is unable to provide any therapy or medical care, but is highly skilled in helping patients with their everyday lives. A therapist is a person who can not provide medical care, but is trained to provide other types of care such as physiotherapy, or speech and language therapy."

3a. "Do you understand the difference between these people?"

Yes			No	

If ‘No’, give further detail to the patient.

3b. “Which type of person has delivered most of your care?”

Free text answer _____

“That is most like …(please select one of the options below)”

Support worker	
Nurse	
Therapist (state specific type)	
Doctor	

4a. How important to you is the place where you receive your care?

Very important		Quite important		Little importance		Not important

4b. How important to you is the number of times that you receive care from a health service worker?

Very important		Quite important		Little importance		Not important

4c How important to you is the type of health service worker that delivers most of you care?

Very important		Quite important		Little importance		Not important

Start of the questions

"Firstly, can I ask, what type of therapist would you consider to be of most use to you?"

Physiotherapist	
Dietician	
Podiatrist	
Speech and language therapist	
Social worker	

Other, please specify _____

5. "Can I ask whether you are able to hold and read some cards that I have? They look like these" [show 'Choice 1']

Yes			No	

If 'No', then say "That's okay, I can read out the questions to you".

If 'Yes'

"What I will do, is read the card out. Firstly, reading out the type of care described under 'A'. I will then read out the type of care described under 'B'."

Pass Choice 1 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 1

Type of care A	**OR**	**Type of care B**
Care in your own home, with		Care in a residential home, with
Contact 15 times per week with health care workers, and		Contact once per week with health care workers, and
A doctor delivering most of your care		A nurse delivering most of your care

C1. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 2 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 2

Type of care A	**OR**	**Type of care B**
Care at outpatient visits		Care at outpatient visits,
Once per week, and		Three times per week, and
'Their preferred therapist' delivering most of your care		A doctor delivering most of your care

C2. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 3 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 3

Type of care A	**OR**	**Type of care B**
Care in a residential home, with		Care in a residential home, with
Contact 7 times per week with health care workers, and		Contact 15 times per week with health care workers, and
A doctor delivering most of your care		'Their preferred therapist' delivering most of your care

C3. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 4 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 4

Type of care A	**OR**	**Type of care B**
Care in your own home, with		Care in hospital, with
Contact once per week with health care workers, and		Contact once per week with health care workers, and
A support worker delivering most of your care		A doctor delivering most of your care

C4. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 5 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 5

Type of care A	**OR**	**Type of care B**
Care in hospital, with		Care in hospital, with
Contact 7 times per week with health care workers, and		Contact 15 times per week with health care workers, and
A nurse delivering most of your care		A support worker delivering most of your care

C5. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 6 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 6

Type of care A	**OR**	**Type of care B**

Care at outpatient visits,		Care in your own home, with
Three times per week, and		Contact 15 times per week with health care workers, and
A doctor delivering most of your care		A doctor delivering most of your care

C6. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 7 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 7

Type of care A	**OR**	**Type of care B**
Care in a residential home, with		Care in your own home, with
Contact once per week with health care workers, and		Contact 3 times per week with health care workers, and
A nurse delivering most of your care		A nurse delivering most of your care

C7. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

Pass the Choice 8 to the patient. Read out the card. Leave them a moment while they read through and think about it.

"If you were to have a choice about the type of care you received, and only these two types were on offer, which would you prefer?"

Choice 8

Type of care A	**OR**	**Type of care B**
Care in hospital, with		Care in your own home, with
Contact 15 times per week with health care workers, and		Contact once per week with health care workers, and
A support worker delivering most of your care		A support worker delivering most of your care

C8. "Do you prefer A, or do you prefer B, or don't you know?"

A			B		Don't know	

Did the patient ask further questions when trying to read or answer the question?

Yes			No	

How difficult did you find it to answer the choice questions?
1. Very hard
2. Hard
3. Okay
4. Easy
5. Very easy

Did the descriptions of care seen sensible?

1. Very sensible
2. Moderately sensible
3. Okay
4. Not sensible
5. Made no sense

If the respondent answers ‘4’ or ‘5’, ask why?

Did they miss out any aspects of your care that you feel are important? If yes, what are they?

SDO project (08/1519/95)

Appendix 15: Interdisciplinary Management Tool

2009

Interdisciplinary Management Tool - Workbook

Tony Smith

Andrew Booth

Adele Blinston

Steven Ariss

Susan Nancarrow

ISBN 1 900752 22 0

The Interdisciplinary Management Tool – Workbook (Version 1) was devised by and developed by: -

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Andrew Booth
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Dr Steven Ariss
Adele Blinston

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Other references about team working in UK health services.

Disclaimer:

This report presents independent research commissioned by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, the NIHR SDO programme or the Department of Health. The views and opinions expressed by the interviewees in this publication are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, the NIHR SDO programme or the Department of Health"

Addendum:

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The management of the SDO programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Although NETSCC, SDO has conducted the editorial review of this document, we had no involvement in the commissioning, and therefore may not be able to comment on the background of this document. Should you have any queries please contact sdo@southampton.ac.uk.

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